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Throughout the Index the following abbreviations are used to indicate the nature of the references:—

(Pat.) Patent News. (Cor.) Correspondence. (Soc.) Societies' Meetings. (Rev.) Review or Trade Notice. (Ans.) Answers.
(Anal.) Analecta.

The Index includes several Sub-Indexes—

Bankruptcies, Companies Registered, Exhibitions, Names, New Trade, Obituary, Patents (Authors of),

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SUPPLEMENTS.

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SUMMARY.

MM. Lumière and Seyewetz have advised a modified method of factorial development. They commence development with a solution containing little alkali, and thus giving a longer period before the first appearance. According to the time of this first appearance they modify the developer and use it for a greater or less total time. (P. 3.)

An exhibition of portraiture by Herr Dührkoop is to open in London about the middle of the present month. (P. 2.)

An American girl who shot a free-portrait canvasser through the heart has been acquitted. (P. 3.)

More "Studio Scenes."—The incident of the dissatisfied woman. (P. 8.)

A protest against some methods of the press photographer occurs with other subjects under "Correspondence." (P. 15.)

Mr. W. Foster Brigham contributes some notes giving a professional photographer's opinion of and first experience with the new "Ensyna" paper. (P. 4.)

The first portion of a paper describing experiments in colour-sensitising of chloride emulsions is given on page 5.

Anastigmat lenses and roll-film spools figure among patents of the week. (P. 9.) We shall in future give the date of application of patents, particulars of which we give on publication of the specifications.

"COLOUR PHOTOGRAPHY" SUPPLEMENT.

A recent paper by Dr. W. Merckens on the bleach-out process describes the properties of certain dyes in reference to their absorption by gelatine and other bodies. (P. 1.)

Dr. J. H. Smith has worked out, from the dimensions of the Lumière Autochrome film, the most advisable angle at which mirrors should be placed around the transparency with a view of securing the greatest rapidity of printing from the Autochrome on to bleach-out paper. In order to secure the Autochrome from injury by heat during printing, Dr. Smith conducts a thin stream of water over the glass side. (P. 2.)

A French worker has recommended the use of mercuric iodide as a substitute for the usual Autochrome intensifier. (P. 5.)

A further modification of the Kraysn mosaic filter-screen has been suggested. (P. 8.)

We quote from "Camera Craft" some points in Autochrome manipulation advised by Dr. D'Arcy Power. (P. 5.)

We give an abstract of the recent lengthy paper by Mr. H. E. Ives on the Lippmann process. (P. 7.)

EX CATHEDRA.

The Presidency of the R.P.S.

We are quite sure we express the satisfaction of many others than ourselves at the announcement in the current "Photographic Journal" that Mr. J. C. S. Mummery has consented to accept nomination for a third term of office as President. During the two years he has presided over the affairs of the R.P.S. Mr. Mummery has proved himself so thoroughly a "safe" president, and one ready to shirk no personal labour in the interests of the society, that his consent to allow himself to be nominated for President a third year should be received with marks of gratitude on the part of members. This should be all the more particularly the case in view of the intimation that building operations adjoining the society's house are immediately contemplated, and must inevitably involve negotiations in which the President's professional help will be as valuable as it was during the reconstruction of the present lecture-hall at 66, Russell Square.

* * *

"When Found, Make a Note of."

The policy of that eminent man Captain Cuttle is one which we feel constrained to re-emphasise when we read in a morning paper of a Member of Parliament having sent as a greeting to every one of his constituents a portrait of himself. Perhaps such a polite reminder of himself to his electors has been done by many another M.P., but if so, we do not happen to have heard of it. But whether that be the case or not, the incident should be entered in the photographer's diary of the year in the shape of a memorandum to approach the local Parliamentary representative or candidate, or other local personage, in sufficient time for him to consider and carry out a proposition of a similar kind. We have reason to think that many a good order, which outsiders will describe a piece of luck for those to whom it falls, is the result of careful nursing of a preconcerted plan, and of a prudent taking of time by the forelock.

* * *

An Idea in Christmas Presents.

Further, apropos of debating means of Christmas business for the next festive season, we may refer to a novelty issued by the firm of Taprell, Loomis and Co., of Chicago, in the shape of a leather letter case for the pocket, made of enamelled leather, and provided with space for the insertion of a quarter-plate print in an oval cut-out. The case is fitted with useful pockets for letters and cards, and with a mirror, it being intended as a present for the fair sex. It might, however, be caused to contain a writing tablet for memoranda, and would then possess a character which would make it suitable for presentation to men, or, at any rate, render it less useless than many of the "useful

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Christmas presents" which fill the shop windows. The article of the Chicago firm is not intended to be cheap. It is priced at 5s. to 6s., for resale (with photograph) at 12s. 6d. or 15s. There is no doubt that photographers and the trade catering for them might attract business in the Christmas-present line by providing novelties of this kind.

* * *

The Permanency of Varnished Negatives.

In reference to our recent note on the precautions advisable in varnishing gelatine negatives, we have been much interested in examining some negatives sent to us by the firm of Fallowfield, in the Charing Cross Road. They are some of a batch brought to light by a customer of the firm, and known to be at least thirty, and probably forty-five, years old. From the labelled bottles found in the box with them, it is evident that the negatives were made and varnished with the preparations supplied at that remote date by Mr. Fallowfield in Lower Marsh, Lambeth. The negatives are wet collodion, and would appear to be as vigorous as on the day they were made. This, we think, is confirmation of the warning we gave as to the importance of ensuring the perfect dryness of the gelatine film when varnishing a negative, and, further, of taking even minor precautions to prevent access of moisture. The fact that the collodion film is far less absorbent of moisture is largely responsible for the high state of preservation of such negatives, and the maker of gelatine negatives which are desired to last will be well advised in taking every measure which will bring the conditions into correspondence with those of the collodion era.

* * *

A Dührkoop Show in London Again.

We are glad to see that a second opportunity is to be afforded of seeing a collection of the portraiture of Herr R. Dührkoop, of Hamburg. An exhibition of portraits by him will be opened at the rooms of the Royal Photographic Society, 66, Russell Square, from January 12, on which date an address relating to Dührkoop's work will be delivered by Mr. E. O. Hoppé. The last couple of years have seen quite a step forward in the pictorial quality of Herr Dührkoop's work, for, as those acquainted with its author well know, stagnation and a stereotyped style are the last things of which one would accuse our "lebhaften Freund" of Hamburg. We had the opportunity some months ago to look through a portfolio of prints by Dührkoop, selected during, perhaps, the past ten years, by a well-known art critic in Germany. A good proportion were works which Herr Dührkoop, perhaps for private reasons, has never shown in this country, but we could not help feeling that practically all should be included in a collection intended to represent the development of this talented professional photographer.

* * *

The Ideal Stereo Print.

Recently a number of stereoscopic slides by modern workers have passed through our hands, and we could not help noticing the prevalence of one very marked fault. With a very few exceptions the prints were far too hard in character. By themselves they were clean, plucky P.O.P. prints, but this is not the type desirable in a stereo slide, for the stereoscope exaggerates contrast in a marked degree. The ideal print is full of detail, but not by any means full of contrast. It should, in fact, be rather lacking in contrast, and quiet, not to say dull, in appearance. Black and white are better absent altogether, for the one will be too black and the other too white in the stereoscope. Some of the best prints we have seen were almost depressingly flat when looked at singly, but in the stereoscope this flatness quite disappeared, for the effect of relief induced by the stereo-

scopic conditions caused all the gradations to stand out, and gave what virtually amounted to an effect of contrast. It should be remembered that contrast in pictures is valuable mainly for imparting emphasis, or for giving relief to the principal features. In stereoscopic work we arrive at the same result by altogether different and less artificial means, and anything approaching an exaggerated contrast is not merely unnecessary but actually displeasing. The prints can hardly be too soft in character, provided they are full of detail and gradation.

EVEN ILLUMINATION IN THE LANTERN.

VERY curious advice is sometimes given to the user of an enlarging lantern. He is told that if the light is sufficiently intense he can improve the uniformity of the illumination by placing ground glass between the lenses of his condenser, for which purpose he has to get a circle of ground glass specially cut. If such an expedient is adopted with lights, such as oil or incandescent gas lamps, the exposure becomes prolonged to a wearisome and impracticable extent, but these are almost the only lights in general use with which any difficulty as to illumination is felt. With powerful lights, such as acetylene, limelight, or the arc lamp, exposure is short, and its prolongation by ground glass would not be so inconvenient, but then it is quite unnecessary, because there is no difficulty whatever in producing an even disc with one of these three lights. Again, with the Nernst lamp there is no trouble excepting with small aperture lenses, with which even the ground glass expedient is not very satisfactory. Difficulty in obtaining even illumination is only serious with large and irregularly shaped sources of light, and these are all weak lights. The powerful lights are all small, and the only necessary condition to good illumination is proper adjustment, which is precisely where the amateur worker with little practice breaks down. In many cases he forgets that the light requires re-adjustment when the scale of the enlargement is varied, and in any case the adjustment is more trouble to him than to the expert. When using the weaker and larger sources of light it is advisable to be content with a modest degree of enlargement. With big scales the difficulties increase, and small aperture lenses are also unsatisfactory as a general rule. With the incandescent mantle an image of the mantle meshes is often troublesome, but this is mainly due to the use of a worn-out mantle, the threads of which are very thin. A new mantle will generally get rid of this trouble, and careful adjustment will then give remarkably even illumination with a lens of not less than about $f/8$ aperture.

For effectiveness and simplicity there is much to be said in favour of the old expedient of using magnesium ribbon as the illuminant for enlarging. The best and most economical way of using it is to cut the ribbon into short lengths, say of four to five inches, and to wave the burning ribbon about systematically behind the negative. The proper system to follow is that of "hatching" the picture with lines of light, horizontally and vertically, and sometimes diagonally. It is astonishingly easy to get good illumination in this way, and the method has the further advantage of enabling us to just as easily produce an uneven degree of illumination that will compensate for the inequalities of an unevenly dense negative. An enlarging camera is, of course, the best apparatus to use when magnesium is employed in this fashion. The negative should be backed with ground glass, and about an inch behind this a second piece of glass, ground side towards negative, should be fixed. The ribbon is then moved about close behind the second piece, care being taken to cover a rectangle two inches wider and higher than the negative.

The only objection to the use of ribbon that we know of is the smoke, which is certainly troublesome in a small room. Exposure is regulated very simply by varying the number of strips of ribbon used. It may, perhaps, be as well to point out that magnesium wire is of no use for this purpose, as it will not burn regularly. The ribbon alone

is of use, and wide ribbon is better than narrow. These points are mentioned because photographers often describe magnesium ribbon as wire, perhaps not knowing that real wire is actually obtainable. We know of at least one photographer who laid in a stock of wire under the impression that it was the right thing to use.

ON A METHOD OF DEVELOPMENT WITH PYRO-GALLIC ACID WHEN DEALING WITH UNDER AND OVER-EXPOSURE.

We recently pointed out a method of development for Autochrome plates allowing of the correction of over-exposure and of the improvement of under-timed exposures. This method is based on the variation of the time of development and on the quantity of alkaline solution added to the developer, according to the degree of over-exposure. An idea of this latter is obtained from the time of appearance of the first outlines of the image in a developer containing only a very small quantity of alkali. Our method differs from that of Watkins in the use of a developing solution containing at the start very little alkali. In the Watkins method the normal developer is used, and consequently the difference of time of first appearance of the image is comparatively small, even in the cases of considerable differences of exposure. It is thus very difficult, if not impossible, in cases of slight over-exposure, to determine exactly the time required for the appearance of the image. Moreover, the composition of the bath being constant, the time of development is the only factor which can be applied in the case of over- and under-exposure, and this factor alone is very inadequate to produce a proper correction of the exposure.

The method which we suggest (it having given us very satisfactory results with Autochrome plates) has been considered by us suitable for application to ordinary plates. In this case the employment of the ammonia is not indispensable, as it is with the Autochrome plate, and we have therefore used as an alkali carbonate of soda, which is naturally preferable to the ammonia. After a number of experiments we have been led to the following formula, which appears to answer admirably for the process recommended:—

- A.—Pyro 30 gms. ... 260 grs.
 Soda bisulphite (commercial solution) 10 ccs. ... 1½ drams.
 Water 1,000 ccs. ... 20 ozs.
- B.—Soda carbonate (anhydrous) 35 gms. ... 310 grs.
 Soda sulphite (anhydrous).. 75 gms. ... 660 grs.
 Potass. bromide 5 gms. ... 44 grs.
 Water 1,000 ccs. ... 20 ozs.
- A, 10 ccs. ; B, 20 ccs. ; water, 90 ccs.

This is the normal developer, and is the formula which can be used straight-away for correctly exposed negatives.

In order to accentuate the differences between the times of exposure of plates which have received varying exposures, we

employed first only half of the normal quantity of the alkali B solution ; that is to say, the developer was made as follows :

A, 10 ccs. ; B, 10 ccs. ; water, 90 ccs.

We determined, by experiment, the relative proportions of the two solutions, A and B, which should be used in order that the time of development of plates which have received a certain multiple of the correct time of exposure may be dealt with.

The times of appearance of the image varying with the nature of the plate, we made experiments with plates of three different types of sensitiveness, namely, Lumière Blue-Label, the Lumière "Sigma" plate, and the Lumière Violet-Label. From the number of seconds, counted up to the appearance of the first outlines of the image, were found the quantities of solutions A and B to be added to the original developer. These indications are given in the following table, which applies to the developing solutions of temperatures between 15 and 17 deg. C.

Time of appearance of first outlines of image, not counting the sky.		Degree of exposure, <i>i.e.</i> , ratio of exposure given to the correct exposure.	Solution added immediately after the appearance of the first outlines.	Total time of development including time of appearance
"Sigma" and Blue-Label Plates.	Violet-Label Plates.			
Minutes. 2·25 to 2·40	Minutes. 1·55 to 2·5	8 times	20 ccs. A	Minutes. 18
2·41 to 3·15	2·6 to 2·20	4 "	10 " A	18
3·16 to 3·30	2·21 to 2·45	2 "	nil	15
3·31 to 3·50	2·45 to 3·10	normal	10 ccs. B	12
3·51 to 4·15	3·10 to 3·40	½ "	15 " B	13
more than	4·15 to 3·40	¼ "	20 " B	13

For a temperature above 17 deg. or below 15 deg. the rule of Houdaille is used.¹

With this new method of development it is possible to determine, in a very approximate way, the degree of over- and under-exposure of a plate. In the case of over-exposure the correction which can be made by means of a modified developer is such that one can obtain from plates, which have received eight to ten times the correct exposure, negatives which have their contrasts almost as good as those of plates correctly exposed.

A. AND L. LUMIERE.
 A. SEYEWETZ.

¹ "Bulletin de la Société Française de Photographie," 1904, page 97. For each degree below or above 15 deg., add to or subtract from the total time of development to the extent of 5 per cent.

AN ENLARGEMENT CANVASSER SHOT.—Shooting, she alleges, in defence of her sister, Miss Estella Stout, on December 1, in Chicago, killed Henry Hornberg, agent for a picture enlarging concern. Mrs. A. Chambers, a sister of Miss Stout, quarrelled with Hornberg, according to the police, over an enlarged picture of a third sister, who is dead, when Hornberg called to deliver it. Mrs. Chambers asserted that the picture was not a good likeness, and Hornberg,

she said, knocked her down. As she rose she saw her sister, Miss Stout, standing with a smoking revolver in her hand, and her assailant dead, with a bullet through his heart. Miss Stout admitted firing the shot, averring that she did so to save her sister's life. Both women awaited the arrival of the police and accompanied them to the police station. On December 3 the coroner's jury acquitted Miss Stout.—"Bulletin of Photography."

PROFESSIONAL EXPERIENCES WITH THE NEW "ENSYNA" PAPER.

[The following contribution, describing the use immediately made of the new paper of Messrs. Houghtons by a professional photographer, performs the necessary task of emphasising the radical difference between this and other papers. Incidentally it supplies some useful hints on the best means of taking advantage of the unique qualities of the paper. In regard to some other modifications—of practical and business importance—which can be made in the procedure, we shall shortly publish some further contributions.—Eds. "B.J."]

Messrs. HOUGHTONS have shown a great deal of courage and originality in dispensing with the puff preliminary and putting the new warm-tone developing paper fully fledged on the market. It must be said that these tactics have been well repaid by the interest aroused in what is certainly a unique product. One must give room for a word of praise to the complete organisation of the business arrangements; already every dealer has his show-card, and has had his paper on order, in some cases, four or five months. Those who doubt the possibility of imitating gelatino-chloride P.O.P. at its best should see these specimens, which are quite indistinguishable from the daylight paper.

The Value to Professionals of a "P.O.P.-by-Gaslight" Method.

Whilst the high-class professional may doubt the necessity of any paper but platinotype or carbon, it must be remembered that for a cheaper and less educated clientèle the warm, rich tones and the glossy surface of the gelatine paper are simply indispensable. Professionals supplying this class have in the past been considerably hampered by the fact that there was no cheap or effective artificial light substitute for their stock style, and not unnaturally were unable to afford an arc light installation for the few dark months round about Christmas. Gaslight papers, especially of the glossy variety, have lost considerable ground during late years among the middle-class men, owing to the quickly dying craze of the stamp merchants. The only way to overcome this has been to follow the development and washing with further operations, to convert the cold grey to a sepia, which, within very small limits, was constant. The new paper comes as a boon to either of these grades. The cheapest class can now make better prints, with perfect uniformity of depth and tone, by artificial light, which his clients will receive with all the more avidity since he can, for probably the first time in his life, assure their permanency. The middle-class man can at last obtain warm tones by development only, and, moreover, has a choice of really good colours, from photographic purple to terra-cotta. The speed with which the print can be finished is another great point that will appeal especially to the small-profits-quick-photographs establishment, and should appeal to all other grades. With bromide or gaslight papers, supposing a printer left work at seven o'clock, he would have to arrange to have finished printing and development for the day at 4.30, in order to leave time for fixing, washing, and spreading to dry. If the prints were to be toned sepia, the hour would be still earlier. With a paper washed thoroughly in five minutes, if he finished developing at 6.45 he would leave on time. We have been able to make great use of the paper in the usual Christmas hustle, and cannot but think that many overworked and worried men would have been saved a great number of their cares if supplies of "Ensyna" had been available a couple of weeks sooner.

To work this paper to the best advantage, to get the greatest possible number of prints in the shortest time, it is advisable, as with all gaslight papers, to have two assistants working together. One may be quite unskilled, and no especial brightness of intelligence is necessary on the part of the other, although he should be as near godliness as possible, inasmuch that cleanliness is essential.

The paper will be found the handiest if purchased in cut sizes; and, indeed, it proves economical, for dampness of the hands may leave stains, should the sensitive surface be touched. The yellow surface is, of course, the sensitive surface; a colour-blind person can find it by biting a corner of the paper.

Some Simple Printing Arrangements.

We have done our printing so far with an incandescent gas-fitting on a very low standard lamp. The standard is, in fact, an ordinary wall gas elbow, with flexible gaspipe attached, the threaded end being forced through a heavy square block of wood. An adapter is screwed on to the elbow, and the incandescent fitting screwed into that. We have explained this at some length, as, if an ordinary standard lamp is used, all the frames have to be raised in some way from the bench; with this arrangement the whole stands on the bench, and the frames get even illumination. We make a chalk mark so that illuminant remains in the same position, and round it draw an eight-sided figure, with each side the same length and equidistant from the light. If one always stands the printing-frames on these lines, and gives the same exposure, the results will be identical. At the proper distance of one foot from the light, eight whole-plate frames can be accommodated. Some frames will stand on end without assistance, but ours required some pieces of a thin wooden chocolate-box nailed on to form a firm base.

The exposure to be given depends entirely upon the colour required, and may be found by making test exposures in the usual way. It is exceedingly difficult, however, to tell the colour from the wet print, or indeed from the dry one, by artificial light, so that experience is by far the safest guide.

Fixing Exposures for a Given Colour.

We have chosen a good, clear, average negative as a specimen, and from it have made a series of ten prints, with exposures at one foot from the incandescent burner of ten to one hundred seconds. These have been mounted in their consecutive order and hung in the printing-room. If we wish to get an exact shade of colour from any negative, we note how many seconds the average negative required for this, and make a test exposure on ordinary bromide paper, using, of course, the usual bromide developer and different dishes and measures to those reserved exclusively for the acid solutions of the newer paper. Supposing our average negative required one second at three feet from the gas and the new one required three seconds, we know exactly the exposure for the particular colour required. For it must be remembered that the density of the bromide image depends absolutely on the exposure. With "Ensyna," however, the exposure has no effect on density, and very little on gradation, so that if it matters little what colour we get all preliminary tests may be dispensed with, and the prints exposed straight away. It is impossible for any professional printer to inadvertently under- or over-expose this paper.

If one has several frames printing round the gas at one time, with a boy attending to the length of exposure, whilst an assistant fills the frames, several dozen prints can be turned out in half an hour. The prints should, whenever possible, be made together, and then developed. If it can be avoided, never make the print, develop, fill frame, print, develop, and so on. Such procedure will surely give a plentiful crop of dark-brown

stains. The hands must be thoroughly dry whenever they touch the paper.

Development.

The tablet form of developer is the most economical, and has the advantage that only so much as will be used need be made up. Do not let the developer drop below living-room heat, or it acts extremely slowly; in some instances, in the case of a short exposure for purple tone, as long as five minutes. With the developer at from 60 deg. to 70 deg. two and a half minutes should be ample. A very flat dish of the size of the prints should be used for developing. To avoid stains, use the developer only once, and at the recommended strength. The very small quantities advised in the list of instructions are ample, so long as the dish is kept well moving. We do not find it necessary to give the preliminary soak to the print; it has no effect on the subsequent colour or gradation. A diluted developer leads to fog in case of a full-exposed print, but does not affect the colour. Re-using the developer softens the print slightly, but has no other effect except the tendency to stain noticed above. We find it best to keep one hand quite dry for placing the print in the dish, whilst the other rocks same and rinses print when ready.

The first tendency is to develop the print too far. When it appears two shades light when viewed by artificial light, the source of which should be some distance away, the developer must be thrown off quickly, and a short rinse given under the tap. If manipulating a number of prints, an assistant should now take it and slide face up in the hypo, which may be the proprietary acid article, or plain hypo. If one is working

single-handed, one soon gets the knack of completely submerging the print without touching the fixer, the slightest trace of which in the wrong place causes innumerable stains. The print loses practically nothing in fixing, but gains quite two shades in drying, as is easily seen by wetting one half of a print. The colour, too, dries richer and darker. Before the next print is fully developed the preceding one will be ready for washing, so that only one print need be in the hypo at a time, ensuring thorough fixation.

A few hand washes complete the batch, which may have the surplus moisture blotted off without fear of sticking, and be laid to dry.

If the print, from negative to mounted result, is wanted in a rush, methylated spirits can be used for quick drying without detrimental results, whilst the dry-mounting machine does the rest.

It may be useful to note that, besides altering the colour, the exposure may be used to control the result from various negatives. A short exposure will give a purple tone and contrasty result, whilst a long exposure—say, ten times as much—gives a much softer print and red-brown colour, so that various kinds of negatives may easily be suited. As we said before, one need not trouble much about the resultant tones; all are nice, clear, pure colours, very much akin to a range of carbon tissue, and indeed from a short trial of the matte paper we are almost tempted to prophesy that some studios may see fit to use this permanent artificial-light paper, with its numerous advantages, in place of the former process.

W. FOSTER BRIGHAM.

EXPERIMENTS IN COLOUR-SENSITISING CHLORIDE EMULSIONS.

(The following record of experiments made on the action of the Fritz Wentzel to the Imperial Technical High School, Berlin, for the degree of Doctor of Engineering. In the brief historical introduction the chief reference is to the work of Eder and Pizzigelli, since there is the probability that chloride emulsions may assume a more important rôle in negative and dry-plate work than they possess at present, we make an abstract translation of the Stenger. It would appear that the thesis is not published, but the

chief colour sensitiser is abridged from a thesis presented by Herr done about the year 1881, on the isochromatising of chloride emulsions, the full text of which we owe to the courtesy of Dr. E. printer is Emil Ebering, Mittelstrasse 29, Berlin, N.W. 7.)

THE dyes chosen for the following series of experiments included, of the phthalein class, eosine, erythrosin, and rose bengale, all used as their sodium salts. Of the isocyanines, ethyl-red, pinaverdol, pinacyanol (Hoechst), and the latest sensitiser, isocol (Bayer), were employed of the commercial dyes. Two others were also used, namely, cyanin L (Kahlbaum) and dicyanin (Hoechst). The dye diazo-black, often referred to as an exceedingly good red sensitiser, was used in the form of a preparation "diazoschwarz rexta," made by the Bayer Co.

The Principles involved in a Spectrograph for Chloride Emulsions.

Owing to the comparatively slight sensitiveness of chloride emulsion and to the improbability of this latter being raised on sensitising, use could not be made of an ordinary spectrograph except by enormously prolonging the necessary exposures. Moreover, the diffraction spectrograph, which in other respects gives very suitable results, proved unusable for the purpose in view, but also the construction of a prismatic apparatus called for special provisions in order to comply with requirements as to a very brilliant spectrum conjoined with the greatest possible purity in the less refrangible portions. As these properties are connected with the nature and arrangements of the optical system producing the spectrum, the laws relating to the latter require to be considered. In regard to the loss which light sustains by the reflection from the surface and by absorption in the substance of the reflecting medium, the relation

$$H = h \frac{\epsilon}{d\delta}$$

where H is the measure of the brightness of any part of the spec-

trum, ϵ the width of the slit, and $d\delta$ the dispersion angle of two colours. It will thus be seen that the brilliancy of the spectrum is in inverse ratio to its dispersion, therefore, when the brilliancy is to be a maximum a high dispersion must be dispensed with, whilst, on the other hand, the spectral decomposition should be such that even in the less refrangible parts of the spectrum there is a sufficient separation of the images of the slit. These requirements thus point to the use of a medium of slight dispersion, of small angle of refraction, and of high transparency. As the use of one prism corresponding to the above conditions limits the decomposition of the light to a small range, and as, moreover, the

quotient $\frac{d\delta}{\epsilon}$ expressing the purity of the spectrum leaves a good deal to be desired in the case of the greater width of slit, a combination with a second similar prism of acute angle and small aperture supplies the advantage of a stronger dispersion with greater angle of refraction and greater intensity of light.¹

Two identical prisms were thus used, the optical constants of which at a refraction angle of 45 deg. and at a size of 60 x 60 mm. were as follows:—

Refractive index for D.	Mean dispersion. C - F	Relative dispersion. $n - 1$	Partial dispersion.		
			$A^1 - D$	$D - F$	$F - G^1$
1.61778	0.01695	36.4	0.01025	0.01212	0.01030

As shown by the above-mentioned formula the intensity of the spectrum further stands in direct relation to the intensity of the

¹ Kayser, "Handbuch der Spektroskopie," vol. I., page 573

light used. The choice of this latter was, therefore, made with regard to the slight sensitiveness of the material employed. It was found that a Nernst light answered well, both as regards intensity, constancy, and whiteness of light. One was used on 110 volt circuit with a filament of about .4mm.; a very wide slit had still to be used in order to obtain enough exposure of the weakly sensitive chloride film. The width of slit was about 6 mm., and in comparative experiments on bromide emulsion plates was reduced to .05 mm. Finally, the brightness of the spectrum being dependent on the width of the bundle of light, prisms and lenses were selected as large as possible, and the latter of long focus in order not to give too short a spectrum. The photographic lens had a diameter of 8 cm. and a focus of 94 cm., the achromatic collimator lens was 10.5 cm. in diameter, and 134.5 cm. in focal length, these dimensions being the maximum which could be employed in the spectrograph.

The Apparatus Used.

A solid iron base supported the camera, which consisted of a long wooden body, with the photographic lens attached to the front and adjustable by rack and pinion. To the back of the camera, exactly at the height of the optical axis of the lens, a horizontal slit of 4 mm. width was placed, through which the rays of light fell upon the ground glass or sensitive film. Just behind this latter provision was made for the reception of the ground glass or dark slide, the latter in 9 x 12 cm. size. A screw adjustment permits of it being placed in several positions so that the whole series of different spectra can be photographed one after another, each plate thus being completely used. A table was fixed in front of the photographic lens, and at the height of the camera for the prisms. It is movable vertically in order to permit of any necessary adjustment of the prisms, up or down. A movable arm of the base of the apparatus which can turn concentrically with the axis of the prisms has finally the collimator lens, which latter is vertically adjustable by a screw. As the great focal length of this lens calls for an especially long collimator tube it was decided not to further complicate the apparatus, but to use it in a completely darkened room. The space between the camera and the collimator which contains the prisms was carefully covered with black cloth; and the prisms themselves given a coat of black varnish at their end-exposed surfaces and bases in order to avoid reflections. The adjustable slit was placed at the focus of the collimator lens, and in the axis of the latter, and was formed by a fixed and movable plate, the distance between which is adjusted by a micrometric screw fitted with a scale. Behind the slit the Nernst lamp was placed, whilst also a mercury-vapour lamp of quartz glass (made by Heraeus) was mounted so as to be brought into use when necessary for exposures to determine given lines.

Adjustment of the Apparatus.

The photographic lens was first focussed on infinity, and the collimator lens then turned and adjusted so that its axis coincided with that of the photographic lens. In order now to bring the two prisms into the position of minimum deviation the ground glass is removed, and the horizontal slit (thus laid bare) provisionally adjusted to a small opening. A Nernst lamp was placed behind this opening and the rays caused to pass in the reverse direction into the camera; and to leave the photographic lens as parallel rays. The prisms were now placed in the path of these parallel rays, and adjusted vertically so that they stood with their middle vertical point on the axis of the photographic and collimating lenses. A spectrum was thus formed which, after the collimator lens has been turned sideways, can be represented at its focus on a white screen in the otherwise dark room, and thus permits of the adjustment of the prisms. By turning the two prisms around the refracting edges either towards the right or left the position will soon be obtained in which the rays obtain the least deviation on passing through the prism symmetrically. In the case of the different deviations for the various colours the deviation can be a minimum for both prisms only in the case of a single colour. Regard is therefore paid to the green only as the medium spectral zone, and the adjustment for all the other colours is taken as sufficiently accurate. The position having been found the prisms are fixed once and for all to the base.

The next operation is the adjustment of the width of slit in the focus of the collimator lens and parallel with the refracting

edges of the prisms. The Nernst lamp is taken from its previous position and mounted behind the slit, and so adjusted that its luminous filament runs parallel to the slit. The rays of light coming from the slit produce a sharp spectral image in the plane of the ground glass, but they are extremely weak in intensity, particularly in the red portion.

Finally, the mercury-vapour lamp is introduced between the slit and the Nernst lamp, and with its assistance control obtained for the sharpness of the spectrum. A slight final correction is thereupon made by means of the photographic lens so that the mercury line of 546.1 appears absolutely sharp in the centre of the spectrum.

Plotting the Spectrum.

In order to obtain the correct representation of all parts of the spectrum independently of measurements in special pieces of apparatus it is necessary to plot the division of the various spectral regions according to the wave length. For this purpose a panchromatic plate was exposed in the adjusted spectrograph to the light of the quartz mercury lamp, and the characteristic lines of the metal photographed; also in order to obtain a still more exact plotting of the yellow and red parts of the spectrum the emission spectrum of helium was photographed. The superimposed spectra of the two elements allow of the recognition upon the negative of the following lines in the region 400 to 700 $\mu\mu$, which is practically the only region of importance in the experiments.

EIGHTEEN MERCURY LINES.

Wave-lengths—

404,6	407,8	433,9	434,7	435,8	491,6	495,9	536,5	542,6
546,1	567,9	576,9	579,0	587,2	588,9	608,9	615,2	636,3

FIFTEEN HELIUM LINES.

Wave-lengths—

396,5	402,6	410,0	412,1	414,4	434,0	438,8	447,1
471,3	486,0	492,2	501,6	587,6	688	707	

With the aid of these values the dispersion curve of the prism was drawn, the wave-lengths being marked on the ordinates at distances of 1 mm. = 1 $\mu\mu$. Their actual distance from each other, on the other hand, on the abscissæ of a co-ordinate scale were carried out and the points of intersection of the corresponding values connected with each other by a line. By extrapolation this curve leads in the direction towards violet up to 395 $\mu\mu$ to the characteristic maximum of gelatino-chloride of silver, and in the direction towards red up to 750 $\mu\mu$, thus permitting of the action of a specially good red sensitiser being followed. From its course the dispersion is seen to fall off so that at the blue of about 400 $\mu\mu$ a 10 $\mu\mu$ region occupies 6 mm., whereas the same number in the red at 700 $\mu\mu$ is compressed into .5 mm.

As the curves allowed of an exact reading of the position of all the wave-lengths in the spectrum, those from 395 to 750 $\mu\mu$ were ascertained, which are at a distance from each other of 5 $\mu\mu$, and the resulting values brought together in a table. From the plate above mentioned containing the superimposed spectra of mercury and helium a transparency was made, and the values corresponding to the position of the wave-lengths increasing by 5 $\mu\mu$ marked upon it by means of a dividing engine. In this way a measuring plate was obtained, and thus in the case of subsequent spectrum exposures it was necessary only to photograph the mercury lines on each plate, to bring the lines on the measuring plate over these latter, and without further trouble to be able to compare with the engraved scale.

Density Measurements.

For the purpose of measuring the density produced in the different spectral regions, and thus obtaining information as to the sensitiveness of the plates in these different parts of the spectrum, the Martens polarisation photometer was used. In this the bundle of rays passing through any desired portion of a negative is compared with a direct bundle by rotating a Nicol's prism, which brings the two illuminated fields into equality. In order to ensure that exactly equal areas of the plate are being measured, a slit diaphragm of 1 mm. width was inserted. From the angle read off—namely, that through which the analysing nicol must be turned in order to obtain equal brilliancy of the two fields—the various densities were ascer-

tained by aid of the relative intensity of the incident and transmitted light and the angle of rotation.

$$D_r = \log \frac{i}{i_0} = 2 \log \cot \alpha$$

These values may be worked out by using the table of Lohmeyer calculated for all values of α between 1 and 45. In order to pay regard to the opacity of the negative, which is independent of the silver deposit forming the image, and is caused by the material of the gelatine and by development fog, measurements were made of different under-exposed portions of the plate and the average density values noted. They possessed, on the average, the small value of $D_r = .12$. The density numbers contained in the tables are absolute, corresponding only to the silver deposit produced by the active light intensities. Plate-densities which lie within the value $D = 3.52$, corresponding to a reading of 1 deg., are taken as maximum silver deposit, since the measurement of a smaller angle is not possible with sufficient accuracy. In the curves represented, only this value is shown as the portions of maximum density lie on a scale. Further, an attempt has been made to read up to .2 deg., but this it was found could not be done, as the brownish colour of the reduced silver is difficult to compare with the greyish-black of the comparison field.

The Construction of the Sensitive Curve.

In order to show the characteristic properties of the different sensitizers, and especially a comparison of the bands of sensitiveness of the characteristic maximum, the plotting method employed by Eder and Stenger was used, the density values of the various exposures being plotted as ordinates and the wave-lengths as abscissæ, the line running through the points of intersection thus giving the curve of the plate. Since the unequal dispersion in the red part of the spectrum compresses the wave-lengths much more than in the blue and violet, the density of the plates is shown as unequally greater than would be the case by normal dispersion through a grating. Hence the density measurement of the silver deposit in the different portions of a spectral negative is not an absolutely equal measurement throughout the whole spectrum for the sensitiveness. If one were to take a graphical representation direct from the measured values the result would be a quite reversed representation of the colour-sensitiveness of the plate, since this defect of the method is most noticeable at the most sensitive part where a study of colour-sensitiveness possesses the greatest interest—that is to say, in the orange-red portion of the spectrum. Even if a representation corresponding to that of a grating cannot be had, an approximate representation may still be obtained. If the density values are plotted not according to their values as found, but in the ratio of the dispersion of the spectrum, these values will be reduced in the red portion as the dispersion falls off. Such a correction could be made, because in all test plates in the red part of the spectral regions a considerably higher density was obtained than in the blue and violet. This depended on the one side on the spectral properties of the light source employed, which is relatively rich in the orange-red rays, and is therefore in some respects to be regarded as the cause of the different relations of the special and colour-sensitiveness of the chloride plates. By aid of the treatment of the density values in the manner just described, an attempt was made to represent these values after the manner of a grating spectrum. Should the form of representation chosen, however, not be quite clear, the wave-lengths on the abscissæ system must be entered at equal distances.

Whilst the sensitiveness curves give a general idea of the greater or less activity of the sensitizers in different regions of the spectrum and for certain kinds of exposure, the production of the characteristic curves on the lines of Hurter and Driffield is still more of interest. If the densities (logarithms of the opacity of the silver deposit to light = D) of the negative be plotted on the ordinates of the chart and the logarithms of the light intensities for regularly increasing periods of exposure (log. *i.t.*) on the abscissæ, the curve passing through the points of intersection of the corresponding points gives the facts as to change taking place in the silver halide on regularly increasing intensity of light for which the silver deposited by reduction represents an absolute measure. According to the steeper or flatter form of the density curve it will be seen, by comparison with a measure chosen for that purpose, whether an emulsion works hard or soft compared

with another. As the mean portion of the curve, that corresponding to normal exposure, runs nearly in a straight line (since here alone the increase in density is approximately proportionate to log. *i.t.*) it follows that the angle of these parts of the curve to the abscissæ indicates directly the gradation of one plate in comparison with that of another.

It is obvious that the size of this angle will vary according to the wave-length of the light for which the curve of gradation is ascertained, which fact must not be disregarded in practical work. While an approximately parallel course of the curves for different wave lengths is desired as proof of the correctness of reproduction in the case of a single plate, their direction in the different parts of the spectrum obtains considerable importance, particularly in three-colour photography, since in this case the closest possible approximation to parallelism for the three-filter zones is a prime factor in the correct reproduction of colour tones.

F. WENTZEL.

(To be continued.)

ROYAL PHOTOGRAPHIC SOCIETY.

ATTENDANCE OF OFFICERS.

As usual at a date some time in advance of the annual election of officers, the Royal Photographic Society publishes in its "Journal" the attendances of Officers, Members of Council and Committeemen from December 19th, 1907, to December 7th, 1908, both inclusive. The following are the official figures:—

Council Meetings. Number of possible attend'nces.	Committee Meetings. Number of possible attendances.	Name.	No. of attendances at	
			Council Meetings	Com'ittee Meetings.
12	<i>Ex officio</i> all.	J. C. S. Mummery, A.R.I.B.A. (President)	11	14
12	—	The Right Hon. the Earl of Crawford, K.T., F.R.S.	none	none
12	—	Sir W. de W. Abney, K.C.B., D.C.L., F.R.S.	"	"
12	—	Sir Joseph W. Swan, D.Sc., M.A., F.R.S.	"	"
12	6	Maj.-Gen. J. Waterhouse, I.A.	"	1
6	<i>Ex officio</i> all dealing with finance.	J. Sterry (Hon. Treasurer till May 11th, 1908).	4	4
12	<i>Ex officio</i> all from May 11th 1908.	Leslie E. Clift (Hon. Treasurer from May 11th, 1908).	10	9
12	—	Francis Ince (Hon. Solicitor)	none	none
10	—	T. Thorne Baker	"	27
12	37	A. W. W. Bartlett	2	none
12	2	Henry W. Bennett	2	"
10	1	Douglas English, B.A.	2	1
2	3	A. R. F. Evershed, M.R.C.S.	10	2
12	2	T. E. Freshwater, F.R.M.S.	9	none
12	2	John H. Gear	11	7
12	7	E. T. Holding	none	none
2	2	Fredk. Hollyer	7	"
12	—	Geo. Lindsay Johnson, M.A.	10	"
12	2	Rev. F. C. Lambert, M.A. ...	11	5
12	7	Furley Lewis	11	none
12	—	Ernest Marriage	2	"
12	—	Arthur Marshall, A.R.I.B.A.	9	3
10	3	F. Martin-Duncan	11	7
12	7	C. E. Kenneth Mees, D. Sc., F.C.S.	8	2
12	4	F. J. Mortimer	5	none
6	2	Chas. H. Oakden	12	28
12	29	C. Welborne Piper	none	none
12	2	E. Sanger Shepherd	2	"
2	—	John Spiller, F.I.C., F.C.S. ...	4	1
11	2	H. Snowden Ward	8	4
12	7	B. Gay Wilkinson		

The following gentlemen are members of Committees only. It

should be understood that the attendances of members of the Selecting and Hanging Committees at the New Gallery are not preserved.

Possible attendances.	Name.	Actual attendances.
3	Conrad Beck	1
2	A. H. Blake, M.A.	none
27	Geo. E. Brown, F.I.C.	21
1	C. P. Butler, A.R.C. Sc.	none
2	A. Haddon	„
4	E. O. Hoppé... ..	4
2	Chapman Jones	2
1	A. J. Newton	none
1	James A. Sinclair	„
27	E. J. Wall	17

THE FORTHCOMING DRESDEN EXHIBITION.

I AM asked, as the date of the above exhibition is drawing near, to give the readers of the "B.J." some idea of what is being done, and of the developments in its activities, which are of interest to English photographers.

Already the Governments of the different countries concerned have shown great interest in the venture, and many have guaranteed, and paid in, large sums of money, varying from £50 to £2,000, in order that provision may be made for their subjects when they travel to Dresden for the purpose of studying the various aspects of the photographic industry as there set forth.

Several nations have made a special effort to be well represented, and have arranged for the erection of large important buildings in the grounds, in order that their exhibits may be appropriately housed, independent of others. This, of course, only applies to such exhibits as by the rules are not necessarily shown in conjunction with other nations. Austria has been especially forward in this branch of activity.

The photographic industries of Germany, America, Austria, France, Italy, and Belgium are exceedingly well represented, and the King of Denmark and the Czar have given their personal support in the matter.

A new and special feature of the great exhibition will be the various congresses which will be held during its continuance. A special congress will be held in the interest of each of the following branches of photography:—(1) Applied Photography; (2) Scientific Photography; (3) Pictorial Photography; (4) Professional Photography. At any rate, in the case of No. 3, this will constitute a new departure, for no world's congress of pictorial photography has ever, up to the present time, been held.

Large numbers of photographers from all parts of the world are expected to attend these congresses, and every facility will be given in the shape of reduced fares, special prices for accommodation, and the arrangement of suitable excursions to make them attractive. It is proposed to take advantage of these facilities for the purpose of visiting some of the great photographic and optical industrial centres in Germany, where the works will welcome visitors and explain their manufactures.

Entries closed on December 15, and all classes are excellently representative.

In the case of England the scientific section will show about 400 exhibits, the pictorial about 180, and the instructive and entertaining about 200. In the Ethnological Department there will be the fine collection of Sir Benjamin Stone.

It is in the trade section that England lags so lamentably behind. There seems to have been an utter lack of enterprise, and though many of our photographic industries are almost as much patronised in Germany as they are in this country, no effort has been made to show forth or increase the business. This spirit of indifference to one of the finest opportunities for business advancement in an expanding and active market is clearly shown in the fact that there are only *five* trade entrances for the whole of England.

America is very largely represented in this department, and again, as has so often been the case before, our industries are to be exploited and our trade undermined by the Yankee, thanks to our own indifference and want of hustle.

It is not even now too late for firms to come in. Several businesses

have expressed their readiness to form a sort of syndicate for exhibition purposes and to pool expenses if others signify their willingness to join. There is no doubt that a large and important exhibition can be organised, but it must be done at once, and firms should write to the general secretary (Mr. E. O. Hoppé) if they wish to move.

I shall hope to advise the readers of this paper of the various developments of the exhibition as they become manifest, and in the meantime wish to leave on their minds the impression that in the Dresden International of 1909 we are going to witness the greatest exposition of scientific, applied, and pictorial photography that the world has ever seen.

A. H. BLAKE, M.A.,

Press Secretary to the English Committee.

MORE STUDIO SCENES.

APROPOS of the semi-imaginary interviews in portrait studios which we published in the "Journal" of December 18, a correspondent sends us a copy of the "New London Journal" containing the following:—

Lady (with the elaborate politeness of extreme feminine wrath): "Sir, might I be permitted to inquire what sort of pictures you consider these? My husband sat for them here two weeks ago."

Man at the desk (promptly): "I consider them very bad pictures, madam."

Lady (fixing him with a scornful glance): "Indeed! Then what do you mean by expecting people to pay the highest price for such abominable work? Do you suppose for a moment —"

Man at the desk (smiling): "But, madam, we —"

Lady (as before, only more so): "No doubt you may find it amusing to make caricatures of people. But you can't expect them to pay you for doing so. I have come here to tell you that you will either make a decent photograph of my husband, or else —"

Man at the desk (smiling more and more): "But my dear lady, these pictures —"

Lady (indignantly): "Not another word, sir, on the subject of these pictures! I would not have them at any price. It is your duty to —"

Man at the desk (trying with difficulty to restrain his laughter): "If you will listen to me a moment —"

Lady (with flashing eyes): "I will listen to nothing, sir. I insist that you shall make good —"

Enter proprietor from the skylight.

Proprietor (regarding the grinning and apparently disrespectful man at the desk with a withering glance): "What's the matter here?"

Man at the desk (handing photographs): "This lady has just brought these pictures back —"

Lady (with dignified firmness): "Allow me to explain to your employer. These photographs which you have made of my husband are simply a disgrace. At the price you charge your customers certainly have the right to expect —"

Proprietor (also beginning to smile): "My dear madam, you are mistaken —"

Lady (in a towering rage): "Do you mean to tell me that you can't do any better than that for £1 a dozen?"

Proprietor: "Ha, ha, ha! I can do better for 12s."

Lady: "Sir!"

Proprietor (emphatically): "Much better."

Lady: "This is an insult. I shall take means —"

Proprietor (compelling himself to gravity): "I beg your pardon, but these don't happen to be our pictures at all. They were taken at Smithson's next door but one. We are Smithers, see?"

Lady (examining name on photograph): "H'm —er—well, I did make a mistake, certainly, but (energetically) I have not the slightest doubt—not the slightest—that if they had been taken here they would have been fully as bad, or even worse. Good-morning!"

ARCHDEACON COLLEY'S ADDRESS.—Mr. Drinkwater Butt, F.R.P.S., writes: "In reply to the correspondent, 'A. E. A.' of your issue of the 25th inst., I may say that the address of Archdeacon Colley is Stockton Rectory, Warwickshire; but I do not think that the rev. gentleman publishes his 'spirit' photographs in the form of lantern slides."

FORTHCOMING EXHIBITIONS.

- December 30 to January 2.—Chelmsford Photographic Society. Sec., M. J. Morison, Savernake Lodge, Chelmsford.
- December, 1908, to January, 1909.—Kiew International Photographic. Sec., S. T. Horovitz, Technical Society, Kreshtchatik, 10, Kiew, Russia.
- 1909.
- January 1 to 9.—Scottish National Photographic Salon. Sec., Robert Telfer, 138, Glasgow Road, Wishaw.
- January 6 to 27.—Northern Photographic (Manchester). Sec., S. L. Coulthurst, Broad Oak Road, Worsley, Manchester.
- January 19 to 30.—Glasgow Southern Photographic Association. Sec., Robert Lindsay, 189, Allison Street, Glasgow, S.S.
- February 1 to 13.—Glasgow and West of Scotland Amateur Photographic Association. Entries close January 20. Sec., James M'Kissack, 68, West Regent Street, Glasgow.
- February 3 to 6.—Borough of Tynemouth Photographic Society. Entries close January 23. Sec., J. R. Johnston, 29, Drummond Terrace, North Shields.
- February 8 to 13.—St. Helen's Camera Club. Entries close January 27. Sec., A. G. Else, Duke Street, St. Helen's, Lancs.
- February 10 and 11.—Cowes Camera Club. Entries close February 1. Sec., E. E. Vincent, 4, High Street, Cowes.
- February 11 to 20.—Leicester and Leicestershire Photographic Society. Sec., Harry Cross, 80, Harrow Road, Leicester.
- February 16 to 20.—Norwich and District Photographic Society. Sec., J. T. Tanner, The Lodge, Bowthorpe Road, Norwich.
- February 20 to March 20.—South London Photographic Society. Sec., H. Creighton Beckett, 44, Edith Road, Peckham, S.E.
- February 22 to March 6.—Birmingham Photographic Society. Entries close for abroad January 5, for England, February 12. Sec., Lewis Lloyd, Church Road, Moseley, Birmingham.
- March 17 to 20.—Nottingham Camera Club. Sec., E. L. Kent, 5, Radcliffe Mount, West Bridgford, Notts.

Patent News.

Process patents—applications and specifications—are treated in "Photo Mechanical Notes."

The following applications for patents have been received between December 14 and December 19:—

- WASHING APPARATUS.—No. 27,059. Improvements in photographic plate and print washing and drying machine. William Barron and George Simpen, 132, Above Bar, Southampton.
- PRINTING FRAMES.—No. 27,087. Improvements in photographic printing frames. John Wilkinson and Alfred Wilkinson, 4, St. Ann's Square, Manchester.
- CINEMATOPGRAPHS.—No. 27,120. Safety stand, or box for fire prevention or extinction. Henry Quartermain, Chertsey Road, Woking.
- VIGNETTING APPARATUS.—No. 27,229. Improved apparatus for vignetting photographic negatives in the camera. Alexander Good, 72, Ranelagh Road, Ealing, London.
- BLEACHING.—No. 27,233. Improved process for the production and reproduction of bleached images. William Francis Mansell and Walter Henry Mansell, 70, Chancery Lane, London.
- SHUTTERS.—No. 27,433. Improvements in diaphragmatic shutters having rectangular or square apertures. Siemens Bros. and Co., Ltd., and Harold William Frank Ireland, Queen Anne's Chambers, Broadway, Westminster.
- CINEMATOPGRAPH-PHONOGRAPH.—No. 27,435. Improved method of securing synchronous action of conjointly working cinematographs and talking machines. Deutsche Bioscop Ges., 111, Hatton Garden, London.
- APPARATUS.—No. 27,561. Improvements in photography and apparatus connected therewith. Archibald James Erskine, 24, Southampton Buildings, London.
- CINEMATOPGRAPHS.—No. 27,583. Improvements in or relating to apparatus for producing animated pictures by the movement of a vehicle. Witold Prus Szczepanowski and Waclaw Czernuowski, 111, Hatton Garden, London.

PRINTING.—No. 27,642. Improved device for securing register in photographic printing. Frederick Arthur Pereira and W. Butcher and Sons, Ltd., Camera House, Farringdon Avenue, London.

COLOUR PHOTOGRAPHY.—No. 27,682. Photographic camera for three-colour photography (three-plate process). Société Anonyme "La Photographie des Couleurs," Joseph Sury and Edmond Bastyns, 27, Chancery Lane, London.

BICHROMATE PRINTING.—No. 27,686. Method of preparing solutions used in the bichromate gelatine process for photographic printing. Société Anonyme "La Photographie des Couleurs," Joseph Sury and Edmond Bastyns, 27, Chancery Lane, London.

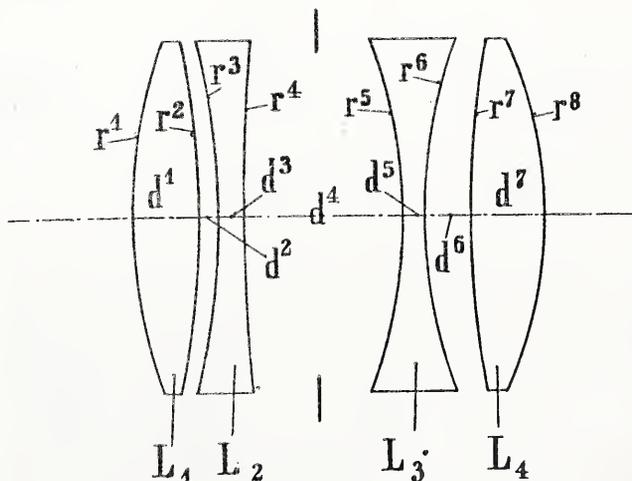
COLOUR PRINTING.—No. 27,687. Printing on paper of photographs in colour. Société Anonyme "La Photographie des Couleurs," Joseph Sury and Edmond Bastyns, 27, Chancery Lane, London.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

ANASTIGMAT LENSES.—No. 13,901. 1908. (July 1, 1907.) The invention relates to four-lens objectives built up of two pairs of lenses, each comprising a positive and a negative lens, leaving between them an air space in the form of a positive meniscus, and consists more particularly in the construction of an objective showing, in conjunction with great effective area or opening, a very good degree of correction, especially with regard to coma and spherical aberration. To produce this result the refractive power of the negative lens in each of the two pairs of lenses is made smaller or equal to the refractive power of the positive lens in the pairs of lenses respectively, and at the same time the focal length of one half of the objective formed by one pair of lenses is made at least twice as great as the focal length of the other half. By such construction of the objective from two halves, each of which exhibits, if examined for itself alone, considerable errors, it becomes possible to compen-



sate the errors of the two halves, and to obtain an objective of increased perfection compared with known objectives of the kind referred to, as, for instance, described in the Specification of British Patent, to Goerz and another, No. 12,859, of 1898, in which the ratio of the focal lengths of the two halves is unity, and the halves are corrected spherically, astigmatically, and chromatically.

An objective in accordance with this invention is represented on the accompanying drawing, where the two lenses forming the one half of the objective are designated L_1 , L_2 , and the lenses of the other half L_3 , L_4 . The thicknesses of the lenses and air spaces between same are indicated by d^1 , d^2 , d^3 , d^4 , d^5 , d^6 , and d^7 . The surfaces of the lenses are designated r^1 , r^2 , r^3 , r^4 , r^5 , r^6 , r^7 , and r^8 ; the same reference letters may be used hereinafter for the radii of curvature of the surfaces.

The constructional elements of an embodiment of the new objec-

tive for a focal length or distance of $f=100$ mm. are given in the following table:—

Rad.ii.	Thicknesses.	Kinds of glass.
$r^1 = + 43,478$ mm.	$d^1 = 5.2$ m.m	$n_D = 1.6141$ $n_G = 1.6280$ $n_C = 1.61586$
$r^2 = - 70,423$ mm.	$d^2 = 1.6$,,	
$r^3 = - 55,863$ mm.	$a^3 = 2$,,	$n_D = 1.6051$ $n_G = 1.6260$,, = 0,01586
$r^4 = + 163,934$ mm.	$d^4 = 12.0$,,	
$r^5 = - 41,667$ mm.	$a^5 = 1.8$,,	$n_D = 1.5513$ $n_G = 1.5672$,, = 0,01220
$r^6 = + 41,667$ mm.	$a^6 = 3.6$,,	
$r^7 = + 78,126$ mm.	$d^7 = 5.7$,,	$n_D = 1.6141$ $n_G = 1.6280$,, = 0,01688
$r^8 = - 34,439$ mm.		

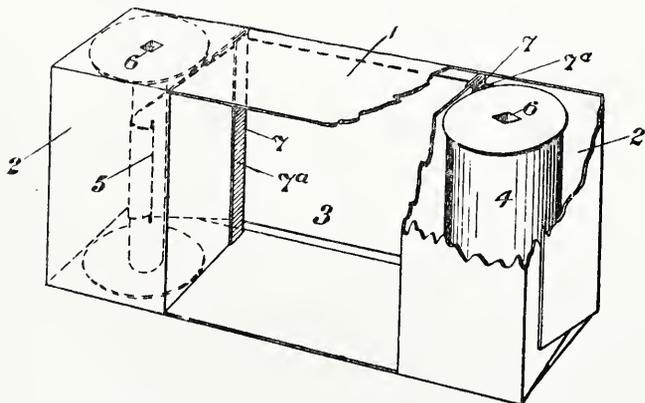
Relative aperture 1 : 3.5.

The focal length of the front combination (L^1, L^2) of the system amounts to + 109,067 mm., and the focal length of the back combination amounts to + 331,559 mm. Optische Anstalt C. P. Goertz Aktiengesellschaft, 44-46, Rheinstrasse, Friedena 1, near Berlin.

CARRYING STRAPS FOR CAMERAS.—No. 26,206. 1907 (November 27, 1907). The invention consists essentially of two leather flaps, somewhat of a T shape, which are connected together at the wide part by two adjustable straps, one at each end. These straps may be lengthened or shortened according to width of the article to be held, by means of metal slides or buckles. To the tail part of each flap aforesaid is attached the securing strap. The flaps are arranged so that one may lie flat on one side of the article to be held. The other flap is bent at right angles so that the wide part may support the camera or parcel from beneath. To a convenient part of one of the flaps is connected a metal loop or loops, which carry the shoulder straps, which are provided with the usual slides or buckle for lengthening or shortening. The free ends of the shoulder strap are provided with a swivel hook, or other suitable attachment for connecting or disconnecting the loops attached to one of the flaps. Charles Lavender, Fairbanks, Lavender, and Son, Eldon Works, Eldon Street, Walsall.

ROLL-FILM DAYLIGHT SPOOLS.—No. 14,490. 1908 (January 1, 1908). The object of the invention is to provide a means for carrying and exposing a strip of sensitive film, such as that used in roll-film cameras, and the improvement takes the form of a light-tight package, of cheap material and construction, that forms a secure protection of the film, before and after exposure, thus permitting the package to be inserted into or removed from the camera in daylight, and the roll-holder being of no value, after once using, it can be thrown away.

The invention is more particularly designed for use with the



improved form of the pocket camera known as the "Tikka," forming the subject of patent, No. 32, of 1908, but the system is applied to other forms of cameras.

In carrying out the invention a stamped-out blank of paper, cardboard, or other suitable material is creased and provided with flaps, to enable it to be shaped into a rectangular oblong package, as shown in figure, the flaps being pasted or glued down to give stability to the package and to render it light-proof. The end flaps, two of which are shown in figure, remain unfixd until the film is inserted. At each end of the package is formed a film chamber 2,

in which the film is stored both before and after exposure. Between the spool chambers a recess 3 is formed, representing the exposure aperture. The film (which is wound on a roller 4, contained in one of the spool chambers, and protected at each extremity with an opaque wrapping strip or tab) is drawn across the exposure aperture 3, as successive exposures are made, through narrow slits 7, 7 formed at the inner back angles of the spool chambers, one of the wrapping strips being shown threaded to one of the spools at 5.

These slits may be bound with cloth or velvet, 7a, 7a, to prevent scratching of the sensitive surface. It will be noted that the film, when at the focal plane, is lying adjacent to the rear wall of package and away from its front surface by practically the depth of the package. The cores of the spools are provided with key ways, 6, 6, which may be of any convenient form. Magnus Niell, Djuvsholm, Sweden.

ROLL-FILM SPOOLS.—No. 14,489. 1908 (December 27, 1907). The invention relates to an improved form of roll spool and a detachable spring for same, and the spool embodies improvements, which have the effect of considerably simplifying the winding gear on the camera. It is more particularly intended for use with the camera forming the subject of Patent No. 28,464, of 1907, but it would be quite applicable to larger cameras of that type.

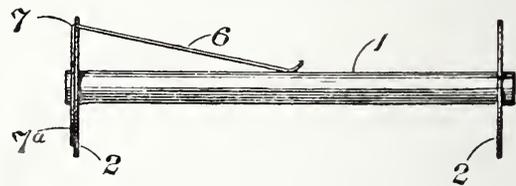


Fig. 1.

Hitherto it has been customary to form a recessed key way to the end of spool, into which a sliding key is made to engage after the spool is placed in the spool chamber of camera. This plan involves considerable trouble and cost in construction, and also has a tendency to increase the bulk of the camera owing to the depth of the sleeve in which the key stem slides.

By the improved method the centre of the spool is formed of the metal stem of core 1, which projects slightly through the end flanges 2—2, the projections being transversely slotted at 3 to receive the key on camera. The latter is simply a flat tongue 4, attached to or forming part of the winding post to which the winding handle 5 is connected. These parts partake of a simply rotary movement, and in placing a spool in position in the camera, the key is set at right angles to the body of the camera, when the spool will readily slip into position, providing its key way is set in

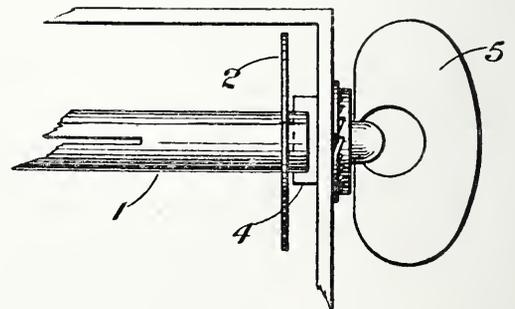


Fig. 2.

alignment to the key itself. It follows that the spool will as readily fall out of the camera when the key is in the position above referred to, and the camera inverted.

A further improvement is the adaptation of a detachable tension spring 6, which performs the function of preventing the roll of film and its backing paper from becoming loose or unwound. It is formed of a flat plate of spring metal, bent, beyond the right angle at 7, the end piece of 7a, being rather less in area than the flange of the spool, is provided with a central hole to receive the slightly projecting core of spool. The spring is made detachable and can be slipped on and off the spool very readily. The end of the plate opposite to the turned-down piece rests, with a light tension on the backing paper, when in position, and, whilst it effectively stops the paper from accidentally unwinding, it does not interfere with the ordinary winding of spool when in the

camera, at which time the spool revolves on its flanges whilst the tension spring lies idle, being prevented from turning by the wall of spool chamber. Magnus Niell, Djursholm, Sweden.

CINEMATOGRAPH METAL BANDS.—No. 24,225. 1907 (February 14, 1907). The invention has reference to improvements in or relating to cinematograph metal ribbons or "films."

In Specification No. 20,836, 1907, is described the means recommended for printing on metal with thick inks. The present invention relates to the preparation of metal films for printing photographically thereon. Metallic bands, suitably insulated by means of a substratum, are coated directly with a sensitised emulsion. The varnished band is preferably coated on both sides with the emulsion, so that it may carry two sets of pictures. For economic and physical reasons, iron, "tinned cold," is particularly suitable, by reason of its cheapness, as well as its resisting qualities and its elasticity, but any other suitable metal may be employed. By "tinning cold" is meant electrolytic tinning, which permits of coating the metal and protecting it without causing it to lose its elasticity and the rigidity which are necessary. The tinning ought to be a matt white. In place of tinning the band it may be nicked. Frederic De Mare, 122, Boulevard Leopold II., Brussels.

Analecta.

Extracts from our weekly and monthly contemporaries.

The Modification of Sulphur-toned Bromide Prints.

It may not be generally known (says a writer in "Photography and Focus" for December 29) that weak or yellowish sulphide-toned bromide prints can be altered in colour, the sepia being intensified, or the original black or grey brought back, and that very simply. For the whole of the processes four solutions are required. They are:

Mercury-bleacher.

Mercuric chloride	1 ounce.
Ammonium chloride	1 ounce.
Water (hot)	20 ounces.

Redeveloper.

Any usual bromide paper developer diluted with from four to ten times its bulk of water.

Sulphide-bleacher.

Potassium ferricyanide	120 grains.
Potassium bromide	1 ounce.
Water	20 ounces.

Sulphide-toner.

Pure sodium sulphide	2 drachms.
Water	20 ounces.

The dry sulphide-toned print is placed in a dish and evenly flooded with the mercury-bleacher, which, it may be pointed out, is the usual bleaching-bath in the ordinary form of mercurial intensification. The action of the bath is very rapid, but the bleaching which it will effect on a print that has already been sulphide-toned is only a partial one. As soon as the print has been evenly affected by this bleaching-bath, which will take from thirty seconds to one minute, it is given a thorough washing for at least ten minutes in running water. The washing must be thorough, the aim being to remove all traces of the mercury solution as thoroughly and as quickly as possible.

If the print, when finished, is to be of a black tone, we may now dilute any ordinary bromide paper developer with ten times its bulk of water, and redevelop the bleached and washed print in this until just a trace of warmth still shows, when the print may be washed and dried as usual. When dry, all trace of warmth will have gone, and a fine black print will be the result, equalling the original with, if anything, perhaps a slight increase in detail and loss of contrast.

If the print is to be toned with sulphide a second time, the developer should only be diluted with four times its bulk of water, and the print should be redeveloped as far as it will go, when a good degree of intensification will be seen to be the result. The print is well washed, and is then placed in the sulphide-bleacher,

given above, washed quickly to remove any yellowness, and then put into the sulphide-toner to darken. This is just the usual sulphide-toning process. The print is then merely washed and dried.

A Useful Print-dryer.

Mr. George C. Cantwell, writing in the December issue of "Camera Craft," gives a description of a print-drying apparatus which he says "is simple in construction, perfectly satisfactory in operation, and always ready for use. This one, which I have had in use for over two years, was made in half an hour. The ends are formed by the top and bottom of an old cheese-box, and they are nailed together in barrel form by using strips of lathing cut 30in. long. This length was decided upon because it is the width of ordinary sheeting. The strips were nailed on about every 4in. around the end pieces, and then covered with an ordinary wire screen. Around the whole was then wound two thicknesses of white cotton sheeting, made fast by stitching, and a free end of 10ft. or 15ft. allowed, on which to roll up the prints around the drum. Some good-sized auger holes were bored in each end to allow a circulation of air, and the contrivance was complete and ready for use. When about to dry prints, unroll the free end of the sheeting from the drum by rolling it along the top of a table or bench, getting the cloth smooth and flat. Lay the prints face down upon the cloth, and then roll up around the drum by rolling the latter over and over. Place aside overnight, and the prints will be bone dry, perfectly flat, and free from blotter 'whiskers' in the morning."

New Books.

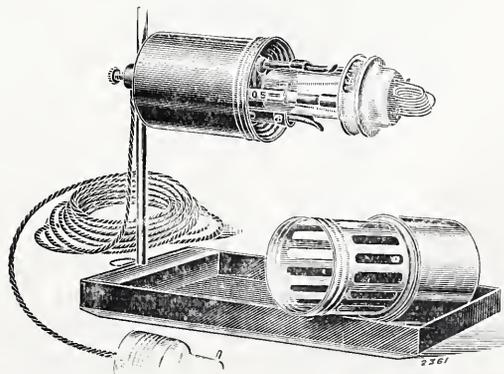
"THE SCIENTIST'S REFERENCE BOOK AND DIARY."—Messrs. Jas. Woolley, Sons, and Co., Ltd., Manchester, have issued a pocket-book containing a diary, divided into 6-day weeks (happy scientists!), and a number of useful memoranda, such as factors for volumetric analysis, atomic weights, etc. The price of the diary is 1s.

DEVELOPMENT (GASLIGHT) PAPERS.—No. 93 of "The Photo-Miniature" (Dawbarn and Ward, Limited, 6d. net) contains, among other formulæ and directions for the working of gaslight papers, a synoptic table of the numerous brands upon the market in Great Britain and America. It is a formidable production, even though one or two minor brands made in this country are not included. Our contemporary brings together a collection of hints and formulæ which makes the volume a very timely publication.

New Materials, &c.

The "Ensign"-Nernst Lamp. Sold by Houghtons Limited, 88-89, High Holborn, London, W.C.

An inexpensive and very portable form of the Nernst lamp has been introduced by Messrs. Houghtons, specially for lantern and enlarging work, on a moderate scale. The lamp costs complete only



12s. 6d., and is manufactured to give a light of about 70 candle-power when used on circuits from 200 to 250 volts. When in use the lamp measures seven inches from end to end, and is made of a form fitting

it for use on an ordinary lime-jet tray. It is a very convenient and economical illuminant for enlarging lanterns, the small area of the light giving a disc of very even illumination. The resistance is embodied in the lamp, and the filament is affixed in a way which allows of its instant removal and replacement, should such be necessary. The lamp lights up quickly without accessory means, and one last point in its favour is the attachment to the electric main, which is the ordinary plug pattern, fitting into the bayonet holder of an ordinary electric lamp.

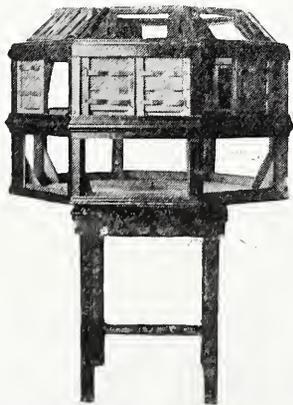
MERCK'S PYRO.—The firm of Merck, famous throughout the world as a maker of fine chemicals, has now introduced a modified form of pyrogallic acid in the crystal form. Very few people, we suppose, now buy their pyro in the light, bulky, feathery form in which it was first introduced upon the market for photographic purposes. The more solid "crystal" variety, on account of its smaller bulk and greater convenience in weighing out, possesses such obvious advantages that we may assume by far the majority of pyro-developing solutions to be made up from this product. Messrs. Merck have marketed such "crystal" pyro for some time, but they have now issued a new form of extremely fine crystals, almost of snowy-whiteness, and evidently of very high purity. These crystals thus represent the most compact form of pyro, and, to speak from our own experience of them in making a developer, possess the maximum solubility and developing activity. We can heartily recommend this pyro, which is supplied from the London house of Merck at 16, Jewry Street, E.C.

AGFA DEVELOPERS.—Messrs. Chas. Zimmermann announce a reduction in the retail prices of the following Agfa developers—viz.: Eikonogen, in tins of 1oz., reduced to 1s.; 4oz., 3s. 2d.; 8oz., 5s. 6d.; 16oz., 10s. 5d.; 32oz., 20s. Eikonogen cartridges, per box of ten, reduced to 2s. Rodinal, in bottles of 3oz., reduced to 1s. 4d.; 8oz., 2s. 8d.; 16oz., 4s. 8d. Amidol cartridges, per box of six, reduced to 1s. 10d. Glycin cartridges, per box of six, reduced to 1s. 10d. Metol cartridges, per box of six, reduced to 1s. 10d. Metol-hydrokinone cartridges, per box of ten, reduced to 2s. 6d. Hydrokinone cartridges per box of ten reduced to 2s. 6d. Pyro cartridges, per box of ten, reduced to 2s. 6d. Hydrokinone paper cartridges, per box of ten, reduced to 2s. Pyro paper cartridges, per box of ten, reduced to 2s.

New Apparatus, &c.

The "Gold-Smith" Printing Cabinet. Sold by Gold, Smith, and Co., 44, Chapel Street, Salford, Manchester.

For use with an enclosed arc lamp, Messrs. Gold, Smith, and Co. supply a printing cabinet at the very low price of £3 3s., complete with the table on which the cabinet stands. Forty half-plate frames can be used simultaneously in this cabinet, or the bottom row will take eight whole-plates instead of sixteen half-plates, if desired.



The printer can stand on one spot and turn the apparatus, which revolves upon the table on small castors, instead of walking around, thus saving time and labour, besides which the means of raising the cabinet to working level is, we think, a decided advantage. The cabinet can easily be lifted off the table, which can thus be used for other purposes.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

MONDAY, JANUARY 4.

Weymouth Natural Science Club. French Lantern Pictures A. E. Staley & Co.
Dewsbury Photographic Society "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Stafford Photographic Society. "Lantern Slide Making." Herbert A. E. Hey.
Leek Photographic Society. Monthly Lantern Night.
Kidderminster and District Photographic Society. "Mountain Scenery in British Isles." H. Tomkinson.
Southampton Camera Club. Annual General Meeting.
South London Photographic Society. Monthly Competition—(Prints.)
Scarborough and District Photographic Society. "Lantern Slide Making." J. Pickering.
Catford and Forest Hill Photographic Society. "The Improvement of the Negative." Harold C. Hancock.

TUESDAY, JANUARY 5.

Halifax Camera Club. Dutch Lantern Pictures. A. E. Staley & Co.
Chiswick Camera Club. "Enlarged Negatives on Rotograph Negative Paper." C. H. Marriott
Otley and District Camera and Art Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Kinning Park Camera Club. Open Night.

WEDNESDAY, JANUARY 6.

Croydon Camera Club. "The Heliographic Printing Processes." W. H. Smith.
Leeds Camera Club. "Picture Making Among the Cornish Folk." W. Thomas.
Borough Polytechnic Photographic Society. "Rambles in London." H. Clifton Beckett.
Edinburgh Photographic Society. "Light and Shade." F. Campbell Noble, R.S.A.
Rochdale Amateur Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.

THURSDAY, JANUARY 7.

L.C.C. School of Photo-Engraving, Bolt Court. "The Commercial Side of a Photo-Engraving House." Arthur Cox.
Midlothian Photographic Association. "Man and Nature on an Outer Island." Illustrated. J. and R. Adam.
Rodley, Parsley, Calverley, and Bramley Photographic Society. "Bromide Pictures." H. Grainger.
Liverpool Amateur Photographic Association. "The Sun's Corona." Rev. Father A. L. Cortie, S.J., F.R.A.S.
Todmorden Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.

Commercial & Legal Intelligence.

COMPANIES REGISTERED.

NATURAL PHOTOGRAPH STUDIOS.—£6,000 (£1). To take over the business of a photographer, etc., carried on by W. Friese-Greene, at 203, Western Road, and 20, Middle Street, Brighton. Private. 203A, Western Road, Brighton. (100,757.)

DEBENHAMS, LONGMAN AND CO.—£2,000 (£1). To take over the business of art photographers carried on by W. F. Longman, A. S. Longman, and D. Welby, at 12, Clarence Street, and the County of Gloucester Studios, Gloucester, and at 3, Spa Place, Cheltenham, as Debenhams and W. F. and S. Longman. Private. The Studio, Clarence Street, Gloucester. (100,749.)

News and Notes.

THOMPSON AND LEE, technical photographers of architecture, machinery, landscape, etc., of 17, Eldon Square, Newcastle-on-Tyne, have issued a most pleasing calendar, bearing a piece of their work.

"**TELECINEMATOGRAPH.**"—The Stockholm correspondent of the *Daily Telegraph* states that an engineer of that town, named Grell, has obtained a patent for an invention by means of which not only photographs, but also animated pictures, may be sent and received by means of the ordinary telegraphic apparatus. He does not state what relation the pictures in question bear to the ordinary cinematograph film.

L.C.C. PHOTOGRAPHIC CLASSES.—At the meeting of the London County Council on December 22, the Education Committee submitted a lengthy report as to the desirability of extending the trade classes at the various Polytechnics under their control, which were commenced at the Borough Polytechnic in September, 1904, as recently

described in our columns. In the Council's Trade School for Girls at Westminster there is at the present time a photography class, and, as in April next, pupils in this class, first year girls, will pass into the second year, the Council decided to appoint an additional assistant teacher of photography at a salary of £100 a year, to form one additional class, and provide additional equipment and material.

THE LATE MRS. BARDSLEY.—The death took place last week, at Ashton, Lancs., of Mrs. Alice Wright Bardsley, photographer. The deceased lady was the daughter of the late Mr. Elijah Moss, and was well known in the town, where she had been in business for about fifteen years. Her work as a photographer was always noted for its high-class quality, and her studio was exceedingly popular. Her late mother was in the same business at Chester Square for a good many years, and she was recognised as one of the best exponents of the art of photography in the district. Previously Mrs. Bardsley's aunt, Mrs. Robinson, was the first lady professional photographer in the town. Mrs. Bardsley was, in her younger days, a contralto vocalist of some ability.

FIRE IN A CINEMATOGRAF THEATRE.—During the last few weeks there has been quite an epidemic of cinematograph fires at Berlin, which, as we have already stated, is greatly exercising the authorities, who, in consequence, contemplate the introduction of drastic measures. They complain that the fire brigade is more or less monopolised in dealing with these outbreaks, and also that the danger to the public safety is increasingly great. The latest fires happened the other evening while a cinematograph performance was in progress. On this occasion it was the electric lighting that was to blame and not the celluloid films. Fortunately, the public got quietly out of the building without any accident happening, and the firemen succeeded in getting the fire under control before any serious damage was done.

CINEMATOGRAF LEGISLATION.—In reference to the cinematograph panic at Stratford on Saturday last, reports of which have appeared throughout the daily press, Mr. Walter Reynolds, L.C.C., writes to the *Times*:—In February last, on my initiative, a deputation addressed the Home Secretary on the dangers of fires at cinematograph exhibitions. Mr. Gladstone then admitted that there was great danger in connection with such exhibitions. Though they had been very fortunate up to the present they could not shut their eyes to the fact that there might be a very serious accident, or even a catastrophe, and it was most desirable that legislative powers should be taken to put these unlicensed places throughout the country under proper authority, and he would consider whether it would be possible to deal with the matter by a short Bill in the current session. He was well aware of the importance of the matter.

Notwithstanding the right hon. gentleman's portentous forebodings which admitted a full knowledge of the risk, his department has been quite content to fall into an unheeding sleep. Even when I nudged the officials last June, by a question put for me in the House, an evasive yawn was the only answer I obtained.

Perhaps the latest cinematograph panic, at Stratford on Saturday last, where a score of people were injured through an unlicensed apparatus in an unlicensed building, will cause a rubbing of the departmental eyes. If not, I will remind the Home Office that about 200 of these unlicensed and unsupervised exhibitions are being given daily in the County of London, and somewhere about 300 in the greater Metropolitan area, besides an enormous number in every portion of the United Kingdom. And it is not an exaggeration to say that a trifling fire which is extinguished by the finger and thumb of some wide-awake operator, occurs somewhere in the country on every day in the year, and that every one of these insignificant fires has the possibilities of a Newmarket, a Barnsley, or a Boyersville disaster in it. Then it is evident the public must be protected against these Providence-tempting displays, and these dangerous shows must be compelled to adopt safety regulations.

At present no law exists under which they can be controlled. But a short Act of Parliament was practically promised to the Council's deputation in February last, and a Bill to maintain order at public meetings was passed in ten minutes the other day. Then why during two whole sessions has not the Government spent at least as many minutes over a Bill to save human life? No Bill has been passed, and, therefore, if the serious accident

should happen which the Home Secretary foreshadowed in February last, the London County Council will not have been to blame, for the Council is, and has long been, anxiously waiting for the power to do its obvious duty, but without this legislative power the Council continues to be helpless, and should Mr. Gladstone's catastrophe occur, on the Home Office must rest the entire responsibility.

Correspondence.

* * We do not undertake responsibility for the opinions expressed by our correspondents.

* * Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

WHY NOT TAX PHOTOGRAPHERS?

To the Editors.

Gentlemen,—Now that Christmas has passed the professional photographer has time to look round him and begin to think, therefore now is the time to approach him to make him think, and if this letter, inserted in the columns of the good old "B.J.," succeeds in doing so, my time will not be spent in vain.

The Chancellor of the Exchequer (in common with all Chancellors of Exchequer in this year of universal trade depression) is faced with a big deficit on the yearly Budget. Now I am quite aware that no politics should enter into a trade journal, hence I am not writing in defence or otherwise of the policy of His Majesty's Government. My point is this: Mr. Lloyd George must find money somehow, and why not raise a portion, say, £250,000, by a permanent yearly tax on all photographers, in the same way that a tax is imposed on game-keepers, chauffeurs, and others—viz., a licence to use their tools—that is, in this case a licence to use a camera?

There is little doubt that many people have entered the ranks of the profession who would never have done so had a licence of this description been necessary before they attempted to master a scientific process. Hence we have—through the admission of anyone and anybody who chooses to enter it—price-cutting, overcrowding, and ruination of what was once a very remunerative profession, and the more people who enter the worse the conditions become.

Now a licence would undoubtedly deter many from starting photography, and consequently entering the professional ranks, so that a chance to improve the situation, or at least to sink no further, would present itself; whereas if the present "race to ruin" continues, heaven only knows who will survive.

The professional photographer would surely offer no objection to paying 10s. or £1 per year for such a benefit. The real amateur—who only practises photography for a hobby and as a pure luxury—could not reasonably grumble, as he would only be doing what the sportsman and motorist already have to do.

No! The people who would "kick" are the plate and paper makers and the chemists. Why? Could not the profession, if they had a fair chance, use enough plates to keep the best factories going? The inferior brands would, in any case, drop out as a natural consequence of competition sooner or later, and need not be succeeded by others as at present. Moreover, would the slow extinction of the semi-amateur cause so much trouble to the manufacturer? How many gunmakers have been ruined by the tax on firearms? Few, if any; and photo-artists are going bankrupt at the rate of two and three a week (*vide* your Commercial and Legal column). How many makers of dog foods and biscuits have been ruined by the dog tax? I have never heard of any.

Then, as to the chemist. Surely he will be able to exist without the 25 per cent. profit on photo materials. Let him keep to his original calling, which he practised before he commenced to manufacture the amateur at the expense of the professional. He has a living without photography. The professional photographer generally can only work at his own job.

Let the camera maker also join in the outcry I would say, "Are you not better employed in making a few good instruments than in turning out hundreds of cheap sets as at present?" Still, someone objects that such a proposal will mean throwing people out of

work. I would ask how many photographers will be thrown out of work if the present system continues? A glance at the advertisement columns of the "B.J." will suffice to prove that the labour supply exceeds the demand in a manifold and ever increasing volume.

Then, again, somebody says the public will suffer. Will they? At present, I presume, competition will be a guarantee that they get the best for their money, and as the "semi-pro-amateur" drops out they will, at least, get decent artistic work. The professional will have to work to keep his place among his fellows, tax or no tax. There need be no danger of exploiting the public.

My object in writing you thus is to get photographers themselves to take the matter up. I am only a country professional, but I can see that present-day methods are those of trade protection. (See the amalgamation of some of our great railways recently.) If the professional is to survive he must do something, and do it now. A petition to Mr. Lloyd George at the present time would be a very opportune proceeding. If the majority of photographers are in favour why not carry it out? I leave the matter here for the rank and file and leaders, employers and employees of the profession to thrash out the pros and cons of the case.—Yours faithfully,

December 28, 1908.

PRO TAX.

[Our opinion of our correspondent's suggestion is that, if carried out, it would not perceptibly affect the serious "amateur-pro." competition. Persons of this latter class could afford to pay for such a licence, just as well as the legitimate photographer—in many cases, better.—Eds. "B.J."]

PROFESSIONAL PHOTOGRAPHY IN BRITISH COLUMBIA.

To the Editors.

Gentlemen,—Pray accept my thanks for publishing the letter I wrote you, re Professional Photography in British Columbia, in your esteemed journal.

I venture, however, to take exception to the comments which you published at the foot thereof.

In no part of my letter did I state that your contributor, "B.J-ite," said it was not possible to get high-class apparatus out here, for the very simple reason that, as you yourself point out, B.J-ite's remarks point in quite the opposite direction.

What I did state, however, was that "your editorial comment which prefaces this article might (I did not say would) lead some of your readers to suppose that it is not possible to obtain high-class photographic materials in this Province."

My sole object in writing you was to remove any misapprehensions as to the condition of the photographic market in this Province, a condition of affairs, which I am intimately acquainted with.

Taking, as I do, an active part in the photographic interests in this Province, and also being personally acquainted with the heads of the leading photographic stores in Seattle, U.S.A., and having attended at and delivered an address before the Convention of the Photographers' Associations of the Pacific North West, which was held last year in that city, I venture to think that I know what I am talking about, and while I have no objection whatsoever to you calling me "an armchair critic," I put it to you that your editorial remarks were not fair comment.—Yours faithfully,

ARTHUR V. KENAH.

Law Chambers, Bastion Street, Victoria, B.C.

[Our correspondent in his letter did definitely say that the writer of the article was under no necessity to make use of "makeshift" apparatus, and, therefore, our comment, we consider, was called for. The writer of the article is a professional photographer; our correspondent describes himself on his note heading as "chartered accountant and auditor."—Eds. "B.J."]

CARBON PRINTING ON IVORY BY SINGLE TRANSFER.

To the Editors.

Gentlemen,—It is by no means a matter of course that "it makes no difference whether the tissue is allowed to dry spontaneously" before laying it down for development, or is not allowed to dry at all, but has had the greater part of the water extracted by alcohol. The hardening effect of drying upon the exposed gelatine may conceivably account for want of adhesion, if that method has been attempted. At all events with the alcohol extraction process the adhesion has been found perfect.

I venture to ask again if there is any previous record of the use of the alcohol extraction process, or even of the washing, drying, and rewetting process, and, if so, where it is to be found.—Yours obediently,

W. E. DEBENHAM.

[The example sent us by Mr. Debenham (December 11) conclusively proves that the pigmented film was but slightly adherent to the ivory, as it could easily be peeled off. Thus our remarks in introducing our correspondent's article on page 911 were not unwarranted. Photographers when they charge many guineas for a coloured miniature naturally want the picture to be as permanent under all condition as it is possible to make it. In the last part of Mr. Debenham's first communication, he says, "It is, of course, quite possible that others may have worked out a similar process." Now, however, he seems to doubt that. So far as we know the partial abstraction of the water by spirit had not been published.—Eds. "B.J."]

METHODS OF PRESS PHOTOGRAPHY.

To the Editors.

Gentlemen,—The following paragraph appeared in a large number of London and Provincial papers on December 26:—

PHOTOGRAPHER VEXES THE KING.

"The King exhibited some displeasure yesterday after the service in the church at Sandringham. A photographer gained access to the churchyard, and took up a position opposite the Royal exit from the church. As the King came through the porch he noticed the man with the camera, and putting up his hand his Majesty said, 'Stop, stop. I do not approve of that!' Inspector Spencer, of the King's Special Police, came up, and the photographer, looking very much abashed, was removed."

I am sure all Press photographers, whether staff, agency, or freelance, will read the above with regret. Our King can truly be called the Press photographer's friend as times without number he has invited the photographers present at a public ceremony to come nearer to obtain their pictures. Many times I have photographed the King, and, as we all know, where the King is, there is Inspector Spencer also, and on every occasion I have been treated with the greatest courtesy.

During the last few months the King has visited Chester, Leeds, and Doncaster, and on each occasion I have seen Inspector Spencer, and, along with a number of London Press photographers, have been granted good positions *inside* the barriers. Now we all know if this kind of work continues our places will be *outside* the barrier with the crowd.

I have seen instructions issued to the police at certain places stating that on no account must any permits be granted to photographers, owing to previous annoyance to which persons have been subjected.

Not only in connection with the King, but other events, for instance, previous to this year, Press photographers on presenting their card have been granted free admission to the Waterloo Cup Meeting, but this year we were asked to pay 2s. 6d. each day, total 7s. 6d., simply because a number of photographers had obtained admission the year before under false pretences. As many as five photographers came and presented cards bearing the name of a well-known morning illustrated. Only one of them was a staff man, the other had probably one print a month used. Three persons had obtained permission on saying they represented the "Daily Dispatch," and when I presented my card I was asked if all the staff was coming.

At the Welsh Eisteddfod, held at Llangollen in September, a photographer obtained admission there on a false card, and when the genuine representative came, he and I, also, had the greatest difficulty in getting admission without paying. We must always keep in mind that free passes are granted as a privilege, and, therefore, as Press photographers, we should do our utmost to see they are not abused. There is a saying that the best way to bring a man to his senses is to touch his pocket, and if these permits are refused to us on account of abuse, and we are called upon to pay 30s. admission to a racecourse, then we shall be brought to our senses, but it will be too late.

A "scoop" is all very well, but we have the future to consider, and, taking into consideration that the illustrated Press is only

a child as yet, but is growing every day, it behoves us to act in such a way as to cause the least annoyance to those with whom our business compels us to come in contact.

I apologise for taking up so much space, but I feel sure this is a matter which needs the serious consideration of every photographer, or we may get the bad name, and also the same treatment more than one has got across the Herring Pond.—Yours faithfully,
FRANCIS FIELDING.

"Daily Dispatch," Manchester.

[We thoroughly endorse our correspondent's protest.—EDS. "B.J."]

PHOTOGRAPHIC VIEWS.

To the Editors.

Gentlemen,—I observe in your "Answers to Correspondents" column in the current number of the "B.J.," a query with regard to colonial photographs. May I draw your attention to the fact that quite recently I thought over almost the whole stock of Messrs. Wilson's valuable series of negatives of Britain and the Colonies. I purpose publishing these in the various forms now on the market, viz.: Platinotype prints, silver prints, bromide, collotype, and coloured, post cards etc. etc. I have pleasure in herewith enclosing copies of Messrs. Wilson's various catalogues. Any of the views contained therein may be ordered from, in any form or process. I hope to be able to send you a new catalogue later on. You may observe I send you separate catalogues of views of Australia and South Africa.—Yours, etc.,
F. W. HARDIE.

416, Union Street, Aberdeen.

Several letters on the question of agreements between photographers and branch managers which reach us as we go to press must stand over until next week.

Answers to Correspondents.

* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.

* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPH REGISTERED:—

W. Shawcross, 108, High Street, Guildford, Surrey. Photograph of Councillor W J Lymoss.

A. W. SWEETINGHAM (Shanghai).—We are very much obliged to you for your corrections, which we see are quite needed. We are asking our publishers to see what they can do for you. We should think the issue can be rolled, and hope then it will reach you in a better condition for binding.

SULPHIDE (Shanghai).—We think there is little doubt that your failure to get a vigorous tone and proper colour is due to the use of sulphide which is stale or decomposed. Sulphide does not keep well in solution and the liquid state into which your supply of the solid sulphide had come is strong evidence that the sulphide was not fit for its purpose. We should advise you—if you cannot get fresh supplies of sulphide easily—to use the thiomolybdate substitute made by Edmund and Co.

B. DOS SANTOS LEITAO.—(1) Arc light could be used—Jandus, Jupiter, Regina, or Westminster arcs, but the ratios would require to be different. (2) A transparency of sufficient contrast—not too soft. (3) We cannot say. It is not put forward as specially

corrected. The "Cooke" is very largely used by three-colour photo-engravers. (4) No doubt the principle is good, except as regards bulk; but the instruments on the market have a limited range of movement as regards focal extension and rise of front, as compared with the best reflex of the ordinary type. Better write Messrs. Ross, Ltd.

B. C. H. (Mediterranean Fleet).—(1) The prints are really creditable work, and above the quality of much work done in a business way for the lower middle classes in this country. (2) We would advise very cautious moving, because it is just the middle-class work—the cabinet print—which has most severely suffered in competition with midget and postcards. You should be largely guided, we think, by the possibility of going into business where you could command local support and patronage from those you have already come in contact with. (3) Very good portraiture; head, and head and shoulders is regularly done with one arc, and even small groups, but for these latter more than one lamp is usually necessary. (4) With practice, it certainly is. (5) We believe you could use the phrase you speak of, but you could not use the Royal Arms. (6) As we have said, we advise you very seriously to consider whether you would be in as good a position as you are now when you have to pay rent, rates, and labour. We will be glad to help you further.

ENSYNA.—Would you kindly say who are the makers of the "Ensyna" printing paper (photographic)? I got a circular, with prices and particulars of working, but no address on it except H., Ltd., London.—AXME.

Houghtons Ltd., 88-89, High Holborn, London, W.C.

A. F. (Southampton).—The advertisement did not appear in our columns, but you may find what you want on page 973 of our issue of December 25.

DELTA.—The ferrous oxalate developer will give a very fine black tone, of greater purity than the organic developers. The more rapid the plate the blacker the tone, as a rule, and we have found the "Wratten" T.T. (Tropical Transparency) plate give a very fine black tone with developers such as Rodinal. We have not found colour of the latter to affect development, but we should naturally prefer to use a fresh clean solution for lantern work. Rodinal is not now made in solid form.

SULPHIDE TONING.—(1) Will you please tell me in your next issue why it is, in sulphide toning of bromides, that, after bleaching in the ferricyanide bath, the sulphide solution fails to bring back the picture? The formula I am using is taken from the "Almanac," page 809. (2) How far should the bleaching be carried? (3) Should the prints be over-developed? (4) Should any particular developer be used? I use metol and hydroquinone. (5) Can you recommend a good bath to give a rich warm tone? I do not like a brick-red, such as uranium gives.—QUERIST.

(1) The most common cause is stale (decomposed) sulphide solution. (2) The prints are bleached until they have a pale buff-coloured appearance. (3) Very slightly. If the thiomolybdate darkening solution be used a perfectly normal print is the best, as this bath, if anything, pulls up the brilliancy a little. (4) Metol-hydroquinone is quite satisfactory. (5) If you cannot get what you want with sulphide—you should be able to do so—the next best is the Ferguson copper process. See the "Almanac."

EXHIBITIONS.—I wish to exhibit at one or two coming photographic exhibitions some ceramic photo-enamels—I mean the more important exhibitions, where a medal or prize, if obtained, would be worth having. I am a "professional." Could you give a hint of suitable exhibitions and how to proceed?—S. C. W.

See the list of "Forthcoming Exhibitions" which appears regularly in our columns, or perhaps you could better take those which we review. See "Exhibitions" in the index published last week.

LENS FOR COPYING.—(1) I have to copy a number of paper prints (quarter-plate size), and want to make enlarged negatives (whole-plate size) on my camera; it has an extension of 22in. Will you tell me the correct focal length of lens to get? If 6in. focal length would not be too long, that would be a very useful size for photographing interiors whole-plate size.—A. R. GRAY.

(1) As you will see from the table on p. 939 of the "Almanac," a two-fold linear enlargement (which is that in your case), at a

camera extension of 21in., means a lens of 7in. focal length. A 6in. lens would require 18in. from lens to plate, 9in. from lens to print. (2) A good R.R. lens, working at $f/8$, would answer quite well, but, of course, would not cover a 1/1 plate when used at its normal extension. For this you would require a wide-angle anastigmat, costing, say, twice the price, and working only at $f/16$, which would be inconveniently slow for copying direct. We should advise you either not to combine the two in one, or else purchase a first-grade 6in. anastigmat, which, with $f/22$ or thereabouts, would cover a whole-plate.

LANTERN.—The only suggestion we can make is that the supply of the gases is not quite rightly adjusted to each other. Possibly that of the oxygen is too great. The difficulty may be got over by a little tentative manipulation of the taps. If the dissolver is out of order, you had better send it for repair to a firm such as R. R. Beard, 10, Trafalgar Road, Old Kent Road, S.E., or Newton and Co., 3, Fleet Street, E.C.

DEAD-BLACK BACKGROUND.—Could you give me any information as to how "dead-black" backgrounds are obtained? I have often seen reproductions of portraits and flowers where the background is jet-black and the image stands out clear. If you could give any information or tell me where I could get it I would be very grateful.—L. L. A.

A dead-black ground, even when specially prepared, as described in our issue of October 9, 1908, is usually not sufficient. What is necessary and is commonly used for both portraiture and smaller work is a black space behind the subject, formed by walls, floor, and ceiling all of dead-black. In some cases, perhaps, it may be practicable to block out all round the subject on a positive transparency made from the negative, and from this transparency preparing a new negative, having perfectly clear glass round the subject.

PARENT.—Write to one or two firms, such as Mr. S. H. Fry or Raines and Co., asking whether they would do what you want. We doubt it; but if necessary write us again.

LENS QUERY.—Would you be kind enough to tell me, through your valuable paper, the "B.J.," what the market value of this lens is—Cooke quick-acting portrait lens, No. 99,749? I may say I have just purchased same for 15s.—G. ALLEN.

We do not lay ourselves out to appraise the market value of lenses. If we did, it would be impossible to do so without seeing them or even knowing their size.

VALUE OF LENS.—I should be glad if you will inform me, through the "Correspondence" columns of the "Journal," what is about the probable value of a 10 x 8 Grubb studio lens, C. 2, Waterhouse stops in front of lens, and not as usually between the combinations.—G. E. B.

See reply to "G. Allen" Your best way will be to try the lens yourself and see what it is worth to you. It is evidently a very old make, by the position of the stops; but all Grubb's lens were good for the time they were made.

A TWENTY YEARS' PRINTER.—If you were a weekly servant, receiving your wage weekly, you were entitled to a clear week's notice. After receiving the notice, if you were dismissed before the week had expired you were entitled to the full week's pay. With regard to the deduction, that was illegal, unless there was an agreement that such deductions would be made.

PAVILLION.—Yes, that is so, it will certainly upset registration unless the filter plate is perfectly regular.

W. R., and others.—In our next.

LANTERN-PLATES, ETC.—1. Can printing-out lantern-plates as described in "Photography in a Nutshell," page 136, be procured now? If not, can ordinary plates be treated with any preparation to print out (contact) visibly? 2. Where can the special printing frames described be got? 3. Is there any development paper which will develop without the use of a restrainer to keep the whites clear (negative bromide paper)?—A. A.

1. The Paget Prize Plate Co. manufactured such plates some years ago, but we are not sure that they still do so. 2. Registering frames are obtainable. Messrs. Houghtons issue one—the Cherill—which doubtless could be used for plates. 3. All "gas-

light" papers require bromide in the developer, and most bromide papers are the better for it—but perhaps we do not properly understand your query. Certainly, a negative paper such as the Rotary Co.'s might be developed without bromide in the developer, but we should usually prefer to use a little.

LENS NOT WORKING TO FOCUS.—I have had given me an old portrait lens, about 4 in. in diameter and 18 in. equiv. focus. It has not, I think, been corrected, and is non-achromatic. Picture sharply focussed on ground glass, in negative are fuzzy. By placing a blue glass in front of lens while focussing I get a good sharp negative with fine perspective and in every way excellent, only for a lack of detail in shadows. I shall thank you for information by which I can have this righted, and also some means of dispensing with blue glass, the dim image making it very difficult to focus.—J. COOK.

It is clear that the lens has a chemical focus. The best thing to do is to ascertain the difference between that and the visual focus, and make the necessary alteration after focussing the subject, as was done with all the early lenses of Voigtländer. To do that, place a number of cards (six or eight) with bold print on them in a row three inches or so one behind the other. Then focus the centre one sharply and mark the sliding tube of the mount, and take a negative. Then, note which card is the sharpest in that. Next, focus on that, and again mark the tube. The distance between the two marks show the distance the lens has to be racked in or out (probably the latter) after focussing to obtain a sharp negative.

R. L. S. ON PORTRAIT PHOTOGRAPHY.—In a letter to Trevor-Haddon, the painter, under date of July 5, 1883, Robert Louis Stevenson wrote: "I have no photograph just now; but when I get one you shall have a copy. It will not be like me; sometimes I turn out a capital fresh bank clerk; once I came out the image of Ranjeet Singh; again the treacherous sun has fixed me in the character of a travelling evangelist. It's quite a lottery; but whatever the next venture proves to be—soldier, sailor, tinker, tailor—you shall have a proof. Reciprocate. The truth is, I have no appearance; a certain air of disreputability is the one constant character that my face presents; the rest changes like water. But still I am lean, and still disreputable."

AN ELECTION PORTRAIT.—Set a photographer to catch a thief must be the new rendering of the old adage, writes the "Pall Mall Gazette." The subject of a flashlight picture is often a little nervous at his first experience, but seldom with such good cause as the Pittsburg town councillor who made an involuntary record upon the camera the other day. He was keeping an appointment with a contractor in order to receive payment of certain "boodle," and just as he was counting over hundred-dollar notes in order to see that honour had been kept among thieves, there was a flare and a puff of smoke, and the unhappy servant of the public knew that he was betrayed. The photograph, we are told, "came out well," and is now going the round of prosecuting officials. The councillor is said to be a candidate at the forthcoming elections, but it is improbable that this particular likeness will be chosen for circulation by his ward committee.

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SUMMARY.

An exhibition of "Scenes and Figures of the Coast near Messina" opens to-day at the house of the "B.J." The photographs are by Count W. von Gloeden, and can be seen daily from 10.30 to 4.30, Saturdays 10.30 to 12.30.

The Northern Photographic Exhibition, which opened at the Manchester City Art Gallery on Wednesday last, January 6, is fully reported on p. 24. Much well-known work is shown there, but much that is new and highly creditable.

In the report of the Scottish Salon, which opened on New Year's Day, we deal more particularly with the work shown there by professionals. (P. 26.)

A process of making P.O.P. for the production of contrasty prints, a device for focussing enlargements when near to the easel, and a design for a portable tripod appear among "Patents of the Week." (P. 27.)

In some editorial notes on the question of assistants or branch managers' agreements we quote the text of an agreement containing several overbearing stipulations. (P. 18.)

"The Marking of Packets of Plates and Papers" and "Agreements with Managers of Branch Studios" figure under "Correspondence." (P. 34.)

The report of a demonstration of X-ray work by Dr. C. E. K. Mees and Mr. W. H. Smith at the Croydon Camera Club appears on p. 20.

EX CATHEDRA.

From Messina to Wellington Street.

We have to announce that there is now open in the "little gallery" at the house of the "B.J." an exhibition of photographs which we have brought together under the title of "Scenes and Figures of the Coast near Messina." They represent the work of Count von Gloeden, who for years past, at his home at Taormina, has used his camera in portraying the picturesque Sicilian coast-line and the no less picturesque people, so many of whom have been suddenly overtaken by destruction. Taormina, as about the nearest place to Messina which has escaped the earthquake, has suddenly become a familiar name, yet no verbal picture can describe the beauty of its natural situation, the vistas of declivitous landscapes spied through openings in the pergolas of gardens standing on the hills. Count von Gloeden, too, has shown a poetic imagination by including in many of these pictures the nude figures of graceful Sicilian boys, who give to the scenes an idealism which causes the newspaper reports of the ruin of the neighbouring Messina to strike even a more tragic note of realism.

* * *

The Marking of Packets of Plates and Papers.

The letter by Mr. R. Ballantine on another page refers to a matter of which we have frequently heard dealers speak in complaining tones. The brands of photo-materials, papers in particular, have so multiplied of late that a dealer is taxed to no little degree to devise means of quickly producing what a customer wants. In cases of which ocular instances have been given us, the marking of the precise description of a bromide paper or P.O.P. has been none too legible, and in some cases was not easy to decipher in the subdued light prevailing behind many a dealer's counter. And when in addition to these tasks the dealer has to make certain of the price of a particular size of a particular variety of a particular brand of paper, it is not to be wondered that he feels he could appreciate the action of a manufacturer who might save him more than one half the labour of handling goods over the counter. We believe our correspondent's suggestion is one which the retail trade will thoroughly endorse.

* * *

Controlling Development with Pyro Soda.

The paper in our last issue by Messrs. Lumière and Seyewetz, on a method of development with pyrogallie acid when dealing with under and over exposure, more or less revives the old question of control in development which has been quiescent of late. The writers claim that by their method it is possible to obtain from plates that have been eight to ten times over-exposed almost as good contrast as from correctly exposed plates. For pyro-

ammonia this would be a modest claim, for, with certain methods of working with that developer, it is easy to get good results from a thirty times over-exposure. Pyro-soda is, however, the developer that Messrs. Lumière and Seyewetz use, and with this it is not quite so easy to obtain control. The correction of a ten times over-exposure, therefore, means a good deal. It will be noted that the developer contains no special ingredients, if we except the soda bisulphite solution, which up to the present is not much used in this country. The method, too, is on familiar principles, as it involves commencing with a developer weak in alkali, and then adding more alkali or more pyro as circumstances indicate. A new feature is the fact that extra bromide is not added to combat over-exposure. Probably its purpose is fulfilled by the bisulphite. Very little is said with regard to the effects of the method with under-exposure, and the procedure does not look very promising for such conditions. Yet it is certainly worth trial for over-exposure, even though there may be some theorists who say that the latter cannot be in any way corrected by modifying the process of development.

* * *

Unusual Spots on Plates.

Under this title there is a timely note in the current issue of the Ilford Company's "Photographic Scraps" as to the defects which may arise from unsuspected causes when the conditions of working depart from the normal. Round dark spots which made their appearance on the first three only of five plates developed in succession, were traced to the separation from plate solution of the developing agents proper (metol and hydroquinone) on a drop in temperature. Particles of the developers were thus deposited on the film, producing additional density, and it was only when several plates had been developed that the rocking of the dish had caused their re-solution and the return of the developer to normal conditions. As pointed out by the contributor of this note, the first impulse in such cases is to lay the blame at the door of the manufacturer, whereas a little thought will discover the fact that the abnormality is in the worker's procedure.

* * *

How Not To Run An Exhibition.

Some time ago we announced in these columns the intention of the German manufacturers of cinematograph apparatus and films to close the year with an exhibition which would at once awaken public interest in the trade and its educative possibilities, and also serve as a practical proof of the recent progress that has been made. At the time we were not altogether sanguine if public interest in the trade was sufficiently great to warrant a successful exhibition, even in exhibition-loving Germany. The result proves that our scepticism was not without good foundation. Though the energetic committee responsible for the venture has left no stone unturned, and has even gone so far as to send out, according to one report, something like six million free tickets, the exhibition is little short of a fiasco, and well deserves the contempt hurled at it by the daily press. A walk through the hall impresses the visitor with the feeling that it is much more an exhibition of odd lots gathered together by furniture dealers and such like, with a photographic stall dropped accidentally here and there to save the situation. Except that in the opinion of the promoters the word cinematograph attached to it exercised a certain attraction, the collection might equally as well have been called a general market. As one of the newspapers justly points out, it is difficult to imagine what typewriters, pianos, fountain pens, gas-cookers, boot polish, diabolos, fortune-telling contrivances, furniture, and such like can have to do with cinemato-

graphy. So far the public has been shy of accepting the generous invitation of the promoters, and the yawning stall-holders are still waiting patiently for the promised rush. But that is not the worst calamity which has befallen the enterprise. In the numerous advertisements which appear a special feature is made of an exhibition of moving pictures on a large scale. For this a special charge is made, and on the opening night a number of visitors paid the entrance fee. After sitting staring for nearly an hour at the white screen before them, on which no pictures were projected, they became somewhat impatient for the performance to begin. In answer to their clamours they were informed that the authorities had not yet given their permission to hold the performance, but that the all-important document was expected every minute. However, though the minutes flew the document never came, and there was a scene in which many uncomplimentary things were said about the exhibition. There was a general rush for the cash office, and people clamoured to have their money refunded, vowing vengeance on the directors, who were compelled to give back all the money they had received. Up to the time of writing permission to hold the performance has not been granted.

PHOTOGRAPHERS AND ASSISTANTS' AGREEMENTS.

THAT the question of branch managerships is of considerable importance, alike to employers and employees, is evident from the letters addressed to us since the appearance of the notes in our issue of December 26th. There is little question, when an operator and manager has been for a few years in the management of a branch establishment and has become familiar with the customers, and they with him, he is an important factor in the business. In fact, he quickly assumes more importance in the eyes of the clientele than the proprietor of the business himself. In the event of his leaving the establishment and opening one of his own, or entering the service of another photographer in the immediate neighbourhood, there is a great probability—supposing that he is well liked by the sitters—that many of them will follow him, and in this way the original business will be materially injured, inasmuch as his connection with it has been—no discredit to him—more or less personal.

In view of such contingencies, it is customary for photographers, when engaging their representative, to have an agreement to the effect that in the event of his leaving he shall not open a rival studio or be connected with one within a certain radius for a given period. There is nothing at all unreasonable in this practice. The man is paid for his services, and he knows the terms of the agreement upon which he is engaged. If at some future time he finds the conditions of the contract irksome, he has no reasonable ground of complaint. We are here assuming that the terms of the contract are reasonable alike to the employee and the employer. In many cases, however, that have come under our notice they have been just the reverse, so far as the employee is concerned—the conditions being all one-sided and entirely to the advantage of the employer; indeed, so much so as to defeat, we believe, the object in view.

It is a maxim of law that he who would have equity must himself give equity, but the rule is not observed in many photographers' agreements. The result is that if these latter were contested in a court of law, they would prove void and non-binding. Hence the employee is free to do whatever best suits his interests.

Of the letters we have received we may refer particularly to one from a correspondent, who has sent us a copy of an

agreement which he is expected to sign if he takes the appointment offered. We have read many unreasonable agreements, but this one quite outdoes them all. Its proposed terms are so incredible as to be little short of ludicrous, and, as it may be amusing to our readers, we give it here in extenso, only suppressing such details as might identify it:—

AN AGREEMENT made the — day of — one thousand nine hundred and eight BETWEEN — of — and elsewhere proprietor of the — Photography Studio and etc. hereinafter called the Employer of the one part and Mr. — hereinafter called the Employee of the other part

WHEREAS the Employer has at the request of the Employee agreed to employ and retain the Employee in his service as a photographer (general) in connection with his system of Photography as the Employer shall from time to time be engaged in upon the terms conditions restrictions and engagements hereinafter contained

The Employer doth hereby agree to keep and retain in his services the Employee and the Employee doth hereby agree to enter into such services and to serve the Employer in such a manner and at such places as the Employer may from time to time direct or require for three years unless determined by two months previous written notice to be given by the Employer to the Employee at any time of his intentions of determining this contract of service or on payment in lieu of notice. The Employee shall be liable to instant dismissal if he proves to be incompetent disobeys or wilfully breaks any of the conditions hereof or any standard rule of the Employer. The Employee shall receive as wages the sum or sums stated at the foot hereof and agrees to be paid in accordance with the Employer's general rule as generally adopted in his establishments (i.e.) (as at present) be paid on Wednesdays leaving so many days in hand as guarantee (as the occasion demands)

IN CONSIDERATION whereof the Employee doth hereby declare that he shall and will well and faithfully serve the Employer in the said business and will not during the continuation of such service nor after quitting such service in any way set up or exercise or be concerned either directly or indirectly as servant or master for his own benefit or that of any other person or persons whatsoever in any Photographic business the same as the business or businesses carried on by the Employer or set up no business in which postcards would make a specialty or to open any business of photography whatsoever in any town where he was heretofore employed by the Employer or in any town where the Employer is carrying on business whether in his own name or in connection with any other firm or firms company or companies especially will not at any time whatsoever divulge the business of the Employer or his patent or patents or the chemicals used in connection therewith or any of the apparatus or secrets of his business or system to any person or persons whatsoever not duly authorised by the Employer also that the Employee will not under any circumstances whatsoever permit any not duly authorised by the Employer to enter any dark room used in connection with the Employer's business and over which the Employee shall have sole (whole) and partial charge for the time being and that the doors of rooms shall always be kept locked (except when in actual use) (going in and out by the Employer or such person or persons so duly authorised by the Employer as aforesaid) Also that the key of the dark room shall not be allowed to go out of the possession of the Employee or be handed to any person or persons whatsoever not duly authorised by the Employer to have the possession of such key it being the intention that no person or persons (whatsoever) whatsoever except the Employer or those duly authorised by him shall be allowed to enter or see into any dark room aforesaid such dark room and the contents thereof being strictly private

The Employee will be held responsible and will be liable to pay for any breakages damages or losses sustained by the Employer through the carelessness of the Employee.

If at any time within the period of ten years after quitting such service the Employee doth break any of the conditions in this agreement he shall and will pay unto the Employer the sum of fifty pounds for such and every day that the Employee shall act contrary to this said agreement every such sum or sums of money to be considered and taken as liquidated and ascertained damages to be received by action or actions at law to be brought by the Employer without proving or being required to prove any special or other damages

IN WITNESS whereof the said parties to these present have hereunto set their hand the day and year first above mentioned

It will be noticed that, although the agreement is for three years, the employer is at any time at liberty to discharge the employee by giving him two months' notice. The latter is also liable to instant dismissal if he "breaks any of the conditions hereof or any standard rule of the employer." The employee is bound, according to the agree-

ment, after quitting the employer's service not to set up in business or be connected with businesses in which postcards are made a specialty of, "or open any business of photography whatsoever in any town where he was heretofore employed by the employer or in any town where the employer is carrying on business, whether in his own name or in connection with any other firms or companies," etc. He must, also, not divulge the employer's "patent or patents"—a stipulation which is somewhat amusing, seeing that all patents and their details are published and can be seen by anyone. Furthermore, he is to be held responsible and liable to pay for any breakages, etc. In the event of his breaking any of the conditions in the agreement within ten years after quitting the service, he is to pay to the employer the modest (!) sum of fifty pounds for every such day that the employee acts contrary to the agreement.

This agreement is really amusing reading, seeing that the business is evidently one in cheap portrait postcards. It purports to restrict the employee for ten years after leaving from following his calling in several large towns, whether he was or was not connected with the businesses carried on in them. It may be stated that London is mentioned as one of these towns.

As regards the validity of such an agreement as this—if the candidate for the berth signed it—there is little question in our mind that it would be pronounced null and void, as being an undue restriction of trade and against public policy. In the former article we mentioned that many agreements are so unreasonably drawn as not to be worth the paper upon which they are written, and this seems to be a case in point. It is quite possible that if this agreement were signed by some employees they might be intimidated from departing from it by fear of legal proceedings for the recovery of the fifty pounds a day, and it is possible that it was framed with that end in view.

THE SLACK SEASON.

THE slack months of January and February, by contrast with the preceding rush season, are apt to be somewhat depressing for the profession as a whole.

The amateur also, unless he be particularly enthusiastic, or favoured by the recurrence of the alleged old-fashioned winter, will find but little to do in the photographic field. Our good friends the dealers will, from the above causes, find business at a standstill. Whilst we cannot provide employment for these chief divisions of our readers, we wish to make a few suggestions as to how they can each most profitably fill in this slack time. The first-named should easily occupy his time with useful, if not directly profitable, labour. The negatives of the past year will need to be indexed and packeted for easy access in case of a re-order. Most professionals have their own pet system, so it is unnecessary for us to enter into detail. With regard to the re-orders, however, one will now have leisure to follow up previous orders, a polite letter serving as a reminder. A slight reduction on additional orders frequently induces them. Though scarcely the most suitable time of the year, it is better to do this whilst one has the time than not at all; moreover, one can take advantage of the opportunity to draw attention to specialising in the copying, enlarging, etc., of old photographs, paintings, and documents, which work is a very acceptable addition to the studio. Architectural photography, heirlooms, furniture, or any still life subjects should be mentioned. Any necessary re-decoration or alteration of premises should, if possible, be executed now. Although some undertake these expenses grudgingly, a few pounds spent discriminately in this fashion is often absolutely necessary, if the faith of one's clients and the prestige of the establishment

are to be maintained. Many studios even neglect such necessities as whitewashing dirty ceilings, repairing broken properties, and replacing spoilt or out-of-date backgrounds. It is as well to remember the old adage, "Nothing succeeds like success." Even if the reality of the latter is absent the appearance must be maintained. It is not always necessary to employ decorators to achieve this; a rigorous spring clean, which will include the rearrangement of the best and newest specimens and the destroying of any that are old and deteriorated, is often all that is necessary to improve matters. All schemes for bettering one's financial position, whether by improving the work, advertising, raising prices, or introducing novelties, should be carefully considered. Since the matter depends to such an extent upon local conditions we cannot advise more definitely.

Whilst it must be admitted that the amateur movement has received a check, the mere button-pressing variety receiving but few new adherents, the ranks of the artistic and pictorial amateur have never before been so full. We should be the last to deny the tiresome sameness of the average amateur's efforts, and it is natural that only a short time should be necessary for him to tire of them. Those who have passed this stage, however, and have learnt the delights of picture-making by photography become more enamoured as time goes on, and their knowledge of pictorial principles increases. Moreover, one's knowledge of the good and bad in the other graphic arts

becomes more critical and appreciative. Ordinary matters of everyday life, such as combinations of colours, the arrangement of domestic goods, the decoration of one's home, become developed in a fashion that is both pleasing to our friends and useful to one's self.

Dealers will find it to their interest to point out to the tiring novice the great superiority of pictorial over topographical photography. A specimen or two by a good local picture-maker, or, if that is not available, one of the volumes illustrating modern pictorial work, is frequently sufficient to raise their enthusiasm. In many cases it will be found that the amateur worker is quite unaware that such work can be produced by amateurs and by photography. We have frequently been asked if an ordinary enlargement on bromide paper from a straight negative of an artistically selected subject was a photograph. When it was explained that the only difference between it and the inquirer's own efforts was in the selection of the subject, the surprise at first amounted to unbelief. An introduction to the local photographic society will often serve to keep several customers' interest alive during the winter months, so that they will be prepared to take up their hobby with renewed vigour at the first signs of spring. A great number of amateurs owe, and admit, a very great obligation to their dealers for advice, encouragement, and help during their novitiate stage, and their gratitude usually takes the practical form of continued custom.

X-RAYS, THEORETICAL AND PRACTICAL, AT THE CROYDON CAMERA CLUB.

As previously announced, Dr. C. E. K. Mees and Mr. W. H. Smith gave a "joint and several" lecture on the above subject on the 18th ult., before a large number of local medical men and members. In the following abstract many of Dr. Mees' observations requiring the use of diagrams have been omitted, as has the entire contribution of Mr. Smith, for the same reason. The latter confined himself to a practical consideration of the working of coils and their accessories, in which he was obviously very much at home.

High Potential.

For the benefit of those with but slight knowledge of electrical matters, Dr. Mees first gave a sketch of the laws that govern the generation of the electric current, both primary and induced, and pointed out that electricity through solid conductors produces heat proportional to the square of the current; through liquids chemical dissociation and electrolysis of water. If required to pass through air or gases, the potential must be enormously extended, only currents of high potential being able to overcome the great resistance they offered, and bridge over space by means of a spark. For the production of high-tension currents he used a large enclosed Wimshurst machine under three-atmosphere air pressure, and driven by a motor, this giving a more regular current than a coil. A "Rhumkoff coil" consisted essentially of an iron core, surrounded by thick insulated wire called the "primary," around which many thousand turns of insulated fine wire were coiled, forming the "secondary." An interrupted current from any convenient generator, on passing through the "primary," induced a current of high potential in the "secondary." The mechanism for making and breaking the primary current is termed an "interrupter," or "contact-breaker." The induced current set up at the "make" is feeble; that induced at the "break," provided the break is sudden, is very large. The iron core is not instantly magnetised, or de-magnetised, either on the application, or cutting off of the current; to obtain rapid de-

magnetisation, and a consequent quick break, the interposition of a condenser is necessary. The action of a condenser is not very well understood. It has been suggested that at the "break" the current comes back with a rush in the opposite direction, inducing magnetism in the iron core in an opposite direction also, resulting in a very rapid break in the "secondary." Careful adjustment of condenser in relation to coil, spark-length, and current employed is necessary.

The "Lenard" Discharge.

The high-potential induced current passes readily through gas and air. If the sparks are passed through a sealed glass tube, and the air gradually exhausted, the results grow in interest and beauty as exhaustion proceeds. At moderate exhaustions the tube is filled with a more or less uniform glow, but as this proceeds a more diffused light becomes apparent, and concentrates round one pole in a different manner to the other. At higher vacua fluorescence appears, and the discharge from the cathode becomes of a nature distinctly different from that of the anode. At exhaustions 1-100,000th to 1-1,000,000th atmosphere, the discharge from the cathode becomes more and more important, and is known as the "Lenard discharge." This does not pass from cathode to anode, but takes a different course, travelling at right-angles to the surface of the cathode and striking the glass of the tube. An interposed cross projects a shadow; a metal windmill placed in its path revolves, and a magnet draws the discharge towards it. The accepted idea is that the Lenard-rays are actual particles of negative electricity, projected with great velocity from the cathode. If an aluminium window is placed in the wall of the tube where the projected rays strike, then the rays will pass outside, but only penetrate the air to a very slight extent.

Formation of X-Rays.

Röntgen was experimenting with the Lenard-rays, when he found that dry plates stored in proximity became fogged. Upon thinking the matter out, he came to the conclusion that the

aluminium window hit by the Lenard-rays must form a starting point, or nucleus, for some unknown, invisible rays radiating or scattering in all directions and essentially different from all previously known electric radiations. Further investigations showed that these rays (which he termed the X-rays) pass with ease through various substances, transparent or opaque, and are stopped more or less by other substances. They were observed by means of a fluorescent screen, and their shadow images recorded by photographic plates. With a large source of radiation, the shadows have naturally indistinct outlines, and it was obviously desirable to find some means of getting a smaller radiating surface. This led to the invention of the "focus tube." In a focus tube the cathode is made of a hemispherical shape, the Lenard-rays being thereby brought to a focus inside the tube on to a metal plate forming an anode, and termed the "anti-cathode."

"Hard" and "Soft" Rays.

Röntgen found that the X-rays were not all of one kind, their penetrative power widely varying with different tubes; with some, even a piece of paper was sufficient to largely arrest the rays, whilst other tubes emitted rays that penetrated bones and tissues with ease. The former he called "soft," the latter "hard," tubes now being known as soft tubes or hard tubes. A close connection between this difference and the vacuum in the tube was immediately ascertained, and an ingenious method of estimating the "spark-length" or resistance of the particular tube in use arrived at by the following means: The tube is connected to the two poles of the high-tension electric generator in the usual way, an alternative route from one pole to the other being made along a wire with an adjustable air-gap in its circuit. With a "hard tube" the high potential current will spark across a big gap in preference to bridging the exhausted tube, whilst with a "soft tube" the reverse is the case. The distance apart of the two ends of the air-gap, when sparking across it almost ceases, is the "equivalent spark-length" of the tube being tested.

An X-Ray Spectrum.

Although X-rays cannot be refracted by a prism, or lens, or reflected or deviated by any known means, only stopped, yet something in the nature of a spectrum showing varying degrees of "hardness" throughout its length can be obtained. If a focus-tube is taken with a big anti-cathode, and the Lenard-rays bent by means of a magnet, then they will impinge on a larger surface than would otherwise be the case; every point on such surface impinged on being a source of X-rays, hard rays coming from points hit by the rays suffering least deviation, and travelling with greater velocity. A camera, minus a lens, but fitted with a metal panel in front with a pinhole aperture, is placed facing the emitted stream of rays, the pinhole, so to speak, allowing a spectrum to fall on a photographic plate, or fluorescent screen, when it may be examined. A rough analogy might be drawn between X-rays and an ordinary spectrum of white light. If a blue glass is interposed in the path of the red rays, they will be nearly all stopped, and might be considered as "soft." A larger proportion of green rays will pass through, and can be deemed "harder." The blue rays, being transmitted without appreciable loss, will represent very "hard rays."

Photographic Work.

When working with X-rays, fundamental differences are at once observable as compared with ordinary photographic procedure. For instance, if a pile of bromide papers are placed in the path of the rays, they will to all intents and purposes be uniformly fogged. It follows that a dry plate will be just as much exposed at the back of the film as at the surface; a double-coated plate, having two films of equal speed, will therefore, in X-ray work, possess double the effective speed. X-ray

plates are consequently made extra rich in silver, which has a certain "stopping" power. Another plate contains a metallic salt in addition to the silver, and is opaque to the rays. It also produces secondary scattered radiation, thus attaining the same end without unnecessarily increasing the thickness of coating. At the beginning very long exposures were necessary; at present these have been so much reduced that "instantaneous" exposures are possible. The organs that move in breathing, and the heart, naturally require short exposures to prevent blurring of the shadow image.

Medical Applications.

Notwithstanding the reduction in exposure, the application of X-rays to medical and surgical cases was in many cases of a most difficult and intricate nature, especially in the study of stone in the kidney, enlargement of the heart, and incipient tuberculosis. In the case of indigestion and certain derangements of the intestines, it is possible by means of bismuth sub-nitrate to watch digestion proceeding, or the clogging of any internal passages. The sub-nitrate is very opaque to the rays, and can be compounded with some flour meal without discomfort to the patient. Modern practice employs very intense rays, all the current the particular coil in use will stand being put through, but subject to the breaking down point of the tube, which limits the pressure that can be applied. Tubes with anti-cathodes cooled with water are on the market. On the other hand, the tantalum tubes of Messrs. Siemens can be worked at white heat. An increase of power does not necessarily mean an increase of the primary current, as efficiency largely depends upon the means adopted to break such current. A rapid and very complete break meets the conditions best. For fluorescent screens, the interruptions can hardly be too rapid, though slower speeds may be found more effective for dry plates.

Contact-Breakers and Transformers.

Contact-breakers are various, the oldest form in which the magnetism of the coil core is utilised being now largely abandoned in favour of other types. Adjustable dippers, worked by a small motor; mechanical contact-breakers, such as Dr. Mackenzie Davidson's, employing a propeller blade making contact with mercury; centrifugal mercury-breaks, were examples. Miller's break, together with his highly ingenious apparatus for suppressing the induced current at the make, must also be mentioned. The electrolytic interrupter of Wehnelt gives enormous speed, but from its nature is of high resistance. It consists, broadly speaking, of a sheet of lead mounted to one pole of the generator, and a point tipped with platinum impinging thereon, and connected through the "primary" to the other pole, both being immersed in a conducting liquid. On the passage of the current gas is liberated between point and plate, and breaks contact. Another method largely adopted in America, dispensing with coils, etc., or "influence" machines, and resulting in a large current and high potential, is to use an alternating current from the main. This is first passed through a transformer, to increase the voltage to any required extent, and then through a "rectifier," which only permits the current to pass in one direction. The "Snook" transformer is based on these principles. Using a tantalum anti-cathode, a secondary current of 40 milli-amperes has been obtained, and radiographs of the heart secured in one-tenth of a second. Of course, the greater the penetrative power of the X-rays, the greater the allowable distance from the tube of the subject radiographed, and the sharper the shadows.

The Danger of X-Rays.

With such a powerful source, great care in manipulation appears to be necessary, as the risk of X-ray burns may possibly be increased. Generally speaking, however, other things being equal, the "soft tubes" are more dangerous in this respect.

than the "hard" ones. X-rays from the former are stopped very abruptly by the flesh, and their effect is to a great extent localised in a short distance. On the other hand, rays from a "hard tube," with their greater penetrative power, are not concentrated on a comparatively small area. It is therefore apparent that the "soft tubes" are better adapted to show small differences of tissue. He (the lecturer) felt bound to point out that there are dangers ever attendant on X-ray work, though he did not wish to infer that they could not be completely eliminated by observing suitable precautions. The susceptibility to their action seemed to vary largely with the individual, and it must never be forgotten that their effect was accumulative, and did not become visible for some time. Metallic lead of sufficient thickness is a complete protection. Lead glass is also a protective agent, and might usefully be interposed between the patient and the tube, over all parts except those required to be radiographed. In fact, it might be truly said that the patient now runs practically no danger at all.

Discussion.

Mr. C. W. Raffety, who entered into some highly theoretical and contentious considerations, somewhat outside the scope of the foregoing abstract, said that he was appalled that "hard rays" should be used for skin diseases, such as ringworm, with possible damage to the parts underneath. He also inquired whether it would be possible to obtain anti-cathodes to give *per se* "soft rays."

Dr. H. Critchley said that very great harm had been done by the publicity given by the lay press to dermatitis, or X-ray burns, patients being now afraid of subjecting themselves to their influence. Unfortunately, the pioneers were unaware of the risks they were running; from their sufferings a lesson had been learnt. He agreed with Dr. Mees, that to the patient there was no appreciable danger, or to the careful operator. As had been stated, the action of the rays was accumulative, and accidents to the operator might happen by his not noting

what "had been put down on the list," and in neglecting slight signs of warning. In reference to the point raised by the last speaker, he, speaking from a large experience, did not think that any evil resulted from using "hard tubes" for skin diseases. In practice he had not found it so. In the case of ringworm alone he had treated over 1,500 cases without the slightest injury resulting. X-rays were a most valuable diagnosis, and therapeutic agent of value. He looked forward to the time when electricity and serum would banish drugs altogether. Many diseases were already yielding rapidly to the X-rays; tuberculosis on the surface, for instance, like "snow before the sun."

Mr. H. Lacy said that he had a theory of his own as regards the disasters which had happened to X-ray operators. Time did not permit of his going into it. He might, however, mention that when dealing with "Tesla effects" he had noticed that those who showed the greatest variation, say, between two fingers, and could light up tubes rapidly, were the most susceptible to the action of X-rays. Such susceptibility would vary with the temperature and atmospheric conditions. He earnestly urged all operators never to run any unnecessary risks. Dr. Mees, in reply to Mr. Raffety, said that if other anti-cathodes running down the atomic weight scale were employed, less efficiency would be obtained. He doubted whether the necessity of alteration arose; it was easy to turn a "hard tube" into a "soft" one, by leaving it on one side for some time.

A most cordial vote of thanks was accorded Dr. Mees and Mr. Smith, at the instance of the President, Mr. J. M. Sellors, who incidentally apologised to the visitors for the lateness of the hour. One of the medical men present, speaking on behalf of himself and his colleagues, expressed his and their appreciation of the two most interesting and instructive lectures they had listened to. The President's apology was really unnecessary, for, if occasion had dictated, they would have sat out another two hours with pleasure.

EXPERIMENTS IN COLOUR-SENSITISING CHLORIDE EMULSIONS.

II.

Preparation of the Emulsion.

For the preparation of a gelatino-chloride emulsion the neutral method, excluding a ripening process as far as possible, was selected, on the basis partly of the author's own experience and partly of the data of Eder and Pizzighelli. Adopting an 8 per cent. gelatine solution as customary for photographic emulsions in general, a content of silver equal to 60 grms. silver nitrate pro emulsion, and an ample excess of chloride were employed on the lines of gelatino-bromide emulsion work. The silver nitrate was used in solution in water without previous admixture with gelatine, and after-addition of gelatine solution to the emulsion was omitted, since there was to be no long digestion or ripening with ammonia. A good hard emulsion gelatine (Sud No. 4,790) was placed at disposal by the firm of Stöss and Co., Ziegelhausen, Heidelberg. The following materials were separately added and brought into solution by aid of heat:—

A. Gelatine	36 grms.
Ammonium chloride	20 grms.
Distilled water	250 ccs.
B. Silver nitrate	30 grms.
Distilled water	200 ccs.

Both solutions were warmed up to 50deg. C., and the silver solution gradually added, and with constant stirring to the gelatine solution—by red light. A small sample of emulsion, placed on a glass plate, was pure white in colour by reflected light, whilst it—showing that no ripening had taken place—was orange-colour by transmitted light. The emulsion thus prepared was at once placed in a cold

room (5 to 10 deg. C.) and left for some hours (over night) in order to obtain a thoroughly firm emulsion, and thereby to guard against undesired absorption of water in the after-washing.

The following day the emulsion was pressed through a net of fine mesh, and the nodules of emulsion washed in running tap water of 12 to 14 deg. C. for five hours. The adhering water was finally drained off and squeezed out, and the emulsion put carefully away until the next day.

The plates to be coated with emulsion were cleaned in the usual way with weak soda lye, rinsed with clean water, and given a substratum of chrome-alum and gelatine solution. For this latter purpose the plates were dipped in a solution containing three grms. of gelatine in 1,000 ccs. of water, to which was added 15 ccs. of a 1 : 50 chrome-alum solution. The plates were then set up to dry spontaneously. Plates of 18 x 24 cm. (7 in. x 9 in.) were used, and were afterwards cut to 9 x 12 cm.

At the time of coating, the emulsion was rendered fluid on a water bath, passed through leather by aid of a Braun filter, and kept at 35 deg. C.

Previous experiments had shown that for a coating corresponding to that of a commercial transparency plate 12 ccs. of emulsion per 18 x 24 plate (= 426 sq. cm.) was quite sufficient when given by a coating machine, but not in the case of hard-coating if the whole plate was to be uniformly coated. On this account, despite the good density given by thin coatings of chloride emulsion, the larger quantity of 18 ccs. of emulsion was taken, about corresponding with a rapid gelatino-bromide plate. A difference in the

character of the plate from this cause can scarcely be assumed, since, at any rate for silver bromide, it has been shown* that neither the general nor colour-sensitiveness are appreciably affected by the thickness of the coating, other conditions being normal.

On each warmed glass plate 18 ccs. of emulsion are coated, uniformly distributed with a glass rod, and the coated plates placed on a levelled and cooled plate-glass to set. They were then dried in a current of air at 25 deg. C., becoming dry in four or five hours. They were packed as usual until used.

Examination of the Plates.

Examination of the undeveloped plates showed them to have a uniform white matt translucent film, which rapidly became reddish-violet in daylight. Observed in the microscope it was seen that the film was not homogeneous, but contained two different modifications of silver chloride, plainly visible in the gelatine, and differing in size. This observation led to the preparation of further emulsions under different conditions, in order to secure a separation of the two varieties of halide, but the fine grain and the flocculent forms were nevertheless obtained together in all cases, and a preparation of gelatino-chloride emulsion turned out exactly according to Eder ("Handbuch" III., 727) gave the same results.

The dry plate coated with this emulsion, exposed in the camera and developed with ferrous citrate, gave, with normal exposure and development, an extremely fine silver grain with absolute clearness of the unexposed portions, whilst by continuing development long enough to obtain increased density, that is for about five minutes, a very coarse silver grain was obtained irregularly over the whole plate. But as the fine grain only serves for the production of the image, the coarse grain stands in no kind of relation to it, and showed itself in those portions where no exposure whatever had taken place without any consequences of its coarse structure producing the effect of the usual chemical fog on dry-plates.

The instances of two modifications of silver chloride in emulsion work is by no means unknown, and indeed Stas, in his classical work on the forms of silver chloride, described four different varieties in reference to their solubility, whilst Eder has also noticed that silver chloride is more easily precipitated in a flocculent state than is silver bromide. Apart from this latter fact and from notes on the effect of ripening, nothing more exact as to the photographic behaviour of the different silver chlorides, especially in gelatine, is to be found, and it therefore appeared advisable to investigate the behaviour of these varieties in relation to their reduction.

It is also to be noticed that hand-in-hand with the development of the coarse-grained silver precipitate dichroic fog comes in. It was taken as the first assumption that restraining agents acting upon silver chloride might account for some of the fog. Such restraining agents would be the excess of ammonium chloride in the emulsion, and the sodium chloride in the developer, and therefore an experimental emulsion was made with the ammonium chloride as low as possible, whilst the sodium chloride was omitted altogether. The dichroic fog, however, made its appearance as a third modification on development for a longer time than five minutes. As the time of development is usually limited to three minutes this phenomenon, like that of the coarser silver deposit, did not come into consideration, the emulsion, after being colour-sensitised, giving perfectly good clear negatives by the customary method of working.

As regards the colour of the silver reduced from the pure gelatino-chloride of silver it should be observed that it tended to a warm bright reddish-brown, which darkened considerably on the plates drying. In the course of a number of experiments it was found that the colour was caused by the dye used for sensitising, as already noted by Eder for eosin and cyanin. This was particularly the case with pinacyanol, which gave a pure violet colour. The effect of ripening of the silver chloride had the effect upon the reduced metallic silver only of giving darker or more blackish-brown colours.

Exposure.

Means had next to be taken to obtain a measure of the sensitiveness of the emulsion, and to bring this into correspondence with the brightness of the spectrum obtained in the spectrograph. A series of times of exposure were therefore ascertained, which, in conjunc-

tion with a certain method of development, described below, gave a whole scale of different degrees of density from the smallest schwellenwert to the greatest silver deposit. By altering the width of slit, using either Nernst or mercury-vapour lamps and partly undyed, partly sensitised chloride plates, the following conditions were finally arrived at for comparative exposures of sensitised and unsensitised chloride plates. Nine exposures were given to each plate, the first and the last—these being so chosen merely for convenience in observation—being to the mercury-vapour line spectrum. The intermediate seven exposures were to a band spectrum of the Nernst lamp. In the case of exceptional intensity of the mercury-vapour lines, and when these latter were required as sharp as possible, these two spectra were made with a slit of .06mm. and an exposure of 120 seconds. The exposure for the other portions was made with a slit of .6mm. and for time according to the following table:—

<i>i.t</i> in seconds	Log. <i>i.t.</i>
15	1.18
30	1.48
60	1.78
120	2.08
240	2.38
480	2.68
960	2.98

As the arrangement of the apparatus remained the same for all subsequent exposures the light source could be taken as constant, that is to say, in the product $i.t$, $i=t$, so that the factor t is taken as a measure of the degree of exposure. The separate exposure time were so chosen that their logarithms on being graphically represented occurred at equal distances along the abscissæ of the charts.

Development Formulæ.

The formula of Eder and Pizzigelli was selected. The three solutions are:—

A.—Citric acid	150 gms.
Distilled water	700 ccs.
Ammonia (91)	160 ccs.

The ammonia is added with constant stirring until the solution is neutral or weakly alkaline, and there is then added

Citric acid	100 gms.
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This is dissolved and the whole solution filtered.

B.—Ferrous sulphate	100 gms.
Distilled water	300 ccs.
Sulphuric acid	3 to 4 drops.

C.—Sodium chloride (salt)	10 gms.
Water	300 ccs.

For each 9 x 12 cm. plate the developer was mixed as follows:—A, 45 ccs.; B, 15 ccs.; C, 3 ccs.

These solutions were used at a temperature of 18 deg. C, the plates being developed in total darkness for exactly 180 seconds by means of a stop watch, no coarse grain deposit or dichroic fog being produced within this time. The plates were then rinsed under the tap, fixed in 10 per cent. hypo and washed in running water.

F. WENTZEL.

(To be continued.)

CINEMATOGRAPH IN MEXICO.—A Consular report says that little difficulty is found in Tampico (Mexico) in renting rooms and halls for cinematograph and other motion picture machines. Two motion picture shows are now being operated in Tampico, and while patronised to some extent, cannot be said to return more than a fair profit. The report points out that great care should be taken before engaging in this new enterprise.

THE DRESDEN EXHIBITION.—Messrs. J. H. Dallmeyer, Limited, write:—"In the current number of THE BRITISH JOURNAL OF PHOTOGRAPHY we notice a communication from Mr. A. H. Blake, M.A., with regard to the forthcoming Dresden Exhibition. Mr. Blake there mentions that only five trade entries have been received for the whole of England. As our case is probably similar to that of many other firms, we should like to point out that our German branch, whose headquarters are Lindenstrasse 34, Berlin, S.W. 68, have taken charge of our exhibit. We believe that they will have an important stall in a prominent position."

* Stenger, "Zeit für Repro," 1907.

THE SCOTTISH FEDERATION. ANNUAL MEETING.

THE annual meeting of Scotland's representative body was held at Wishaw on Saturday, when about forty delegates were present, with fully as many associates. Mr. Symon, vice-president, presided. The secretary (Mr. John B. Maclachlan), in his report, spoke of the growth of the Federation. They started the year with forty-two societies, they closed with forty-five, and already two more had federated for 1909. The death of Horsley Hinton was referred to, and reference made to the sum the Federation collected for the Memorial Fund. The various branches of the Federation's activity were referred to and work done detailed. The whole report showed that the Federation is carrying out its original ambition of working for the good of photography in Scotland. As the financial year only finished on December 31 the treasurer (Mr. Arch. Campbell) was unable to submit a completed balance-sheet, but he submitted a cash statement, which showed a loss on the year's working, but a balance to the credit of the Federation of some £60. The portfolio secretary (Mr. J. R. Ross) and the lantern slide secretary (Mr. R. Marshall) both gave in satisfactory reports. Mr. J. A. Peebles, Dundee and East of Scotland Association, gave an invitation to the Federation to hold the next Salon (1910) in Dundee, where the members of the local association would spare no trouble to make it a success. A discussion took place anent the financial arrangements of the Salon, but after a free expression of opinion the matter was left in the hands of the Council, as also was the question of date. Office-bearers were elected as follows:—President, T. Carlaw Martin, LL.D.; vice-presidents, J. A. Peebles, Dundee and East of Scotland; and R. Telfer, Wishaw; secretary, John B. Maclachlan, Blairgowrie and District; treasurer, Arch. Campbell, Dundee and East of Scotland; auditors, J. Murdoch, C.A., and R. C. Thomson. Council: Vanessa C. Baird, Dundee and East of Scotland; A. Symon, M.A., B.Sc., Wishaw; R. Milne, Paisley; R. Marshall, Grangemouth; F. W. Kay, Aberdeen; W. H. Wilson, Glasgow Southern; Dan Dunlop, Motherwell; J. D. Ross, Brechin; R. Thomson, Midlothian; and Robt. K. Holmes (associate member), Dollar. At the Council meeting J. W. Ross was reappointed portfolio secretary and R. Marshall lantern slide secretary. It was thought advisable to appoint the Salon committee at once, instead of, as usual, waiting until the next meeting, and Messrs. Peebles, Baird, and Campbell were appointed. Mr. Baird, who acted as Salon secretary in 1906, was appointed to that office.

Exhibitions.

THE NORTHERN PHOTOGRAPHIC EXHIBITION.

The fifth exhibition of pictorial photography, held under the combined auspices of Manchester and Liverpool, was opened on Wednesday evening last at the City Art Gallery, Manchester. In former years the city of Leeds has played a part in the proceedings, but on the present occasion their co-operation had been withdrawn. The exhibition lasts from January 6 to 27 inclusive, and must certainly prove a great success in all ways. This is not a little due to the kindness of the City Fathers, who have generously placed three important rooms in the art galleries at the disposal of the photographers, and in other ways granted advantages and concessions. In thus following the lead of the Liverpool magnates they have confirmed a precedent which, it is to be hoped, will be observed by other important towns in the country. It is an official recognition of the claims of amateur photography to be considered as an important factor in the general art culture of the people.

The show numbers 671 pictures, 420 slides, and about 200 Autochromes. Naturally enough, many of these have been exhibited before, both in London and elsewhere, and in view of the limited space at our disposal we shall not be able to do more than barely refer to such works as have been criticised in former reviews. Taking the pictures more or less in the order of the catalogue, we may mention first a striking "Sunset at Sea" (4), by W. A. Hepburn, who has had the courage to preserve the hard and clear horizon that is true to the effect depicted. The luscious deep tones of the surface of the sea and the contrasting airiness of the stormy sky are its chief excellences.

M. W. Thompstone's "Impression" of Lincoln (12), though a little flat, is nice in feeling and large in style. Broader and more romantic than usual with B. Ward Thompson's landscapes, his "Tranquillity of the Silent Hills" (17) should enhance his reputation a good deal. He has other works here, some of which are in the style with which his name has become associated; but he shows a welcome broadening of pictorial idea in Nos. 145 and 146, respectively named "Repose" and "In the Dell," which are highly successful in their looseness and their depth of perspective. "The Edge of the Dunes" (19) is a sea view, sunlit, which does not include the luminary himself, but the sky has a convincing light-laden quality that betokens the blazing sun above. The work is simple and impressive. In the excellent "King Street, Manchester," (20), H. A. Knowles has also secured fine quality. Our only criticism is that the dark houses flanking the bright space of sky and distance are somewhat equally balanced. W. A. J. Hensler sends "A Wet Night in the Suburbs" (24), the charm of which is discounted by the unmitigated edge of a near and dominating tree trunk. He is entirely successful in a woodland view, called "Autumn Mists" (799), which depicts slanting sun rays shooting amongst the trees. Shipping and smoke against the clouds provide fine subject matter for John Walton's "Industry" (32). In "Winter Sunlight" (33) we have snow capitably rendered together with a nice decorative composition. This is by T. Longworth Cooper. Fred Judge's nocturne, "The Thames at Dusk" (38), with its lamps and mists, is, in our opinion, one of his most pleasing works. A farrier shoeing a horse, with the rider standing by, and a background of cottages, is the subject matter of a most effective and sunny picture by Edgar G. Lee, well composed, and entitled "At the Smithy" (50). There is a fine expanse as well as recession of planes in "Robin Hood's Bay" (54), by G. M. Carlton.

In the work of Mr. Walter J. Pearce, the exhibition has one of its strongest attractions. Mr. Pearce, with the enthusiasm characteristic of "Northerners," has likewise designed and drawn two immense and highly effective posters for the show. In his figure photographs he displays great taste and much artistic skill. "The White Robe" (69) is not only a fine photograph of a charming subject, but its lines, the disposition of its draperies, and the general lighting make it a most dignified and beautiful piece of work. Next in interest to our minds is the delicate and charming "Study of a Girl's Head" (419), which is rather more than that in reality, including, as it does, an arm and the bust. His "Fate" (417) is a nice study, but is not suggestive of its title. Other figure works by him deserve more notice than we can give them. An old style sort of landscape, with large cumulous clouds, is Arthur Smith's very pleasing "A Yorkshire Valley" (84). Miss Brenda Johnson exhibits one or two of her successful landscapes which have been already seen in London. "A Summer Day" is one of the nicest; and while we are mentioning previously exhibited works, which have already been well discussed, we may refer to J. Gale's "Le Moulin Blanc"; Mr. and Mrs. Bracewell's "The Serenade"; E. Louise Marillier's "Basket of Peonies"; Lilian G. Bland's "Cockfighting"; Dr. C. Thurstan-Holland's magnificent "End of the Valpentine"; Alex. Keighley's "Spring Pastoral," "A Word in Passing," "Corpus Christi," and "The Bridge"; P. Bale Rider's lovely "Summer" and "In Rouen"; J. C. Warburg's "Notre Dame de Vie"; "Wedded" by Aubrey Harris; Wm. Pringle's fine old street scene, "The Arrest"; by F. J. Mortimer, "All Hands Aloft" and "The Shrimping Ground"; by J. Dudley Johnston, "Snow in the City," "Snow on the Hillside," and "In a Northern City"; by Mrs. E. Peake, "The Spell" and "Seeing the World"; by J. M. Whitehead, "A Silent Guide"; by J. C. Batkin, "Dispersing the Gloom" and "Gleam and Grime"; Mrs. Barton's "Morning"; Mrs. Keene's "Motherhood" and "Bavarian Peasant," here called "The Pipe of Peace"; S. G. Kimber's "City Portal"; W. L. F. Wastell's "On the Moselle"; W. A. Clark's "In Old Caudebec"; by Chas. F. Inston, "In a Derbyshire Dale" and "The Dock"; by J. A. Sinclair, "The Inn of Cervantes," "Homewards," and "A Grey Day at Meude"; by E. T. Holding, "The Lesson," "The Song of the Lark," "The Magazine," and "The Craftsman"; by Rev. H. W. Dick, "Country Life," "An Impression of Liverpool," and "The Dwellings of the Humble"; Dan Dunlop's "Old Professor"; L. J. Steele's "Garden of Allah"; J. C. S. Mummery's "Waterside, Chesham," "A Grimy Road," and "The Barn Door"; by Furley Lewis, "Miss Adèle Baughan," "J. C. S. Mummery, Esq.," Oscar Hardee's "Isabella en Jan Wilden"; Cavendish Morton's "Hebe and

Fantasia"; Dr. Boon's "Sunlight and Flowers"; and Basil Schön's "Dingy London." All these, and others also, have been dealt with at length in our previous columns. They give the show a deal of distinction, but we must deal more particularly with the native work rather than the imported, and with such as are new to our eyes.

The Curator of the Liverpool Art Gallery, E. R. Dibden, shows two excellent portraits of artists, "H. Clarence Whaite, R.W.S., P.R.C.A." (78), and "The Late John Finnie, R.G., R.C.A." (405), the latter a spirited and highly interesting work. Miss Phyllis Dare is presented in "A Limelight Study" (106), by Geo. Dawson, in a cleverly managed effect of the stage as seen from the "wings." A little girl lying at full length upon a window sill, "To Catch the Waning Light" (148), as she reads, is an enlargement by the president, Dr. A. T. Lakin. Beyond the leaded lights is seen the garden, the details of which just give a thought too much of subject matter and rob the subject of simplicity and repose. Mrs. A. Ralli is to be congratulated upon the go and action of her "Boatmen" (122), who are managing a boat in the surf. Mr. James Shaw still produces the fruits of his visits to Rothenburg, not the least interesting of which is the old peasant, who sits with pipe, mug, and paper in a sort of cell, enjoying his "Dinner Hour" (133). Mr. Shaw's "Man of Pitch" (259) is an exercise in the pictorial charms of steam from a road repairing cauldron. His capital costume study, "The Captain's Horse" (282), has been seen before; but better than these in some respects is the "Evening Light—Caudebec" (284), which illumines half-way the rich work of the church front. The energetic secretary, S. L. Coulthurst, sends an ambitious enlargement, called "The New Gown" (261), a group of ladies before a large window. The difficulties have not been entirely overcome in the shadowy places, which are flat and monotonous. We prefer his more direct works; for example, the bright and busy water-side scene, called "The Departure" (412), which in parts is most happily composed. Two similar works are "The Quay Side" (422) and "In the Harbour" (423), which are highly pictorial and possess fine qualities, though we think that in pigmenting he has allowed relief to stand before truth of tone values here and there; and, if he will forgive us, we suggest that he cut off all the dark mass and the mast from the right side of "Toilers of the Sea" (548), and the remainder will make a fine and choice work. Of Mr. Coulthurst's two charming works, "Early Morning in the Harbour" (332) and "Evening on the Mersey" (473), we have nothing but sincere commendation. One of the simplest and best of Dr. Lakin's pictures is "A Branch" (255), a feathery feature which fills the front plane of a pretty view, showing a retiring distance of verdure and water. J. J. Phelps, a most assiduous vice-chairman, has some deftly worked oil prints. "The White Gate" (440) would be pretty enough were not the gate itself a somewhat commonplace feature. His "Inspiration" (441) depicts a sculptor who contemplates a bust, and wears an expression that betokens a surcharge of inspiration. In landscape Mr. Phelps is more happy. "Dangling Wreaths of Water Smoke" (444) is a truly fine rendering of spray from a waterfall, and in "A Grey Morning—Lincoln" (471), he carries delicacy almost to dissolving point in the scarcely perceived towers of the distant cathedral. The other vice-chairman, Rev. Hy. W. Dick, sends a pleasing variety of subjects. In "A Cottage Home" (439) we think the light too much confined to the table and figures. "London's Heat and Haze" (463) is an apotheosis of a hansom cab—a common object, treated with more grace than Mr. Wastell has treated his cab in the otherwise satisfactory "Hansom Cab" (383). Another vehicle which the Rev. Henry Dick has put to use is a motor-car, all but enveloped in smoke. He calls it "The Eclipse of the Horse" (465), and it certainly forms an object lesson in most agreeable form of the disadvantages of progress. Excellent in subject and effect is Edgar G. Lee's "Coming of the Mauretania" (291), who gives another version also of the subject in "Evening on the Tyne" (403). C. F. Stuart has a bright and taking view of "Dovedale" (300); but we do not care so much for his oil print of "The Bridge Players" (599), which is flagrantly reminiscent of the Hon. John Collier's "Whist Players." "Hooping the Wheel" (305), by T. H. Greenall, shows two wheelwrights at work in the midst of smoke. The incident has been most effectively and pictorially treated. With much pleasure we welcome P. Bale Rider's beautiful figure study, called "Beatrice" (308), which is both rich and decorative, filling the space with excellent design, and boasting of lovely lines in its composition. "Winterzeit" (316), by R. Martens, is also a beautiful work, though composition in this

case is not a strong point. In Louis Dick's "Essex Farm Road" (328) we feel that the sky is everywhere too high in tone. Much more pleasing is his broad and romantic piece, "A Lone Land" (357). E. O. Hoppé shines in his excellent portrait head which he calls "The Turf" (358). We consider it, without exception, his best work, though he has several good things here, including his "Miss Maud Allan. "Keswick" (365), by A. W. Burgess, is panoramic and fine. The Dutch cult is still with us in James McKissack's "Fairies' Harbour" (369). Much brighter and fresher than usual are J. M. Whitehead's "In the Laigh Hills" (373) and "Moorland Mists" (505). We welcome the signs of the shaking off of a mannerism. Harry Wade's capital begging mendicant, called "Old Ago and Poverty" (394), falls between the stools of figure and landscape. Trimming would save it. Desolation personified is seen in "The Lone Shieling" (410), rather a remarkable work, by R. Berry. A. R. F. Evershed appears to good advantage in his character study of "Pat" (421). His "Tramp" (432) is also excellent. "Ronaldsburn, Isle of Man" (429) is a small but dignified landscape by Thompson Carr. It is rich in colour and large in style; but it has one little blemish—a bright spot in the water that is quite out of keeping.

Of all the subjects that we have seen of the Franco-British Exhibition none is so entirely successful as W. J. Pearce's "Beneath the White Bridge" (434); the white arches, the floor of water, and the distance of stronger tone make up a charming picture.

A. F. Hirschfield's best work is undoubtedly "Teddy" (597), who wears a true schoolboy smile; but, technically, his "Italian Type" (442), a more serious youth, may be considered to surpass it. "Evening in the Dale" (468) is one of Ch. F. Inston's beautiful little oil prints, which prove how much more of artistic expression the new process evokes from him than was possible by older methods. We are glad to note that the style of subject that T. Lee Syms favoured a year or more ago has not narrowed his output into mere repetition, as is often the case when a success is made in any particular direction. He now exhibits several clever heads. "Portrait" (475) would perhaps be better for a little more illumination on the dark side. "Dreams Awaked" (511) is a nice full-faced study of a young girl. Mrs. Minna Keene sends a print that we do not think has been publicly exhibited before, representing a man, woman, and baby, and called "The Peasant's Pride" (488). It is darker than it need be, and we do not think it so taking as "Hope Springs Eternal" (490), a back view of an urchin fishing in the middle of a stream. This has humour, and is a most successful print in every way. The portraits of Dr. A. T. Lakin have a nice quality, particularly No. 498. The "Study in Red Chalk" is beautifully treated but for the hair, which is a little solid. Besides the one or two previously shown portraits by Bertram Park, we should mention his delightful "Naomi" (528). His rather sprawling "And the Night Cometh" (515) does not commend itself so much, and its allegory is entirely elusive. John Smith's portraits are distinctly good, artistically and technically, particularly that of "C. F. Stuart, Esq." (524); but when we come to Cavendish Morton we must admit the added attractiveness of a good subject, which he appears always to command. "Miss Gloria Warren" (526) is perfectly irresistible. Some fine architectural and street scenes are shown by Victor E. Morris, of which the best, in our opinion, is "The National Gallery" (535), a first-rate London view. T. R. Wingfield shows an interesting case of loose definition and delicacy of tones, which nevertheless tell firmly and convincingly, because the true tone values are correctly preserved. No one could but admire the "Portrait" (582), were he of the oldest and "straightest" school of photography. Fredk. Hollyer's vigorous "Portrait" (616) all but speaks, so lifelike is its expression. We must say a word in praise of A. Stanley Brookes's "Dinner Hour" (625), wherein a man standing entertains his mates, who are seated in the shade of a building. Presumably it is a prehistoric man who is raving in a nude state in a forest in H. G. Simmons's "Coup de Soleil" (629).

There is a large consignment of foreign works, most of which are of high merit. We have not space to particularise them, but they are a great help to the show. Gustav Mautner's are the most numerous, and include a variety of styles and subjects. There are also gems from R. Dührkoop, H. T. Winterhalter, J. H. Liebreich, L. Fleckenstein, Else Gaiduschek, W. Matthäus, R. Demachy, H. Schröter, R. Martens, and others. The last-mentioned sends the

best coloured work in "Dorfstrasse in Winter" (636), though the blue tint of the snow seems overdone.

Of the coloured prints generally we can only say that there seems to be no advance. It is all elementary and experimental, and, to our minds, must remain so, since mere tinting can never touch the fringe of what is understood by the term "colour." Perhaps "Away to the West" (186), by Arthur Marshall, gives the most satisfaction. A goodly collection of three-colour carbon prints, though they make lower artistic claims, are infinitely more interesting.

A special show of Autochromes and lantern slides are ingeniously and effectively displayed in an erection contrived by Mr. James Shaw. They are lighted by Osram lamps of 1,000 c.p., to show brilliantly even in bright daylight. Some of the finest reproductions of old masters we have yet seen come from Captain W. J. Stomm. We regret that our space has run out, and that we cannot make particular reference to the transparencies, though we may say that they are for the most part of high excellence.

The success of the show is largely due to the self-sacrificing efforts of the secretary, Mr. Coulthurst; the chairman, Dr. Lakin; vice-chairman, Mr. Phelps; and Mr. Shaw, who have, of course, been supported by others of the society. Enthusiasm is the keynote of the concern from top to bottom.

The following is the award list:—

Section 1.—Pictorial Photography: Plaques—C. Batkin, "Sunshine and Rain"; Rev. H. W. Dick, "An Impression of Liverpool"; R. Dührkoop, "Pirie MacDonald"; A. Harris, "Wedded"; E. T. Holding, "The Lesson"; E. O. Hoppé, "The Turf"; C. F. Inston, "The Dock"; Mrs. M. Keene, "Motherhood"; Cavendish Morton, "Portrait, Miss Gloria Warren"; J. A. Sinclair, "Homeward."

Hon. Mention: J. C. Batkin, "While Daylight Lasts"; Mrs. Barton, "Summer"; A. W. Burgess, "Keswick"; S. L. Coulthurst, "The New Gown"; Else Gaidusstek, "Port of Liverpool"; Oscar Hardee, "Isabella and Jan Wilden"; Mrs. Keene, "Anna"; Miss E. L. Marillier, "Basket of Peonies"; J. Renshaw, "A Silent Guide."

Section 2.—Photography in Colours: Plaque—Warburg and Hollyer, "An Indian Prince." Hon. Mention: J. D. Johnston, "The Butterfly"; Arthur Marshall, "Away to the West."

Section 3.—Autochromes: Plaque—U. M. Jones. Hon. Mention: Max Poser, Captain W. J. Stomm, and J. C. Warburg.

Lantern Slides: Plaques—Victor E. Morris, Rev. H. W. Dick, and W. A. J. Hensler. Hon. Mention: H. Wormleighton, A. G. Thistleton, A. Taylor, and R. Williamson.

THE SCOTTISH SALON.

NEW YEAR'S DAY saw the opening of the sixth annual Scottish National Salon at Wishaw. The Salon is a travelling institution, in so far that it is held in a different town each year. Perth, Glasgow, Dundee, Paisley, and Aberdeen had previously had the honour of accommodating this national exhibition, but these are towns—or should we say cities?—with picture galleries, hence they were able to house the Salon sumptuously. Wishaw, right in the heart of "the black country," has an energetic society, and it was felt that the non-gallery centres might have a trial. The society had a commodious hall in the High School; the members approached the board, and found it ready to support them. They then extended an invitation to the Federation to hold the 1909 Salon at Wishaw, pointing out that they were in the centre of a group of photographic societies, were within easy reach of Glasgow, and had suitable accommodation. The Council inspected the hall and made other inquiries. The idea of going to the smaller centres was an innovation, and the invitation was accepted. There was a considerable amount of head shaking, even amongst the neighbours who knew the energetic enthusiasm of Wishaw folks, but the Salon secretary (Mr. Telfer) and committee determined to refute the prophecies of the pessimists (there were also optimists who gave them much heartening), made complete arrangements, left no stone unturned, and trusted to the Scottish photographers to continue their support of their own exhibition. Their trust was justified by the record entry of 1,040 which met the Board of Selection, Messrs. Alex. Keighley, Arch. Cochrane, and Clouston Young, R.S.W.

The hall, draped with a neutral coloured canvas, made a good setting for the "accepted," and approval was heard on every side; even those who came to scoff remained to praise.

The Board of Selection did their work conscientiously, spent some

eleven hours at their labours, and retained for exhibition 335 pictures. The two photographers on the board are amateurs, and yet we find the profession very liberally represented on the walls, a well-deserved compliment to the high capabilities of the profession in Scotland. While naturally in this department portraiture and figure studies are in the majority (and it is perhaps the strongest section of the exhibition), yet the professionals are not restricted to that, as witness J. M. Whitehead's magnificent exhibition of those peaceful poetic landscapes associated with his name. He strikes a somewhat more dramatic note in his "Sic transit gloria mundi," and we might also note in this connection Dan Dunlop's effective arrangement of sheep in a village street, "Going to Market," or his "spacey" picture, wedding together the work of man and the glorious immensity of nature in "Salmon Fishers Bringing Home the Nets."

We do not know all the professionals exhibiting, so must of necessity be pardoned if we miss some; but as this phase of exhibition life is usually neglected we make no apology for treating it specially. J. Craig Annan is, as usual, strongly represented, and occupies the place of honour on the first wall with "A Novice." We heard a critic term this just ordinary studio work. Well, if that is so, so much the better for the studio. Personally, we regard it as a *tour de force*. It is a "costume piece," representing a figure from "The Masque of the City Arms," recently held in Glasgow. Probably its principal charm is just that quality that would be objected to by the casual glance—to wit, its severe simplicity—but no treatment could better suit the subject. Notice might also well be taken of the rendering of the texture of the fabric and the modelling of the face. In the same worker's "H. G. Wells, Esq." we have an entirely different phase of portraiture. Here the dreamily philosophic character of the sitter is truthfully, and yet simply portrayed.

William Croke (Edinburgh) is also well represented. His "Earl of Wemyss" is really one of his best efforts, and that is saying much. Amongst good work it stands out by its sheer strength. It has frequently been said that a Croke portrait, no matter what the subject, has always a majesty about it. Here, then, the photographer had a subject after his own heart; the aged peer, with aristocratic mien, has lent himself well to Mr. Croke's art, and we have a masterpiece. His other pictures are quite in his usual manner.

John Moffat only sends one picture, but it is a great portrait of the great McWhirter. The massive leonine head monopolises the picture, all else is widely subdued; the model, of course, was a splendid opportunity, but it is not everyone that would have been satisfied to treat it so simply, and in elaboration would have lain the road to failure.

J. B. Johnston is represented by his "Winter from Carlton Hill, Edinburgh," and others. This is a strong, simple transcript of the dreariness of the great city in the time of snow, and commands attention. Of his other pictures, "The Smithy" might be mentioned as an example of good grouping and lighting, and a difficult subject satisfactorily rendered.

Geo. L. A. Blair (Paisley) still retains his partiality for mist-laden landscape (of which "February" is a good example, treated with commendable restraint), seascapes, and quaint figure studies. In all he gains a goodly meed of success, but, like other of our younger workers, one has a feeling that if he would restrain his versatility and concentrate on one line of work he would do himself more justice.

The same remark applies to Dan Dunlop, who photographs nearly everything and does none of them badly enough to say "Stop," while they are all good enough to warrant the assumption that concentration would reveal even greater ability.

W. D. Brown (Lanark) has two pictures. One of them, "Out on the Deep," was sold on the opening day. Robert Burne (Glasgow) continues to specialise in his still-life studies with success, his "White Raspberries" being peculiarly successful in its rendering of the transparency of the fruit. C. D. Croke (Cupar, Fife) has a delightful rendering of childhood's "Dove" quite in the Croke manner, and that's a compliment. B. B. Martin (Dundee) makes a hit with his picture of motherhood, "The Firstborn"; the nude baby crawling at the window, the watchful mother, and the light streaming in from the diamond-framed lattice, makes a good and complete whole.

J. Peat Miller (Beith) has portraiture in which he displays a real artistic bent. P. D. Nairn (Stirling) has one picture, a virile portrait of a clergyman. J. Riley (Dundee) has the honour of being the

only exhibitor to have a colour print accepted, his "Apples" being hung. In it not only is the colour well rendered but the texture of the fruit is also satisfactorily treated.

But of the vast army of amateurs time, or rather space, fails to record their work. We will content ourselves with mentioning a few names: J. B. Anderson (Belfast), Thos. Carlyle (Paisley), W. S. Crockett (Glasgow), Mrs. R. Dunlop (Motherwell), Miss Gertrude Aitchison (Offord), J. S. Dunn (London), Dr. Evans (Newcastleton), W. C. S. Ferguson (Glasgow), Geo. A. Hall (Leith), James Hamilton (Rutherglen), Jas. M. Marcus (Kirkcaldy), A. W. Hill (Shotts), John Hepburn (Glasgow), Wm. Howatt (Glasgow), James A. Jarvis (Aberdeen), C. Kirk (Glasgow), D. Lungair (Selkirk), Rob. Marshall (Grangemouth), James McKissack (Glasgow), Peter Orr (Govan), R. B. Penman (Edinburgh), George Rose (Motherwell), Robert Thomson (Edinburgh), and many others.

Entries are to be seen from Aberdeenshire on the north to Southampton on the south, and to Belfast on the west. The custom of the Federation is to invite workers from other lands, so that the native may see what is being done in other parts. England is represented by the Horsley Hinton "In Memoriam" collection. It will be remembered that the late Mr. Hinton made his last public appearance at the last Scottish Salon, and it was a graceful act of the Council thus to memorise him. Dr. E. G. Boon's contributions amount to twenty-eight pictures, most of them portraying sunshine, a welcome relief from the mud and mist that still inspires many exhibitions.

Charles Reid (Wishaw) has the unique honour as a Scotsman of being asked to hang a collection of his work, but then he is the photographic man in Wishaw, and has been for long the representative man in picturing with the camera our domestic animals. Only twelve pictures are hung, but this part of the exhibition is decidedly popular.

The trade exhibits include a big and varied exhibit of cameras, all kinds, lanterns, and the various necessities of the photographer, from Messrs. Lizars (Glasgow), and photographs from the Autotype Company, and Wellington and Ward.

At the opening ceremony Mr. Alex. Findlay, M.P., said the Queen took a great delight and pleasure in photography, and by her recent publication of "Photographs from My Camera," had raised some £10,000 which would be devoted to the Queen's charities. All could enjoy the splendid facilities photography gave of perpetuating the beauties of nature. The benefits of photography were now felt in many fields—medicine, astronomy, microscopy, and engineering. This splendid exhibition represented the high-water mark of photography and made a good start for the New Year.

The results in the annual lantern slide competition were announced (Judges: C. F. Inston and Dr. Thurstan Holland), as follows:—Coats Challenge Shield: Paisley Philosophical Institute; 2, Grangemouth; 3, Glasgow Eastern. Associates' Competition: 1, Thos. Carlyle, Paisley; 2, R. B. Martin, Dundee and East of Scotland; 3, Robert Richmond, Glasgow Eastern. The credit of having the best individual slide in the competition (307 slides) belongs to Mr. Pollock, Glasgow Southern—a winter scene.

The official lunch was afterwards held, under the presidency of Mr. Findlay, Mr. Symon, vice-president of the Federation, being croupier.

The exhibition has a full list of entertainments, and is being well attended.

TAYLOR, TAYLOR AND HOBSON REFLEX CAMERAS.—Messrs. Newman and Guardia, Ltd., of 90-92, Shaftesbury Avenue, W., inform us that they have taken over from Messrs. Taylor, Taylor and Hobson the reflex-camera patents of the latter. It is proposed to place the Taylor, Taylor and Hobson camera on the market in the name of the "N. and G." "Princess" Reflex. The "N. and G." "Princess" Reflex is, of course, not intended to compete with the "N. and G." "Square-Reflector" Reflex, which, by the way, is the more expensive model, and has many advantages, such as the double extension, etc. For the present a small stock of cameras, manufactured by Messrs. Taylor, Taylor and Hobson, will be placed on the market at a reduced price, namely, £14 14s., and in the meantime the new model, with improvements, is receiving the attention of Messrs. Newman and Guardia, at their works, and should be ready in the course of a very short time.

FORTHCOMING EXHIBITIONS.

December, 1908, to January, 1909.—Kiew International Photographic Sec., S. I. Horovitz, Technical Society, Kreshchatik, 10, Kiew, Russia.

1909.

January 1 to 9.—Scottish National Photographic Salon. Sec., Robert Telfer, 138, Glasgow Road, Wishaw.

January 6 to 27.—Northern Photographic (Manchester). Sec., S. L. Coulthurst, Broad Oak Road, Worsley, Manchester.

January 19 to 30.—Glasgow Southern Photographic Association. Sec., Robert Lindsay, 189, Allison Street, Glasgow, S.S.

January 27 to 28.—Bedford Camera Club. Entries close January 15. Sec., K. Gammell, 21, St. Peter's, Bedford.

February 1 to 13.—Glasgow and West of Scotland Amateur Photographic Association. Entries close January 20. Sec., James M'Kissack, 68, West Regent Street, Glasgow.

February 3 to 6.—Borough of Tynemouth Photographic Society. Entries close January 23. Sec., J. R. Johnston, 29, Drummond Terrace, North Shields.

February 8 to 13.—St. Helen's Camera Club. Entries close January 27. Sec., A. G. Else, Duke Street, St. Helen's, Lancs.

February 10 and 11.—Cowes Camera Club. Entries close February 1. Sec., E. E. Vincent, 4, High Street, Cowes.

February 11 to 20.—Leicester and Leicestershire Photographic Society. Sec., Harry Cross, 80, Harrow Road, Leicester.

February 16 to 20.—Norwich and District Photographic Society. Entries close February 2. Sec., J. T. Tanner, The Lodge, Bowthorpe Road, Norwich.

February 20 to March 6.—Edinburgh Photographic Society. Entries close February 6. Exhibition Secs., Edinburgh Photographic Society, 38, Castle Street, Edinburgh.

February 20 to March 20.—South London Photographic Society. Sec., H. Creighton Beckett, 44, Edith Road, Peckham, S.E.

February 22 to March 6.—Birmingham Photographic Society. Entries close for England February 12. Sec., Lewis Lloyd, Church Road, Moseley, Birmingham.

March 17 to 20.—Nottingham Camera Club. Sec., E. L. Kent, 5, Radcliffe Mount, West Bridgford, Notts.

Patent News.

Process patents—applications and specifications—are treated in "Photo Mechanical Notes."

The following applications for patents have been received between December 21 and 31:—

WIDE-ANGLE PHOTOGRAPHS.—No. 27,701. Improved means and apparatus for obtaining a photograph embracing the complete horizon. Arthur Cyril Webb Aldis and the Improved Periscope, Limited, 11, Victoria Street, Westminster.

CINEMATOGRAPH-GRAMAPHONE.—No. 27,717. New improved indicating device for establishing synchronous running of cinematographs and gramaphones or the like. Francis Alexander Thomas, 20, Gleneagle Road, Streatham, London.

CINEMATOGRAPH-GRAMAPHONE.—No. 27,766. Improvements in or relating to apparatus for use in synchronously operating combined cinematographs and gramaphones or the like. Cecil Milton Hepworth, 111, Hatton Garden, London.

LENS.—No. 27,790. Photographic objective allowing several images of the same object to be produced. Société Anonyme de Photographie des Couleurs, 27, Chancery Lane, London.

LENS.—No. 27,793. A photographic objective of triangular prismatic form allowing several images of the same object to be produced simultaneously. Société Anonyme de Photographie des Couleurs, 27, Chancery Lane, London.

CAMERAS.—No. 27,866. Improvements in or relating to photographic pocket cameras. Armand Boreux, 20, High Holborn, London.

FILMS.—No. 27,957. Improved process of treating photographic sensitised gelatine films, or ordinary gelatine bromide prints for

reproducing any photographic image. Edward George Handel Lucas, 45, Dingwall Road, Croydon, Surrey.

SHUTTERS.—No. 28,184. Improvements in photographic curtain shutters. Edward Lander Hall, 31, Bedford Street, Strand, London.

CINEMATOGRAPHS.—No. 28,336. Improvements in apparatus for photographing and exhibiting cinematograph and mutoscopic pictures. Henry William Hamblin Palmer, 52, Stephens Road, Tunbridge Wells.

PRINTING.—No. 28,342. Improved mask for use in printing photographs. The Leto Photo-Materials Co. (1905), Limited, and John Bailey Bensley, 24, Southampton Buildings, London.

CHANGING-BOXES.—No. 28,372. Improvements in and relating to daylight loading and unloading change-boxes for photography. Rupert Richard Allen, 18, Southampton Buildings, London.

CAMERAS.—No. 28,448. Improvements in folding photographic cameras. Jules Frennet, 18, Southampton Buildings, London.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 5d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention

CONTRASTY P.O.P.—No. 9,275. 1908. (April 29, 1908.) It is known that "hard-printing" photographic papers can be obtained by the addition of ferricyanide salts, chromates and chromic acid and salts of vanadium (as catalytic agents) to the preparations of silver printing paper. Although such papers furnish fairly strong prints from faint and weak negatives, they possess the disadvantage that it is difficult to determine the correct degree of printing on account of their yellow-brown colour. Usually a print is judged according to its depth in contradistinction to the contrasting white surfaces, and considerable difficulties arise in judging a print, when there is a yellow-brown background in place of a white, especially as such yellow-brown papers require greatly over-printing, and even with the normal time required for printing, the print does not stand out sufficiently from the yellowish background.

According to this invention white hard-printing papers are produced if small quantities of the vanadic acids, vanadic acid salts, or complex compounds of the vanadic acids such as for example phosphovanadic acid, arsenovanadic acid are added to the preparations of silver printing papers. The print is treated as usual in a toning and fixing bath.

An emulsion for the manufacture of photographic printing paper in accordance with this invention may be made by successively stirring in thin streams of the three following solutions in order into a solution of 150 grams of gelatine in 1,400 ccs. of water.

I. Citric acid	35 gms.
Sodio-potassium tartrate (Seignette's salt)	3 gms.
Water	150 ccs.
Ammonium vanadate	2 gms.
II. Ammonium chloride	8 gms.
Water	50 ccs.
III. Silver nitrate	50 gms.
Distilled water	200 ccs.

The ammonium vanadate in the example may be replaced by from 3 to 5 gms. of ammonium phosphovanadate if this substance be used. August Zimmermann, 3, Lloyds Avenue, London, for the Chemische Fabrik auf Actien (vorm E. Schering), of Berlin.

STABLE HYDROSULPHITES.—No. 17,734. 1908. (August 24, 1908.) Although introduced for the dyeing industry the following process is of some photographic interest since hydrosulphites are developers of the latent photographic image, although inconvenient for this purpose on account of their great instability. According to the present invention it is found that a more permanent preparation of hydrosulphite is formed by acting with sulphur dioxide upon zinc dust, in the presence of glycerine or glucose suitably diluted with water or with a solution of zinc chloride, or calcium chloride. A reducing agent is formed which

does not possess the above mentioned disadvantages, and which possesses the property of reducing indigo at low temperatures.

In well stirred mixture of

20 lbs. zinc dust,
15 ,, glucose,
20 ,, calcium chloride solution, containing about 45 per cent. dry calcium chloride,

29 lbs. of sulphur dioxide is introduced till the zinc dust has disappeared, the heat resultant from the reaction is regulated at about 50 to 55 deg. C. The final product is a thick greyish paste which can be used directly for printing and dyeing purposes. In the aforementioned example glycerine may be substituted for glucose, and zinc chloride for calcium chloride. In the example given the weights and temperatures can be modified within certain limits. Arthur Ashworth, Fernhill Chemical Works, Bury.

FOCUSsing ENLARGEMENTS NEAR TO EASEL.—No. 21,328, 1908 (October 9, 1908). This invention has for its object to obviate the difficulty of distance from the easel by providing means for operating the focussing pinion from a point near to the screen. The device consists essentially in a bracket preferably pivoted upon the pinion spindle or an extension thereof, carrying a rotatable spindle at right angles to the pinion axis and capable of being directed towards the screen for focussing purposes, or turned towards the rear of the apparatus and out of the way. Between the spindle (which may be extensible) and the pinion, gearing is provided, so that rotation of the spindle by means, for example

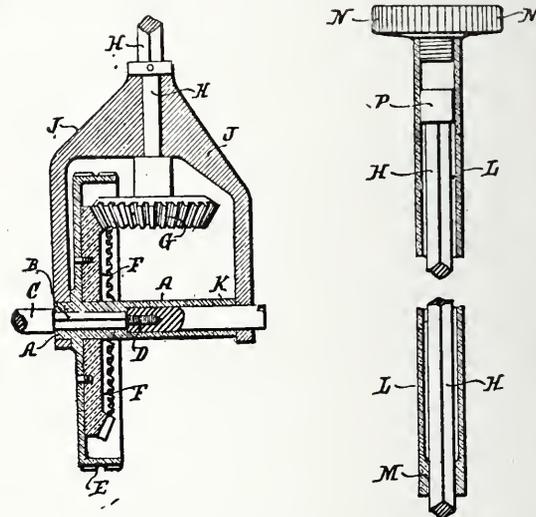


Fig. 1.

Fig. 2.

of a milled head upon its outer end will operate the pinion for focussing, the gearing being preferably so proportioned that finer adjustment is secured by rotation of the spindle than by direct rotation of the pinion.

Fig. 1 shows a sectional elevation of an example of the device. Fig. 2 a detail of the spindle (both to a considerably enlarged scale), and Fig. 3 the application of the device to the lantern.

This example is adapted more particularly for application to existing lanterns. To that end there is provided a sleeve, B, squared internally at its inner end for a part of its length commensurate with the usual length of the squared part, B, upon the end of the existing pinion spindle, C. The sleeve, A, is adapted to be held in place upon the spindle end by a grub screw, D, of greater length than usual. On the sleeve is formed a recessed milled head, E, for operating the pinion spindle, C, in usual manner, and within the recessed part of the head is fixed a bevel wheel, F, with which there gears a bevel pinion, G, carried upon a spindle, H, in a bracket, J, pivoted upon the sleeve, A, at one side (being prevented from outward movement by a face on the milled head, E) and at the other side pivoted upon the grub screw, D, there being provided a short sleeve, K, to permit of the assembly of the parts and to prevent inward movement of the bracket.

The bracket, J, may thus be turned into any position about the spindle, C, either outwards towards the screen for focussing, or out of the way towards the rear of the lantern. The spindle, C,

may be made of such length that it conveniently folds back within the length of the lantern base, and, at the same time, when moved forwards extends sufficiently for focussing purposes, or it may be made extensible in any convenient way—for example, the spindle may be squared, as shown in Figs. 1 and 2, and there may be

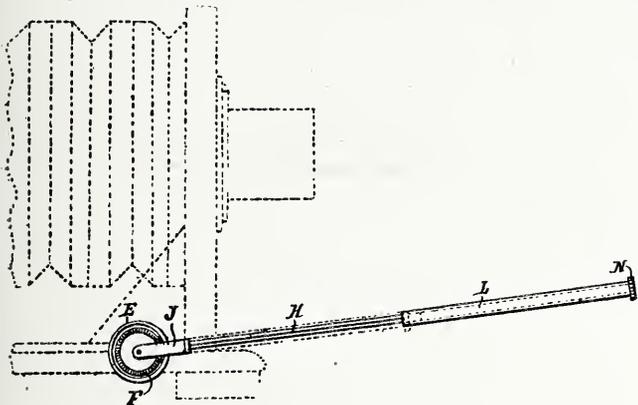


Fig. 3.

fitted over it a tube, L, bearing at its inner end a squared socket, M, to fit the spindle, and at its outer end a milled head, N, while a sleeve, P, on the spindle end fits within the tube and serves to steady the whole and prevents the tube falling off.

The bevel wheel, F, is preferably double the size of the pinion, G, thus providing a fine adjustment of two to one.

In operation, rough focussing is performed by the milled head, E, as usual, which, as will be seen in Fig. 3, is easily accessible around the bracket, J; fine adjustment is then made by means of the milled head, N, with its spindle extended towards the screen, so permitting of the operator's close approach thereto. William Pollock, 41, Renfield Street, Glasgow.

PORTABLE TRIPODS.—No. 19,198, 1908 (September 12, 1908). The invention consists of a tripod, formed in sections, as *a*, *b*, and *c*, the upper sections, which are U-shaped or channelled and pivotally connected in reverse positions by a pin, *a*¹, so that the sections *b*, with the sections *c* therein, can be turned over, and lie in the sections *a* when not required, as in the figure; but when required the ends, *b*¹, of the sections *b* can be opened out, the combination with the sections of a pin, *a*³, for entering a hole, *j*¹, in a spring, *j*, by which the sections *a* and *b*, when opened out, are secured, and made rigid by a block, *a*², which supports the pivoted ends of the sections *a* and *b*. John and Alfred Wilkinson, St. Oswald Street, Rochdale Road, Manchester.

DAYLIGHT-DEVELOPING TENT.—No. 3,790, 1908 (February 19, 1908). The invention consists of a folding developing chamber for photographic plates, wherein the device for watching the interior of the chamber consists of a hood arranged at an aperture, and having at its edges two plates or wires, the upper ends of which abut against the user's head above the ears, and the lower ends engage under the cheek-bones near the nose, the two side-parts being connected by a strap or band going round the user's head, the points of connection being between the ends of the parts. Jacob Wojciechowski, 28, Nowowielka Strasse, Warsaw.

New Trade Dames.

COVERINE.—No. 308,389. Chemical substances used in manufactures, photography or philosophical research, and anti-corrosives. Walter Carson and Sons, Grove Works, Lombard Road, Battersea, London, S.W., paint manufacturers. November 27, 1908.

PHOTOGRAPHIC CLASSES at the Cripplegate Institute, Golden Lane, E.C.—These classes are instructed by Mr. John H. Gear, F.R.P.S., and will commence the spring session on Wednesday evening, the 20th inst. They are thoroughly practical and embrace popular and useful subjects. Full particulars may be obtained by writing to the Manager. Intending students should make early application, as we understand the winter session was quite full, many being unable to gain admission.

Analecta.

Extracts from our weekly and monthly contemporaries.

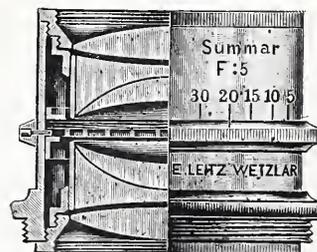
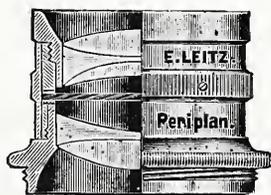
Old Platinotype-Developer for Toning P.O.P.

"Is it generally known" (says a writer in "Photography and Focus" for January 5) "that it is possible to tone P.O.P. prints in the developing solution that has been used for several platinotype prints? I hardly flatter myself that I made this discovery, though I stumbled upon it quite accidentally, never having read that it could be done, and if it is not generally known it is a useful tip for photographers who work with platinotype paper and P.O.P. Instead of throwing away the platinotype developer when they have finished their batch of prints, by keeping it in a well-corked bottle they can use it for toning P.O.P. prints as well. I suppose that a certain amount of chloro-platinite (?) is taken up by the developer with each platinotype print developed, and I found that after using the Platinotype Company's developing bath (for black tones) for three half-plate prints I was able to tone three half-plate prints on Paget-cream crayon P.O.P. in it. After that the bath went suddenly weak. I have prints toned in this way two years ago or more, which have been exposed to all sorts of daylight in frames, which still show no sign of fading or mottling. It is a good way of making use of the used baths which otherwise have to be thrown away as useless. I always use about 2oz. of solution for developing half-plate prints, made up of equal parts developing salts and water, as per the Platinotype Company's directions."

New Apparatus, &c.

The "Summar" and "Periplan" Lenses. Made by Ernst Leitz, Wetzlar, and 9, Oxford Street, London.

These lenses mark the entrance into the photographic objective trade in England of the eminent firm of Leitz, a firm whose optical work in microscopic lenses has long drawn high eulogies from experts. Messrs. Leitz, if we may judge from the few lenses we have examined, are to obtain similar commendation from photographers. The "Summar" lens, Series II., is a symmetrical anastigmat of a very high degree of correction, and working at the large apertures of *f*/5 to *f*/6. The one we have tried is No. 6, of 150mm., or 6in., focal length, *f*/6 aperture, and intended to cover 12cm. by 15cm. This it does readily, and, in fact, it can be used over a much larger plate. All its corrections seem to be of a very high order, and the single combination works well at an aperture of about *f*/11. The field of the doublet is practically flat, and a small point of light can be sharply focussed in any part of the plate, even in a half-plate camera. This should be an ideal lens for the ordinary hand camera of the non-reflex variety, for when we depend on



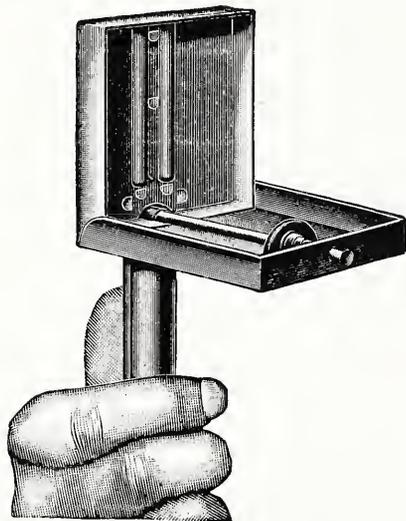
focussing by scale a lens of much greater rapidity than *f*/6 often leads to trouble, owing to its want of depth. The price of this No. 6 lens is £4 10s. in ordinary mount. A quarter-plate lens of 5¼in. focus belonging to the "Summar" Series II. has the yet larger aperture of *f*/5, and costs the same as the 6in. of *f*/6 aperture. Another 6in. lens of *f*/5 aperture is also listed at £5.

The "Periplan" is an unsymmetrical lens of full aperture of *f*/7.7, and, though a very much cheaper lens than the "Summar," its performance at full aperture leaves nothing to be desired. Even though the back combination consists only of two cemented lenses, yet this at *f*/16 gives excellent results. The lens tested is No. 3, of 150mm., or 6in., focal length, and therefore it can be well compared with the

"Summar" of the same focal length. Its covering power is almost exactly the same, and its performance at $f/7.7$ is practically equivalent to that of the "Summar" at $f/6$. The price is only £3, as against £4 10s., the difference being, of course, due to the smaller rapidity, but, still, an $f/7.7$ lens is not a slow one, and perhaps this aperture is the most generally useful of all. We can strongly recommend the "Periplan" to anyone requiring a cheap $f/8$ lens— $f/7.7$ and $f/8$ are, of course, practically the same thing. A $5\frac{1}{4}$ in. lens only costs 50s., and few lenses of such good quality are obtainable at such a price.

The "Agfa" Pocket Flashlamp. Sold by Chas. Zimmermann and Co., 9 and 10, St. Mary-at-Hill, London, E.C.

In this small flashlamp the makers have assuredly reached a point of convenience and efficacy beyond which it will be difficult to go. The lamp consists of a pair of trays of nickelled metal, which are hinged together and fixed to a metal handle some 7in. in length. In one of the trays the necessary quantity of flash-powder is placed. The novelty of the apparatus lies in the ingenious method of ignition. This is done by aid of a common Swedish safety-match, which is held by a spring clip, so that its head comes in the semi-circular hole at the back of the flash-pan. The head of the match is ignited by the upward passage against it of a strip of striking-paper actuated by spring. The match in turn ignites the powder which is placed on it, and as the ignition takes



place at the back of the pile of powder and against the metal back of the lamp, the flash is forced away from the operator. The actinic quality of the flash may be judged from the fact that at F. 11, and using a plate about 200 H. and D., the use of $1\frac{1}{2}$ gms. of powder, say 20 grains, gave a well-exposed negative. The lamp is not intended for big work by flash-powder, but for single portraits and exposures consuming up to about 40 grains of powder it is capable of giving very excellent results. Moreover, for architectural or similar technical work where it is desirable to use flash-light as an accessory means of illuminating extra dark corners, no more handy instrument than the "Agfa" lamp can be imagined. It folds up flat for the pocket, and is got ready for use in a few seconds. Not the least notable feature of the lamp is its very moderate price, 1s. 9d., complete, with firing-papers and instructions.

The Busch "Bis-Telar," Series F/7. Sold by the Emil Busch Optical Co., 35, Charles Street, London, E.C.

The original "Bis-Telar" working at $f/9$ is well known to our readers, and its usefulness as a long focus lens working at a small camera extension has been much appreciated. The new series works at larger apertures. Nos. 1 and 2, of 8in. and $10\frac{3}{4}$ in. focal length respectively, work at $f/7$, while No. $2\frac{1}{2}$, which is the one now submitted to us, has a focal length of $13\frac{1}{2}$ in. and works at $f/7.5$. The new series is therefore exceedingly well adapted to the hand camera, for either $f/7$ or $f/7.5$ is a good working aperture. No. $2\frac{1}{2}$ is listed to cover 5 x 4. This it does easily, and at $f/16$ it gives excellent definition all over the plate. At full aperture it gives fine definition in the centre, but the falling off towards the margins is not very great. Stopping down does not unduly reduce the circle of illumination, therefore small stops can be used without cutting off

the corners of the plate. The total camera extension is only 7 inches for distant objects, therefore the lens can easily be used in an ordinary double-extension quarter-plate camera or in a reflex. The price is only £4 5s., which is very moderate, while the workmanship of the objective is of the fine quality and perfect finish that characterises the lenses issued by the Emil Busch Optical Company. The No. 2 lens, which we have also tried, requires $5\frac{1}{2}$ inches camera extension, costs only £3, and may be classed as one of the most useful lenses the quarter-plate worker can possess. The new series of Bis-Telars includes five lenses with focal lengths of 8, $10\frac{3}{4}$, $13\frac{1}{2}$, 16, and 22 ins., the camera extension required with each lens being about half an inch more than half the focal length. The old series only included three lenses of 7, 10, and 14 inches focal length, so that we now have a much more varied series to select from. The new lenses can be obtained in either focussing mounts or Koilos shutters, so there is no difficulty in adapting them to hand cameras. Naturally they give some distortion, as do all telephoto lenses, but this is an almost inevitable defect with lenses of telephoto construction, and does not detract from their peculiar value. A characteristic of the Bis-Telar is its smallness. The new $13\frac{1}{2}$ inch lens only requires a $1\frac{1}{4}$ inch flange screw, and each lens is of about the same size as an R.R. of the same focal length. No. $2\frac{1}{2}$ only projects $2\frac{1}{2}$ inches from the flange and has a 2 inch hood.

New Materials, &c.

The "Agfa" Copper Intensifier. Sold by Chas. Zimmermann and Co., Ltd., 9 and 10, St. Mary-at-Hill, London, E.C.

A single solution intensifier which should find much favour with both the user and the dealer has been produced by the makers of the famous "Agfa" products, as the result of experiments made to produce an intensifier containing no scheduled poison, and therefore available for sale by photographic dealers without restriction. When, as in the present instance, the practical properties of the solution are not thereby sacrificed, the freedom to sell without fear of harassment from those working on behalf of pharmacists should add interest in the new introduction. The basis of the intensifier is a copper salt, but so far as we can judge the preparation is not purely and simply that of the copper toner containing ferricyanide which was more in use a year or two ago than at present. The intensifier is a pale yellowish powder which dissolves very readily in water, forming a clear green solution. The strength at which it is used is 5 per cent., but it is not necessary to weigh out the powder: the screw stopper is provided with a glass measuring tube holding 5gms., the dose of chemical for $3\frac{1}{2}$ oz. of water. The plate, from which the hypo has been washed, is placed in this solution and allowed to remain therein until the desired degree of intensification is reached. The solution is gradual and even in its action, and five or ten minutes gives a very considerable degree of intensification, as much as will usually be necessary. The colour of the deposit is a light chocolate brown, so that less degree of intensification than would at first be thought necessary is sufficient. The intensifier shows no sign of staining or veiling of the shadows, and is evidently a convenient, reliable, and easily applied method of intensification. The way in which it is got up for sale in bottles holding 50 gms. of the powder makes it a most convenient article for the dealer.

EDINBURGH PHOTOGRAPHIC SOCIETY.—The annual exhibition will be held in the society's hall, 38, Castle Street, from February 20 to March 6. Entries close February 6, the latest date for the reception of pictures being February 10. Sections I. and II., for framed pictures and photographs in colour, respectively, will be judged by Messrs. J. Campbell Noble, R.S.A., Archibald Cochrane and Robert Burns, A.R.S.A., and Section III. (lantern slides) by a committee appointed by the exhibition authorities, and in each section and class the society's medals will be placed at the judges' disposal for award at their discretion, their decision in all cases being final. Entry forms and full information may be obtained on application to the Exhibition Secretaries, Edinburgh Photographic Society, 38, Castle Street, Edinburgh.

New Books.

"The Science Year-book," 1909. Edited by Major B. F. S. Baden-Powell. (London: King, Sell, and Olding.) 5s.

The fifth issue of this year-book contains, among other additions, a table of the vegetable kingdom, compiled by Dr. Rendle, of the British Museum. Most of the tables, however, relate to astronomy, physics, and chemistry. There is a review of science progress in 1908, and directories of periodicals, public institutions, universities, and learned societies. The year-book provides a diary for every day in the year, as well as a monthly calendar, which is kept in review month by month by placing it next to the front cover of the volume and providing the latter with an aperture. The publication should be of frequent service to those having dealings with scientific bodies or people.

PHOTOGRAPHIC SURVEYING.—Nos. 2 and 3 of the "Internationales Archiv für Photogrammetrie," the journal of the scientific methods of survey by means of photography, are sent to us by the publisher, Carl Fromme, 2, Glockengasse, Vienna, II./1. Each number is sold at the price of 6s., or the yearly subscription for four numbers is 20s. Among the contributions are discussions of the orientation of photographic exposures made from a common view-point by Prof. A. Klingatsch; of the use of long base-lines in stereo-photogrammetric measurements, by Dr. N. Herz; on photogrammetric work in Russia, with other papers on this important field of work, the literature of which is now gathered in the pages of the "Archiv" under the editorship of Dr. E. Dolezal.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, JANUARY 8.

Lincoln Amateur Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Hill Camera Club. Mounting Competition.
Burrington Photographic Club. Development of Negatives by Members.

SATURDAY, JANUARY 9.

Bolton Amateur Photographic Society. French Lantern Pictures. A. E. Staley & Co.

MONDAY, JANUARY 11.

Whipplegate Photographic Society. "The Autochrome Process." H. W. Bennett.
Brantham Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Bradford Photographic Society. "Control in Simple Combination Printing on Bromide Paper for Pictorial Effect." Harold G. Grainger.
Southampton Camera Club. "Two Benedictine Ministers." E. W. Harvey Piper.
South London Photographic Society. "Lantern Slide Making." E. R. Bull.

TUESDAY, JANUARY 12.

Loyal Photographic Society. Opening of a One-Man Exhibition. R. Dührkoop, Address by E. O. Hoppé.
Donklands Photographic Association. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Banley Photographic Society, Y.M.C.A. "Wellington and Ward's Specialties." H. Wade.
Worthing Camera Club. "Pictorial Possibilities with a Kodak." J. W. Eadie.
Leeds Photographic Society. Annual Meeting.
Epsom and District Literary and Scientific Society. "A Surrey Ramble." Surrey Survey and Record. Fenwick Smith.
Hackney Photographic Society. "Some Models I Have Photographed and Hints on Home Portraiture." P. R. Salmon.

WEDNESDAY, JANUARY 13.

Stockport Photographic Society. "Exhibition of Thornton-Pickard Prize Slides and Apparatus." R. Hesketh.
Coventry Camera Club. Dutch Lantern Pictures. A. E. Staley & Co.
Borough Polytechnic Photographic Society. "Bromide and Gaslight Papers." W. H. Darvill.
Broydon Camera Club. Ten Minutes Lectures by Members.
Leeds Camera Club. "Autochromes." John H. Gash.
Lewes Camera Club. "The New Ozobrome." H. J. Burgess.
Bontypool and District Photographic Society. French Lantern Pictures. A. E. Staley & Co.
Saisley Philo. Inst. (Photo Section). "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.

THURSDAY, JANUARY 14.

A.C.C. School of Photo-Engraving, Bolt Court. "New Considerations on the Theory of the Cross Line Screen." M. H. Calmels.
Liverpool Amateur Photographic Association. The Prize Slides of the 1908 Competition of the Affiliated Societies will be shown.
Felbourne (London) Camera Club. "Printing and Toning in Various Processes." The President.
Wimbledon and District Camera Club. Lecture Competition.
Chelsea Photographic Society. "A Tour through Dauphiné and Savoy." Mrs. Spenser Wilkinson.
Leek Photographic Society. "Wellington and Ward's Specialties." Demonstrated. H. Wade.

Handsworth Photographic Society. "Lantern Slide Making by Contact and Reduction." J. Gough.
Glasgow E. Amateur Photographic Association. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
London and Provincial Photographic Association. "Yesterday and To-Day." Burroughs, Wellcome & Co.

SOUTHAMPTON CAMERA CLUB.—The twelfth annual meeting of the Southampton Camera Club was held on Monday evening last, under the chairmanship of the president (Mr. Wm. Borough Hill).

The annual report was read by the hon. sec., who observed that their numerical strength was the same as last year, viz., 110, and with regard to their balance at the bank, he thought they could congratulate themselves that they stood with £77 to their credit, and their liabilities were nil. The committee again desired to record the gratitude of the members to the president for his generosity in placing the club-room and the dark-room at the members' disposal. Mr. Kimber also mentioned that during the year thirty-five meetings had been held, comprising demonstrations, lectures, competitions, etc., and among the lecturers were such well-known men as Arthur Marshall, James Shaw, C. B. Howdill, W. L. F. Wastell, E. Seymour, and C. H. Hewitt. In referring to the annual subscription he mentioned that the attendance was not so good as in previous years, and for the first time they had to record a small deficit.

The report was adopted on the motion of Mr. S. G. Kimber, seconded by Count de Miremont. Mr. Trigg (hon. treas.) proposed the adoption of the financial statement, and mentioned that for the first time in the exhibition account they had to record a loss of £3 4s. 9d., but nevertheless, the balance at the bank had increased from £75 13s. 8d. to £77 3s. 1d.

Mr. Wm. Burrough Hill was for the seventh time elected as president, Mr. Kimber, in making the proposition, paying a high tribute to the keen interest Mr. Burrough Hill showed in the Club's welfare. Mr. T. P. Clark seconded, and the president briefly responded. The vice-presidents (Messrs. H. Milner White, LL.D., G. T. Vivian, A. E. Henley, and F. G. Ryder) were re-elected with the addition of Messrs. Arthur Marshall, A.R.I.B.A., and F. J. Mortimer. Mr. S. G. Kimber, F.R.P.S., was re-elected hon. sec., Mr. Trigg hon. treas., and Mr. C. Daw hon. reporter. The Committee was chosen as follows.—Messrs. T. L. Baker, C. M. Cooper, H. Ess, E. H. Irish, W. R. Kay, W. R. Olney, R. E. Parson, Dr. Purvis, F. Russell and R. Robinson.

HACKNEY PHOTOGRAPHIC SOCIETY.—At the meeting held on December 22, Mr. Stuart Woodhouse gave the results of a number of experiments he had made in after-treating bromide prints in the direction of brightening up the surface. Many methods were tried with varying success. Wax pastes, commercial and home made, were not altogether successful, the difficulty being to get an even coating. White of egg diluted with water gave a good result, as did also dilute celluloid varnish. Thinning out "Lustralene" with megilp led to megilp being used alone, and this was found to be the most satisfactory of all. A print rubbed over with megilp had its shadows brightened wonderfully, and the megilp formed a perfect medium for applying pigment if working-up was necessary. Should, for instance, a portion of the print require darkening, then megilp was first to be applied to the whole surface, after which megilp and pigment was to be applied locally. If the result was not satisfactory, it could be as easily removed. Another way of working up was to apply the megilp and pigment over the surface generally and then bring up the high-lights by wiping out. Both pastel crayon colours or the ordinary tube oil pigments could be used. It was an especial feature of this process that it permitted any amount of working up, with results that showed, as far as surface conditions went, no traces of such work having been performed. Examples shown at the meeting fully bore out what Mr. Woodhouse had said about the method, and it was considered that he had made a most valuable communication.

"WILSON" VIEWS OF NORTHERN COUNTIES.—Mr. Godfrey Hastings, 27, Ridley Place, Newcastle-on-Tyne, writes that, having purchased all the negatives of the counties of Northumberland, Durham, and Cumberland, belonging to Messrs. G. W. Wilson and Co., of Aberdeen, he can now supply postcards and other view goods from them.

Commercial & Legal Intelligence.

HALES' TOURS OF THE WORLD (UNITED KINGDOM), LTD.—The opening of too many places in various parts of the United Kingdom on long leases at tremendous rentals to secure good positions is stated to have been the cause of the trouble that has attended this company after only two years' working. The meeting of creditors was held at 33, Carey Street, on December 31, before the Official Receiver. The gross liabilities are set down, on the estimate of the officials of the company, at £13,161 19s. 7d., the ranking amount being £8,958 18s. 6d. The unsecured creditors amount to £1,378 16s. 7d. The total assets are put at £4,203 1s. 1d. The only concerns that had paid their way in London were those at Oxford Street and at Olympia, West Kensington. In the country the successful concerns were few, and in most of these cases the company held the leases, which invariably were for three years. The trading account showed that the expenses for the Kensington premises were £4,139, and the gross receipts £1,303; £2,150 were the expenses at Hammersmith, and the takings were £1,150. Manchester showed about £500 or £600 to the good; Leeds, a loss of £1,000; New Brighton, a loss of £170; Oxford Street, a profit of more than £4,000; Olympia, £700 profit; Bristol and Nottingham, a loss of £400 each; Blackpool, a loss of £1,300; and Birmingham, a small profit. The total profit on the trading was £544, but, said the Official Receiver, that was not waiting for disposal, as there were heavy expenses outside this amount, including £1,100 miscellaneous expenses, and £1,607 directors' fees. All the parties have made some nominal profit in the concern, and it would have to be thought out as to what was accountable to the syndicate. Upon a resolution of the petitioning creditor the Official Receiver was appointed liquidator. At the subsequent meeting of shareholders the Official Receiver said that the only concerns open now were at Oxford Street, London, Nottingham, which would be closed in a few weeks' time, and the Agricultural Hall. For the unsecured creditors it was a hopeless case, an all the more hopeless to the shareholders. The total deficiency is £168,958 18s. 6d. The meeting endorsed the resolution of the creditors.

INEXPERIENCE OF BUSINESS in England, together with bad trade, were the causes attributed by Joseph Valter, described in the receiving order as John Walter, of 49, Southampton Row, W.C., photographic art gallery proprietor, etc., of his failure at the first meeting of creditors, held at the London Bankruptcy Court, on December 30. No creditors were present, and debtor's representatives (Messrs. Roberts and Co.) said that the statement of affairs would be filed during the course of the day. Asked by the Assistant Official Receiver as to the amount of the liabilities, debtor's representative said that the claim of the petitioning creditor amounted to about £62, and, in addition, there was about another £12. From the report of the preliminary examination it appeared that debtor was a Russian subject, and came to England from Berlin in 1906. After closing up a clothing business because he was losing money debtor, in July, 1907, opened a picture business, and carried out photographic enlargements, etc. with a partner (Mr. Lovett), under the style of the Central Art Gallery at Southampton Row. Mr. Lovett stayed until February, 1908, when debtor bought him out and carried on the business alone until the end of October last, when he sold it for a small amount. It appeared, however, that debtor took another partner after Mr. Lovett, and this latter partnership had not been formally dissolved. Subsequently debtor went into partnership in another business and put £500 into it. It was unsuccessful, and he came out with about £53 liabilities to his name. There are no assets and no books. Debtor became aware of his insolvency in July last. The case is a summary one, and remains in the hands of the Official Receiver. Two proofs only were admitted, that of A. J. Cox, £22, and Gerhard and Hey, £54.

DISSOLUTION OF PARTNERSHIPS.—Pictorial Photo Publishing Company (Peter Peters, Abraham Stamler, Ben Stamler, and Leon Roosevelt), 79, New Briggate, Leeds, 1, Bland's Cliff, Scarborough, and 40, Market Place, Dewsbury, artists' photographers and publishers, November 25. Debts owing by the late firm will be paid by P. Peters, who will continue under the above style at 1, Bland's Cliff, Scarborough, and 40, Market Place, Dewsbury. A. Stamler, B. Stamler, and L. Roosevelt will continue under the above style at 79, New Briggate, Leeds.

NEW COMPANIES.

DEBENHAMS, LONGMANS, AND Co., LTD.—Registered December 18. Capital £2,000, in £1 shares. Objects: To take over the business of art photographers carried on by W. F. Longmans, A. S. Longman, and D. Welby, at 12, Clarence Street, and the County of Gloucester Studios, Gloucester, and at 3, Spa Place, Cheltenham, as Debenhams and W. F. and S. Longman. Private company. Registered office, The Studio, Clarence Street, Gloucester.

REGENT PHOTOGRAPH COMPANY, LTD.—Capital £100, in £1 shares. Objects: To acquire the business of photographers, dealers in photographic requisites, etc. Private company. Table A mainly applies.

PERMAGRAPHIC ENGRAVING COMPANY, LTD.—Capital £500, in £1 shares. Objects: To acquire the business of engravers carried on by H. Eagle, at 20, The Side, Newcastle-on-Tyne, as Henry Eagle and Co. Private company. Registered office, 20, The Side, Newcastle-on-Tyne.

LONDON AND PROVINCIAL REPRODUCTION COMPANY, LTD.—Capital £3,000 in £1 shares (1,500 Six per Cent. Cumulative Preference). Objects: To carry on the business of photo-engravers on wood, stone, metal, and other material, photo-lithographers, printers, etc. Private company.

KENT AND LACEY, LTD.—Capital £3,000, in £1 shares (1,500 Preference). Objects: To acquire the business of a company of the same name carried on at Singleton House, Northumberland Street, Newcastle-on-Tyne, and at 46, James Street, Harrogate, and to carry on the business of photographers, photographic artists, printers, photo-lithographers, etc. Private company. Registered office, Singleton House, Northumberland Street, Newcastle-on-Tyne.

News and Notes.

"THE BOOKSELLER."—Our contemporary of the bookselling trade, which for the past fifty years has appeared monthly, has with the New Year embarked on a career of weekly publication, which, to judge by the first number, will fully maintain its prestige in the past.

BEDFORD CAMERA CLUB.—The third annual exhibition will be held on January 27 and 28, in the Town Hall, Bedford, the exhibits to be judged by Mr. F. J. Mortimer. In the open classes, one of which will be devoted to colour work, including Autochrome and other transparencies, the awards will take the form of bronze plaques and certificates. Entry forms may be obtained from the secretary, Mr. K. Gammell, 21, St. Peter's, Bedford. Entries close January 15, but pictures will be received up to January 26.

NORTH-WEST LONDON PHOTOGRAPHIC SOCIETY.—In connection with the members' exhibition, which will be held on February 11, in the Upper Hall, 17, Camden Road, N.W., there will be one class open to all photographers in the Borough of St. Pancras. The prints may be by any process and any subject, and must be delivered to the secretary at the above address, accompanied by the necessary entrance fees, not later than February 1. Full particulars may be obtained from the secretary, Mr. H. S. Date, 3A, Woodsome Road, N.W.

SIR H. HERKOMER ON THE SNAPSHOT.—Lecturing on Monday last, Sir Herbert Herkomer referred to the failing interest for art among the people. Enormous sums paid for old masters by a few wealthy men did not engender a love of art in the country, and unless fine art were loved by the general public art could not flourish. The signs were only too marked that the love for or interest in art was on the wane with the public. Newspaper proprietors had realised this. The artist cost more than the snapshotter, and as newspapers had to "pay," the artist was sent adrift to join the unemployed. And what of the snapshotter? Once, perhaps, in a thousand times a man or woman in the act of walking, shaking hands, or tumbling off a horse might turn out passably presentable and interesting in a snapshot. But in the other 999 cases the snapshot was little short of a personal libel, against which there was no legal redress. The snapshotter, too, thrust himself where the illustrator of old would have felt it indecent to intrude. Then, also, there was the snapshotter's assertion that the camera could make no mistake. That might be so, but the snapshotter could, and did. The snapshots which practically filled the pages of illustrated papers to-day enforced his argument that the public were accepting

very inferior article for the artist's handiwork. It was a pitiful state of things.

SOUTH LONDON PHOTOGRAPHIC SOCIETY.—The annual exhibition will be held in the South London Art Gallery, Peckham Road, from February 20 to March 20. There will be three open classes, for pictorial photographs, lantern slides, and scientific and technical photographs respectively. In the two former silver and bronze plaques, and in the last one bronze plaque, will be placed at the disposal of the judges, Messrs. A. H. Blake, E. T. Holding, and F. J. Mortimer, for award at their discretion. Entries close on January 30, on or before which date entry forms, accompanied by the necessary fees, must reach the hon. sec., Mr. H. Creighton Beckett, 44, Edith Road, Peckham, S.E., from whom also entry forms and full particulars may be obtained.

LEICESTER AND LEICESTERSHIRE PHOTOGRAPHIC SOCIETY.—The annual exhibition will be held from February 11 to 20. In the open classes, as last year, bronze caskets, bronze medals, and carbon diplomas will be placed at the disposal of the judge, Mr. Arthur Marshall, to be awarded at his discretion. The exhibition will this year include a foreign section, organised in conjunction with the Birmingham Society, in which pictures will be shown free of cost to exhibitors. Further particulars and entry forms may be obtained from Mr. H. C. Cross, 80, Harrow Road, Leicester.

PIRIE MACDONALD, of New York, busy as he must be in working two studios for men only, finds time, we are glad to know, to remember friends at home and abroad, and to give his New Year greeting the personal touch which is seen in all the work to which



he puts his hand—photographic portraiture or public administration. A stern critic of waste in the photographic business, he is seen to be personally indulging what looks in the picture to be a distinct tendency to waist.

BOROUGH OF TYNEMOUTH PHOTOGRAPHIC SOCIETY.—This society will hold its fifth annual exhibition from February 3 to 6, in the Wesleyan Hall, Northumberland Square, North Shields. In the open classes the awards will take the form of silver vases, which will be placed at the disposal of the judges, Messrs. David Blount and Walter S. Corder, whose decision shall be final. Entry forms may be obtained from the secretary, Mr. J. R. Johnston, 29, Drummond Terrace, North Shields, and must be returned to him, correctly filled in, on or before January 23.

NORWICH AND DISTRICT PHOTOGRAPHIC SOCIETY.—The society's sixth annual exhibition will be held in the C.E.Y.M.S. Rooms, St. Andrew's Place, from February 16 to 20. In the open classes the awards

will take the form of bronze plaques, with the exception of the Autochrome class, in which two silver vases will be placed at the disposal of the judge, Mr. T. J. Mortimer, for the two best Autochrome slides or transparencies. Entry forms, accompanied by the necessary fees, must reach the hon. sec., Mr. J. T. Tanner, The Lodge, Bowthorpe Road, Norwich, not later than February 3, the forms together with any further information being obtainable from the same gentleman.

A PHOTOGRAPHER'S EXHIBITION.—Mr. John Moffatt, of 125, Princes Street, Edinburgh, sends us the following photograph of an exhibition of portraits of children which he has been holding for some weeks past in his studio. He has brought together a collection of



200 subjects, most of them photographed in the ordinary way of business during the past six months. The exhibition, we are not surprised to hear, has attracted a good deal of attention, and has been visited by over 800 people.

Correspondence.

* * We do not undertake responsibility for the opinions expressed by our correspondents.

* * Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

CARBON PRINTING ON IVORY BY SINGLE TRANSFER.

To the Editors.

Gentlemen,—In the article, "Carbon-printing on Ivory by Single Transfer," in No. 2,534 of the "B. J.," Mr. W. E. Debenham believes that his method is a quite new *modus operandi*. When he says: "It is, of course, quite possible that others may have worked out a similar process, and it may even have been published; but, if so, I am not aware of it." And when, in his last letter in the "B. J.," 1909, p. 14, he asks again where any previous record is to be found, I will answer to this question. Mr. Debenham is quite right in saying that no record is published in an English book or journal, but in Germany this method is known to some extent. In Prof. Eder's "Handbuch der Photographie" (Second Ed., 1896, Vol. IV., p. 382) he will find that the continuing action of light in the dark can only be arrested by "washing out the bichromate." If one cannot develop the carbon print on the same day when printed, the prescription is given to wash the bichromate well out, to dry the tissue, and the next day to work as usually (vide Hans Schmidt, Photographisches Hilfsbuch, Teil II., p. 162-3, Berlin, 1907). Regarding the transfer of carbon prints to ivory, Prof. Eder (1 c., p. 448) says: "By single transfer the ivory support is stained by the bichromate. This staining may be avoided when the sensitised and printed tissue is completely washed out before squeezeing it to the support."

Mr. Debenham's method of extracting water by spirit must hinder a perfect sticking of the tissue to the support, for we know from drying of negatives by spirit that not only is water extracted, but at the same time the honeycombed structure of gelatine is altered, pressed together, and more or less hardened.

Transferring a carbon print to ivory by single transfer I followed

this method: To ensure a better sticking to the support I add 5 parts glycerine to 100 parts of the sensitising bath, print, wash out all bichromate for two to three hours, and squeegee the print to Houghtons' Klito Print Glazer. The next day the tissue is soaked as usual, transferred to the ivory support, and developed.—Yours very faithfully,

DR. MEBES.

Berlin, January 3, 1909.

To the Editors.

Gentlemen,—I cannot accept the suggestion implied in your remarks that the miniatures that I have been supplying for many years are not to be relied upon for permanency, or that I am less scrupulous than other photographers in what I send out. I have never had a complaint or known a case of the spontaneous scaling of the image of which you speak. The picture I sent for your inspection has been subjected to far rougher treatment—lying unglazed in a drawer with other photographs—than is usually accorded to miniatures, but, except where a knife has been used, the adhesion remains perfect.

The process I described and recommended is that of the abstraction of the water by alcohol. This process you now admit has not been hitherto published. The process of drying and subsequent re-wetting was only suggested as a possible but untried alternative. Possibly your remarks were based upon some report of an attempt to use this drying process, but in that case it would still be desirable to know where any record of the attempt is to be found.—Yours obediently,

W. E. DEBENHAM.

[The suggestion is our correspondent's own. He did not state nor have we implied that the specimen sent to us was his make. We merely described it as we found it, and in our original comment upon the method referred to a danger in the process which we know to have been discovered in practice. The discussion of our comment has already exceeded the limits which the matter merits, and is now closed.—EDS. "B.J."]

"METHODS OF PRESS PHOTOGRAPHY."

To the Editors.

Gentlemen,—I read with interest in your "Journal" of last week the letter referring to the above, and think, with your correspondent, it is time that Press photographers should use a little more forethought with regard to the feelings of those with whom they come in contact.

I venture to suggest that it is not only the Press photographer that is the cause of the trouble, but that the paper which employs him should be more considerate. For instance, is it not time that they should at least have some respect for the feelings of principal mourners at funerals of their late relatives? I think it a disgrace to anyone that a husband should be made the subject of a snapshot when attending the funeral of his late wife, which is a subject often produced in the Press. Also is it not time that photography in police-courts of prisoners charged with crimes, from murder downwards (even before they are convicted), should be put down with a heavy hand? In conclusion, I beg to add that, personally, if one of these employees of such illustrated papers was to have his apparatus smashed, and, in some cases, he himself roughly handled, by the people whose feelings he is so upsetting, it might be the cause of a little more forethought in future.—Yours faithfully,

W. LINDSLEY MARSH.

The Southgate Studio, Chichester, January 3, 1909.

WHY NOT TAX PHOTOGRAPHERS?

To the Editors.

Gentlemen,—I have read with astonishment in the current issue of the "Journal" a letter from "A Country Photographer" proposing that the Government should attempt to benefit photographers by taxing them. Whom does your correspondent desire the tax to benefit? Surely not the prosperous photographers, for they do not need assistance. I presume it is the poor and struggling photographers whom he wishes to help, and it is evident that such would have the most difficulty in paying the tax, and your correspondent leaves us without evidence that they would benefit indirectly by the extinction of the competition of amateur photographers, since it would be impracticable to collect a tax from the latter, who only pursue the hobby in the seclusion of their homes, and give or sell their photographs to private friends. To such the evasion of an impost would not be a difficult matter, and would simply add a zest to an otherwise tame amusement.

The prosperous photographer would grumble and pay, and having

business ability, would probably extract the tax, together with interest thereon, from the public. It is, however, conceivable that to many poor and struggling photographers the tax would be the last straw, and would lead them to turn to the more profitable occupations of road sweeping, bus conducting, etc., or perhaps spend their last pence on cyanide of potassium, courses which might be beneficial to themselves and their fellow-creatures, thus justifying your correspondent's anticipations.—Yours faithfully,

FREE TRADER.

THE MARKING OF PACKETS OF PLATES AND PAPERS.

To the Editors.

Gentlemen,—It has occurred to me on many occasions what an advantage it would be to the photographic dealers, and also to the public in general, if the plate and paper manufacturers decided to put, on all packets of paper and plates produced by them, the price, in a prominent position. A bold round ticket is all that would be necessary. There are so many grades of plates and so many different sizes, and also an extra price for backed plates. Then in the paper—taking for an example "Velox"—there are a large number of different grades and different sizes, a number of which vary in value, and, with the conglomeration of different prices, it makes matters very confusing for the retailer. I think probably a notice in the "Journal," directed to the manufacturers of such goods, would be instrumental in overcoming the difficulty, and I think you will agree with me, in these times of so much ingenuity and so many introductions, it is most essential that the price should be put on all packages as I have indicated, for the matter of simplification.—Yours faithfully,

99, St. Vincent Street, Glasgow.

R. BALLANTINE.

December 30, 1908.

[We refer to our correspondent's letter under "Ex Cathedra."]

AGREEMENTS WITH MANAGERS OF BRANCH STUDIOS.

To the Editors.

Gentlemen,—The matter dealt with in your leader of December 25 and in "Observer's" letter of December 18 appears to me to require consideration from other points of view besides that of equity. If the agreement is a fair one the employee who signs it has no cause for complaint when the time comes for the clauses to be put into force, for it must be assumed that he signed it with a full knowledge of its effect. There can, I think, be no question that such an agreement is a quite legitimate business proceeding, though whether it is in all cases good policy to resort to it is quite another matter.

Take the case of establishments that are branches of a first-class and well-known business. If the manager leaves one of these branches and starts for himself in the same town, those who hold the views of "Observer" seem to think that all the old customers will follow the manager—whose name they probably do not even know—and desert the original firm. I doubt this very much. The name of the older firm will be as attractive as before, and if the business does eventually become transferred it will more likely than not be due to the faults of the new manager rather than to the virtues of the old one. In this case can it be argued that the latter does not deserve his good fortune? If the original firm loses owing to the rivalry of their late manager it is mainly their own fault, for they should have selected a more competent successor. Fear of competition is a sign of weakness rather than otherwise, and in at least some businesses a competitor is warmly welcomed by his more acute rivals. I have been given to understand on very good authority that in some trades the wise man always sets up his business in a street containing as many rivals as possible. For example, a butcher who sets up in a street that contains no other butchers is likely to have a hard time of it, for prospective purchasers go for preference to streets where most butchers congregate and where they can find a bigger choice in a conveniently small compass. The same thing must apply, more or less, in other businesses. If show cases and window samples serve to attract sitters to photographic studios, then the locality containing the greatest number of them will be the one that prospective sitters will explore first, and the best man will be likely to gain their orders.

All these restrictive radius agreements seem to me to be of doubtful utility from a fair business point of view, and further than this they are unpleasantly suggestive of a wish to handicap a man simply because he is a good worker.—Yours, etc.,

"ONLOOKER."

Answers to Correspondents.

- * *All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.*
- * *Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*
- * *Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.*
- * *For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

PHOTOGRAPH REGISTERED:—

Ingham, Winton House, Ashton-upon-Mersey. *Photograph of Mr. Charles Mills, of Manchester, as Rip van Winkle.*

DRAWING REGISTERED:—

W. Batey, 63, Woolley Lane, Hollingworth, Cheshire. *Drawing: Fire at Hollingworth Congregational Chapel, December 27, 1908.*

OLD READER, WESTON.—1. The lens appears to be a carte-de-visite portrait lens which we expect was made for the firm by an optical house, as the firm had not a reputation for its own lenses. 2. We refer you to our issue of December 25 last, p. 973.

J. S.—We should say that the mounts are impure. The fact that the prints discolour on these mounts and not on others seems to prove this.

METAL-CEMENT.—1. Please give address of retail house supplying "laminated lead," as per enclosed sample. We have tried tea-packers, but their stuff is too thin. 2. Also please state what is the best mountant for prints on above. We have tried "Stickfast Paste," but that does not retain its hold, though it seems stuck when dry, but comes off quite easily when tried.—CAMEO.

1. We should think the metal could be obtained at Stanton's Metal Warehouse, Shoe Lane, E.C. Failing there, you might try Bett's Capsule Works, City Road, E.C. 2. Try flour paste made thick and boiled for five minutes. It should be made with good flour. We think you will find it difficult to cement paper to metal so that it will adhere firmly when the metal is bent afterwards.

MARK.—In the case of postcard reproductions your best course is to approach the publishers direct. The advertisement pages of the stationery trade papers will give you the names of the more important.

EO. F. FRAMJEE.—Better apply to Fallowfields, 146, Charing Cross Road, London, W., for their booklet on ferrotypes. They and other firms, such as Bilcliff, Manchester, S.W., supply adapters for using ferrotype plates on ordinary cameras.

LANTERN SLIDES BY REDUCTION.—I am making lantern slides from half-plate negatives by using two cameras front to front—one a whole-plate triple-expansion, in which I put the negative; the other a half-plate, with carrier containing slide plate. I use a Goerz double anastigmat lens 7½ in. focus. 1. Does it make any difference which way the lens faces; if so, which should it face—the negative or the slide, and why? 2. What formulæ would you recommend for the development of such slides? 3. Please give me a formula for flashlight powder, including magnesium, chlorate of potash, and permanganate of potash?—L. S.

1. None whatever with the lens you are using, as this is of perfectly symmetrical construction. 2. This depends on whether you want warm or cold tones. You had better follow the instructions given by the plate-makers. Lantern-slide emulsions differ considerably, and one developer is not necessarily suited to all. 3. It is not necessary to use both permanganate and chlorate. One part of permanganate (finest powder) and five parts of magnesium make a good flashlight mixture. Mix with a feather on paper, and use with caution, as the mixture is explosive.

PAL ENLARGEMENTS.—We have a 12 by 10 bromide opal that is very light, due to not being fully developed, I presume. Can you inform me how I may bring it up to normal density?—F. SLACK.

We should recommend you to try the application of potass ferri-

cyanide and bromide solution (as used for sulphide toning), followed by a developer. This will give an increase in vigour, and, if not enough, bleach with mercury chloride, and follow with sulphite of soda.

E. MERCER.—Certainly an optician can shorten the focus by adding a supplementary positive lens, but the cost would very likely be the price of a second-hand portrait lens of shorter focus.

CEMENTING CELLULOID.—A time back I noticed in the "B.J." a formula for a solution to attach celluloid to glass. I now find I have lost that number, and should be much obliged if you could repeat the formula.—A. E. SAX.

A solution of gelatine in acetic acid. Soften the gelatine in water, liquefy by heat and add acetic acid (glacial). The exact proportions are not material.

ENLARGEMENTS.—1. Thanks for reply in current issue re Speed of Gaslight Paper for Enlarging. My object in using it is to get more plucky prints from thin negatives than is, I understand, possible on bromide paper. Is there any way of getting them on the latter? Mine is a three-filament Nernst lamp, and for such negatives on bromide paper I have tried reducing the light in the filament, but still get too flat prints. I have always read that for enlarging, soft thin negatives are wanted. Mine are developed largely with rodinal, and make very fair P.O.P. prints, but generally they lack sufficient contrast to please me when enlarged. I begin to think that what others call thin and hard are very different to my idea of same. 2. I notice in a reply to another correspondent you say that a positive for making negatives from wants to be flat-looking compared to an ordinary lantern slide. I have always been told that when making a transparency for the purpose of getting an enlarged negative it wants exposing and developing much more than for a positive to be used as a positive. This seems rather the reverse of your advice, or is the difference due to the one being used for enlargement and the other not?—F. C. B.

1. Yes, there is. Fully expose, over-develop and wash. Then place in

Iodine	3 grs.
Potass iodide	30 grs.
Water	10 ozs.

until the whites become strongly blue, and then fix for five minutes. If one application of the process does not lighten the print enough, a second is given. 2. As regards the positive for the preparation of a negative we cannot agree with your informant. The greater the degree of enlargement, the softer should the transparency be made.

RAPID SALTED PAPER.—1. Can you kindly inform me if I can make a plain salted paper sensitive enough for bromide enlarging? It occurs to me that if I salt and sensitise the paper with silver nitrate and then float it upon ammonium bromide (or is it potass bromide?) it would do what I want. 2. I have seen it stated somewhere that a bromide paper can be extemporised from P.O.P. in this manner.—S. E.

1. What you require is known as the solar process, and is used for the cheapest class of work. We have published formulæ, e.g., in our issue of January 11, 1907. 2. A method which has been recommended is as follows:—Immerse for five minutes in ferric sulphate, ½ oz.; ammonium bromide, ¾ oz.; distilled water, 10 ozs. Make by using 5 ozs. of hot water to dissolve each salt and mixing hot. Wash for ten minutes and dry. The P.O.P. is now a kind of gaslight paper, and is exposed and developed as is that paper.

CHEMICALS.—Re Messrs. Lumière's article on page 3 "B.J." January 1. 1. What is meant by soda bisulphite (commercial solution)? 2. Where can I get soda carbonate (anhydrous), and soda sulphite (anhydrous)?—NUMERO.

1. A solution consisting chiefly of sodium hydrogen sulphite. The Lumière N. A. Co. supply a form of it, specially prepared for photography. 2. From any large chemical dealer such as Merck, 16, Jewry Street, E.C. The Lumière N. A. Co., 89, Great Russell Street, W.C., also supply these substances, or you may take in place of them double the weight of the pure "crystallised" chemicals.

RESIDUES.—Having seen from time to time advertisements of chemical manufacturers for residues I shall be glad if you would tell me how these are obtained. I do a good deal of photography, but

up to the present have thrown away all my waste developer, etc.—**RESIDUE.**

Apply to Johnson and Sons, Manufacturing Chemists, Ltd., 23, Cross Street, Finsbury, London, E.C.; Blundell, 199, Wardour Street, Oxford Street, W.; Matthews, Price, and Co., 13, Great Queen Street, Kingsway, W.C.; or The London Refining and Metallurgical Works, Ltd., 32, Clerkenwell Road, London, E.C.

PHOTO-MICROGRAPHY.—Will you kindly mention two or three of the best books on "Photo-Micrography," say one of the 1s. handbooks and one more advanced?—C. STEPHENS.

"Photo-Micrography," by F. Martin Duncan (Hazell, Watson, and Viney, 1s.); and "Practical Photo-Micrography," by Andrew Pringle (Hiffe, 4s.).

SILVER PAPER IN THE TROPICS.—I am anxious to find out what kind of printing paper is found to be practically the best in the tropics. On the Congo, where the climate is hot and humid, we have found it extremely difficult to keep any printing paper, however well it is hermetically sealed before it leaves this country. We have found that — P.O.P. keeps a very short time, and every other kind that has been tried seems unsatisfactory. The — is fairly good, but the last lot that was sent out was bad.—H. GRATTAN GUINNESS.

No paper that contains free nitrate of silver—and all printing-out papers do—can be expected to keep for long if exposed to such trying conditions as those of the Congo. In place of using P.O.P.'s we should advise the use of bromide paper, which has far better keeping qualities than papers of the print-out class. When the paper is received only sufficient for immediate use should be taken out of the packet, which should then be re-sealed and kept air-tight. We would suggest that you try the "Ensyna" paper, the keeping properties of which should be good.

TRIMMING PRINTS IN NUMBERS.—With reference to my query some time ago *re* trimming of prints in bulk, I have read with much interest your article on the above on page 862 of the "B.J.," November 13, 1908. I enclose four prints (which you need not return) with tissue attached for your inspection. The prints, after drying on nets, are flattened twelve at a time in dry moulder, temperature about 170 degrees. The tissue, which is same size as print, is then attached. I should be glad to know if you think a small machine for trimming (this size only)—say two or three dozen at a time—could be obtained and from where. Could the pile of prints, after being put in position and pressure applied, be trimmed on the four sides without releasing the pressure, and what would be the approximate cost of same? All the prints required to be trimmed would be of ships only, and no other straight lines would obtain but those shown on the samples enclosed; of course, it would be necessary for the bottom edge to be parallel with the title and horizon. At present I am trimming with Merrit desk, but this is tedious and not altogether satisfactory. I am now turning out about 600 of these cards per week, and am anxious to hasten the trimming, as I could then turn out a larger quantity, and the sides would have the advantage of being cut clean and at perfectly right angles.—J. T.

We should think that a label-cutting machine would answer your purpose. If so, Messrs. Hughes and Kimber, West Harding Street, Fetter Lane, could supply one. R. W. Munro, Granville Works, Granville Place, King's Cross Road, is a maker of machines for cutting up photographic papers. He might be able to supply what you require. Better write to them stating your requirements. We are rather in doubt as to whether it would be worth your while to go to the cost of a machine, seeing that your output of prints is only about 600 a week.

CASH PRICES.—Some months ago, upon an amateur theatrical performance taking place in this town, I made a special reduction to the performers for cash on completion of order. They availed themselves of same, all but one, who, upon calling for the order, gave me to understand he would call in a few days and settle, and order further copies. As he did not do so, later on I sent the account, charging my full price, with a slip attached, that it was subject to a certain discount if paid in seven days, making it the reduced rate if paid in that time. He did not do so, and the full account has been sent in every month without any reply. Upon pressing him for payment, he sent the reduced price only, deducting the extra for booking, and upon pointing this out to him he refers me to his solicitors. Shall I be right in putting him in the

county court, as it is not fair to the others. I should not think of doing so had he not defied me.—CASH.

We should say that if you can prove there were two prices clearly fixed in the first instance—one for cash and one for booking—you can recover the extra amount in the county court. We doubt if it will be worth while to do so.

STAIN WITH PYRO-METOL.—Some weeks ago you published a pyro-metol formula for plates, which has proved very valuable to me in the dull weather, but the yellowness of negatives makes them dense and long printing. Will you kindly tell me how to clear the colour out of film?—EDWIN FOX.

If the stain is very decided we should recommend you to use the hypo-chlorite bath given on page 782 of the "Almanac," but it needs to be handled with care. You may save the trouble of making up the solution by using the "Stain Remover" of the Vanguard Co., which is a very reliable preparation. If slight, the chrome alum clearing bath ought to remove the colour. If you use a hypo bath of the acid type the stain ought to be negligible, aided, perhaps, by extra sulphite in the developer.

PLATINUM.—The only thing you can do is issue the bath as a made-up preparation, either yourself or through a firm manufacturing chemical specialties. From your description the bath should interest, say, Johnson and Sons, Cross Street, Finsbury, E.C., or the Vanguard Manufacturing Co., Maidenhead.

PYRO.—You might write the firms making a specialty of second-hand goods (see our advertisement pages), offering to sell *en bloc*, or you might prepare a catalogue and dispose piecemeal from a series of small advertisements.

D.—Damidophenol is cheaper. If made up as directed the solution will remain in good working condition for about a week. The best plan is to prepare a solution of sulphite neutralised with metabisulphite. Keep this in stock and add dry amidol or diamidophenol at time of use.

BROMIDE.—(1) Can you give us any reliable formula to give fairly permanent results for intensifying weak bromide prints, preferably with warm tones? (2) Is any form of mercury intensification permanent? If so, what is the formula?—BROMIDE.

(1) The chromium intensifier answers well, and gives a very good black tone. See the formula in the "Almanac," p. 784. If you want a warm tone by intensification you had better try the above, followed by sulphide toning. (2) Yes; bleach in mercury chloride solution and re-develop with ferrous oxalate developer.

P.O.P.—(1) Can you kindly give us, in your "Correspondence" column, a formula for making a concentrated toning bath, that will keep for a time, from which a little could be added to a hypo bath and so form a combined toning and fixing bath for P.O.P.? (2) Also do you know of a way to dry glossy postcards flat—that is to say, without curl—other than by squeegeeing them?—ORPING.

(1) We have not heard of such a bath, and we doubt if it is the best plan to work, as it favours deposition of the gold. You might adapt the Kodak formula, as given in the "Almanac," by dissolving the sulphocyanide along with the gold and lead acetate; but it is very likely that these salts will then interact with each other. (2) Lay face down on fine muslin of large mesh, and dry quickly in a warm room.

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SUMMARY.

Proposed Alterations in Copyright Law.—The full text of the new Copyright Bill drawn up by the Artistic Copyright Society is printed in this issue, page 44. We deal with the provisions of the Bill of special importance to photographers in an editorial article on page 38, from which it will be seen that under the proposed Act British subjects will have copyright throughout the British Dominions in all their works, whilst foreigners have copyright within the British Dominions in those of their works made within the British Dominions. It is proposed that copyright in photographs shall last for a term of thirty years after the expiration of the year in which the work was completed. In the absence of a form or agreement in writing, the copyright in any work remains with the author, except in the case of a work of fine art, which is a portrait, and of a photograph made to order for a consideration, in both which cases the copyright belongs to the person giving the order upon payment of a consideration.

Photographs marked (c) do not require to be registered, but may still be registered, in which case the mark is (R.C.). A reduction is made in the registration fee when a number of copyrights are registered at the same time. In the case of a photographer whose assistant takes a photograph the employer is to be considered the author.

Mr. H. Snowden Ward, who is at present on a lecturing tour in the U.S.A., contributes some notes on current photographic matters in America. He refers to the popularity of the "living picture" show and of good lantern lectures, to the fraternal relations existing between professional photographers, to the interest being taken in the Dresden Exhibition, and to an International Exhibition of Pictorial Photography proposed for 1910. (P. 40.)

The results obtained by F. Wentzel in colour sensitising chloride emulsions are contained in the continuation of this author's paper. (P. 41.)

The exhibition of portraits, figure studies, and landscapes, by Count von Gloeden, now being held at the house of the "B.J.," is reviewed on page 48.

Herr Dührkoop makes a magnificent show of his work at an exhibition now open at the R.P.S. (P. 48.) Mr. E. O. Hoppé, in an address on Tuesday last, gave an interesting sketch of Dührkoop's life and aims.

Further correspondence on "Agreements with Assistants" appears on page 53.

EX CATHEDRA.

An Element of Danger in Press Photography.

The Messina earthquake, like other incidents which have been repetitions of history, has afforded instances of a practice which is a menace to the public esteem in which photography is at present held as a recorder of fact. Photographs of the disaster have been offered for publication, the negatives of which could not possibly have been taken during the present outbreak. The indecent haste of the photographer to make capital out of his exposures of 1905 and 1907 has led him to overlook the fact that the earthquakes of the two latter years took place in the autumn, and that the inclusion of trees in full foliage supplied proof of their early origin. The many journals which now rely largely on photographic illustration will naturally taboo these "photographs of the earthquake," but in the hurry of publication the most punctilious of art editors may nod, and a spurious print be offered to the public. In the interests of press photography as a business in which a large number of people are employed, such attempts to pass off photographs as something which they are not cannot be too severely discouraged.

* * *

When to Vignette.

A reproduction of a vignette-photograph appears in the current issue of "Photography and Focus," on which our contemporary appropriately makes some comments on the use and abuse of the vignette in portrait photography. The photograph in question is a capital example of, first, a photograph admirably adapted for vignetting, and, secondly, of a skillful and proper execution of the process. The stupid convention of using one or two stock shapes of vignettes for all descriptions of subject is, as our contemporary points out, the bane of what should always be a most pleasing effect. In the photograph reproduced, the subject itself—a girl in a big hat—has pleasant outlines, which are left undisturbed by the vignetter, and there is no suggestion of the mechanical means by which the effect has been secured.

* * *

New Ideas in Halation.

A writer in an American contemporary treats the subject of halation in a semi-mathematical fashion, which eventually leads him to the conclusion that "halation is the result of unequal refraction at the two surfaces of the plate." If he had stopped at this stage all would have been well, and we would not have pressed him for fuller explanations of this somewhat obscure statement. Unfortunately, however, he has proceeded to draw logical conclusions from the result of his mathematical investigations, and to give practical advice of a surprising nature. His mode of reasoning is as follows:—Halation being proved to be

the result of unequal refraction at the two surfaces of the plate, its effects can be prevented in two ways—either by eliminating refraction altogether at one surface by using the usual type of absorbent backing, or by rendering the refraction equal at both surfaces, for which purpose he recommends a backing of plain transparent gelatine! Plate-makers are advised to follow up this “new field of investigation” and back their plates with gelatine. “This halation cure will have no great following until the plate-makers do their part,” and they are reminded that “the process is surely as simple as that of double coating, while it ought to be cheaper and more effective.” The most instructive part of this article is, perhaps, the lesson it teaches as to the danger of misapplied mathematics. It will be more useful as a warning to rash mathematical speculators than to practical, but perhaps non-mathematical, plate-makers. We are quite unable to follow the steps by which the writer has arrived at his fundamental fact concerning the cause of halation, and therefore cannot say at what point he has gone wrong. A very little practical acquaintance with the facts concerning halation should, however, have shown him that his final conclusion was a fallacy.

* * *

Facial Anatomy.

One frequently hears it asserted that every photographer ought to make a thorough study of the anatomy of the human body for much the same reason that artists study it. Into the pros and cons of this vexed question it is not our intention to enter here; though we may venture the opinion that no man's work was ever one jot the poorer for his having had some knowledge of the construction and action of the bones and muscles inside of which the man lives and has his being. Some workers may hold an opposite opinion, but surely even the most obstinate will agree that every operator should, in fact, if he aspires to be a successful portraitist, absolutely know at least the rudiments of the anatomy of the human face. If it is his ambition to please the ladies—and what operator has not that worthy ambition?—he must have acquired by observation and education the quick eye which enables him to divine at a glance that side or part of the face which is most striking, and which will be likely to give the sitter most pleasure.

* * *

A Hint to Operators.

The reason for this observation is that in every face there is a “best side” and a “worst side.” Perhaps this fact may not be quite so hard on us as it appears at the first blush, for it at least affords us a very comfortable excuse for our faults and shortcomings, and in future we need not be surprised to hear men put these down to their “twist” or their “bad side.” But this is an admission they will only want to make on occasion, and not to every one; and most certainly they will not want to have this failure immortalised in a photograph. Therefore the moral to the operator is clear; it is to the “good side” that he must look for his bread and butter—the side in which the muscles of the nose, lips and eyes, and the eyebrows are most graceful and perfect. Manifestly this is the side that must be photographed, and it is certainly in the operator's interest to search diligently until he has found this “good side” in the face and also in human nature.

* * *

A Novel Idea of Intensification.

Some little time ago, while looking over some old books, we came across a rather remarkable intensification formula. The instructions were to soak the negative in ammonia, then wash, and soak again in a solution of cadmium bromide,

whereupon the negative assumed a fine black colour, and was intensified, according to the author of the book in question, though probably the majority of other persons would not expect any effect at all. Such was not our conviction, so we did not go to the trouble of trying the method. The myth was an ancient one, and appeared to us to have been deservedly forgotten, but in this idea we were mistaken, for in the *Photographic Times* of last November we see that the same formula is solemnly reprinted in the form of an abstract from *Apollo*, No. 312, June, 1908. Upon discovering this we thought it worth while to test the matter for once, and we did so, with the natural and inevitable result that nothing at all happened. What the originator of the process imagined could happen we cannot think, but it is, of course, quite possible that the old writer we first consulted was not the originator, and his version may simply have been an incorrect reprint of some other formula that had some shadow of reason about it. This is, however, no excuse for responsible photographic journals of the year 1908 repeating his blunders over again. The very slightest knowledge of photographic chemistry should have been sufficient to have at least suggested that the effectiveness of the process was a matter of doubt.

THE PROPOSED NEW COPYRIGHT ACT.

We have kept our readers informed from time to time, as well as we were able, of the progress of the Artistic Copyright Society in the development of their proposed new Copyright Bill, and of the efforts of the Professional Photographers' Association to ensure that a reasonable measure of justice should be accorded to photographic works before it should be presented to Parliament. That the original draft of the proposed Bill issued to the members of the Artistic Copyright Society by their committee did not meet with our approval was evidenced by the severe criticism we felt compelled to accord it at the time of its publication, and at the same time we were not sparing in directness in our comments on the spirit in which we conceived the rights of photographers had been treated by those responsible for the promotion of the Bill. With equal candour we now acknowledge the fairness with which the Society has since met the objections raised by the representatives of photography, that is to say, the Copyright Committee of the Professional Photographers' Association, with the so far satisfactory result that the photographer in business will be able to comply with the requisite conditions.

So far the matter is in no more forward a stage than a proposed Bill to amend the law of artistic copyright, being the last of some half-dozen or so similar attempts to supersede the Act of 1862, all of which have failed either from not reaching Parliament, or, having arrived there, by meeting with one or other of the fatalities to which unofficial attempts at legislation are liable. The foremost hope of its advancement seems to be in the more or less remote prospect of the Government taking it up. Mr. Lloyd George, when President of the Board of Trade, expressed a favourable opinion of the object of the Bill, and a personal interest in it, but his removal to another office deprives the Bill of his direct assistance. But if it should successfully reach a second reading, it by no means follows that it will become law in its present state. It would have to undergo an overhauling in Committee, whence it might emerge with its provisions so altered as to change its character completely. That we are within reasonable distance of experiencing a change in our law is, therefore, by no means a foregone conclusion. Still, it behoves us to prepare for eventualities, and it is none the less a duty to study carefully what measure of justice it is proposed to

te out to us on account of its being only what may, and what will, be.

[It is a good feature of the proposed Bill that consolidates and simplifies the present laws of copyright by repealing no less than seven existing Acts. We have now copyright in engravings separately dealt with under three Acts; sculpture separately dealt with under its own Act; and paintings, drawings, and photographs also having an Act to themselves. The nature of these artistic works is obviously so similar that no difficulty should arise from grouping them together.

Comparison of the Bill (which we print in extenso elsewhere) with the Copyright Act of 1862, which will be found in the "B.J. Almanac," will show at once that the Bill is of a much more readable nature; that it contains such convolutions of verbiage as, for instance, Section 1 of the Act, which, in the early days, caused judges, counsel, and laymen alike to flounder about in search of the words; but is sufficiently simple in construction and free from obscure legal phraseology to permit any one at all above ordinary intelligence, who will devote enough perseverance to the task, to make himself acquainted with the principles adopted and the method of their application. Conciguencies of space necessarily preclude us from anything like an exhaustive criticism, which would fill many pages, so at present we will confine ourselves to briefly pounding those points which affect photographers directly, and showing the principal differences that would arise in practice if the Bill were to become law in its present state.

Persons Entitled to Copyright.—The first notable alteration in principle under the Bill occurs with regard to the status of persons entitled to copyright. At present any person, British or alien, has copyright in Britain in any artistic work of which he is the author, wherever it may have been made, subject to the one proviso that he is resident within the Dominions of the Crown. The Bill confirms this general right only so far as British subjects are concerned, excluding other residents in this country within the Dominions of the Crown. On the other hand, it extends British copyright to the author, whoever he may be or wherever resident, in his works made in any part of the British Dominions. Summarised, this implies that British subjects have copyright throughout the British Dominion in all their works. Foreigners have copyright within the British Dominions in their works made within the British Dominions.

The Definition of Copyright.—Under the present Act copyright consists in the exclusive right to copy, etc. Under the Bill (Section 2) copyright is limited to the right to copy for sale, distribution, exhibition, or hire.

Duration of Copyright.—The present Act prescribes that copyright shall endure for the life of the author and for seven years after his death. The Bill to an extent classifies the various kinds of works subject to its provisions. For original works of fine art the term is the life of the author and thirty years after his death. For certain other works, including photographs, the term is thirty years after the expiration of the year in which the work was completed.

Works made for a Consideration (Sections 5, 6, and 7).—Under the present Act, the copyright in any work made for a good or valuable consideration belongs to the person giving the consideration. The Bill provides that, with a few exceptions after referred to, the copyright in any work shall remain in the author, whether sold or disposed of by the author or not, in the absence of a formal agreement in writing. The two exceptions are the case of a work of fine art being a portrait and the case of a photograph made to order for a consideration. In both these cases the copyright is to belong to the person giving the order upon payment of the consideration.

The Right to Proceed against Infringers.—At present copyright may be described as a dormant right until registration has been effected at Stationers' Hall. There is no remedy for anything done before registration, but there is no obligation to register, and registration may be effected at any time during the existence of the copyright.

Any proceedings for infringement, therefore, must be preceded by registration, and be for acts done subsequent to registration. Under the Bill an original work of fine art is subject to no obligation whatever, but copies of an original work of fine art, and all other works included in the Act, to entitle the owner of the copyright to remedies for infringement, must bear a mark of the nature prescribed. In the case of a photograph each copy must bear the name of the owner of the copyright at the time the work was completed, the year of completion, and the mark

(C). Photographs thus marked are absolved from the necessity of registration. Registration, however, is not abolished, and in cases where it is advisable not to publish the particulars, an alternative is provided in registration, and a registered photograph complies with the conditions of the Bill if marked simply (R.C.)

The registration fee remains at 1s., but a considerable reduction is to be made for registering twelve or more copyrights at the same time.

In mounted copies it is sufficient if the prescribed mark appears on the mount.

Copyright Frauds.—The transgressor is to be severely dealt with. Every one who

Falsely marks a copy, or

Fraudulently removes a copyright mark, or

Fraudulently claims a copyright to which he is not entitled, renders himself liable to the ordinary punishment of an indictable misdemeanour, and, in addition, to a penalty not exceeding £10 for each offence.

Copyrights Existing at the Passing of the Bill (Section 23).—The copyright in existing copyright works is to endure either for the term under the present Act or that provided under the Bill, whichever is the longer.

Author of a Photograph.—Section 29, par. 9, provides that in the case of a photographer's assistant taking a photograph the employer is to be considered the author.

We do not propose to go into the methods of dealing with infringement of copyright, as these are of a highly technical legal nature, but as they apply equally to all the classes of works included within the scope of the Bill, it is reasonable to assume that its promoters have not neglected their own, and therefore our, interests in this connection.

From the foregoing it will be gathered that many of the proposed alterations affecting photographers are distinctly to their advantage, a debatable exception being the obligation to mark each photograph published, in substitution of the present simple method of registration without further obligations. It is evident that in many cases the new method will cause no inconvenience whatever when it is understood. Postcards, for instance, and many other kinds of photographs published in quantities, are usually marked with the title or with lettering of some kind. The new obligation will only need the addition of a few more letters. But whether or not in ordinary business the enforced marking will lead to serious difficulties can only be determined by experience. Another matter for discussion arises from the absence of any direct reference to the protection of unpublished photographs and other works. Presumably, the provisions as to marking were meant to apply only to published works, and if so a close examination of the Bill fails to show us that the

author of an unpublished photograph, a copy of which has accidentally drifted astray in the world and been appropriated by some enterprising person, has any remedy whatever under copyright law. This is a matter that concerns the amateur most intimately. It is one of the objects of a copyright law to provide a definite remedy for certain wrongs for which the remedy is indefinite under common law, and a copyright Act that fails to the extent that it leaves outside its provisions a large proportion of works of the nature it is supposed to include is clearly a very faulty piece of legislation.

The substitution of a definite term of duration of copyright for the present indefinite one is undoubtedly a gain from every point of view, and the provision that in the case of a photograph made to order the acquirement of the copyright is dependent upon the payment of the consideration is also helpful. The drastic nature of the punishment for fraudulently claiming copyright no honest

photographer will object to, and indeed it will be an advantage to them in clearing the good name of the profession generally from the unmerited aspersions that have been cast upon it on account of the proceedings of some of the black sheep of the flock.

Altogether photography seems to have been fairly treated as far as intentions are concerned, but we are forced to say that the drafting of the Bill is far from being as perfect as it easily might have been. Presumably, the final settlement was left to legal experts, and the Artistic Copyright Society must therefore be absolved from blame for the contradictions, discrepancies, and omissions which are apparent. The best of draftsmanship cannot guard against latent ambiguities, but ordinary care in revision would have prevented such a palpable blunder for instance, as that contained in Section 9, Sub-section 1, where a penalty is provided for an act which is not unlawful under the definition of copyright.

CURRENT PHOTOGRAPHIC MATTERS IN AMERICA.

OBSERVATIONS made on the fringe of a great continent (and the thousand miles between New York and Chicago or St. Louis, which limit my present trip, traverse no more than the fringe) must not be taken as applying to the continent as a whole, yet a few notes on things photographic, as actually seen, may have interest for British readers.

Perhaps the most notable fact is the prevalence of the ten-cent living-picture show. Cinetography has two magazines devoted entirely to its interests; such a city as Boston has scores of entertainment rooms, providing only living pictures and a few songs; greater New York has no less than five hundred and fifty buildings licensed for this form of display; and even such a little town as Nantucket, on the island of the same name, has its twice-a-night living-picture exhibition, the only periodical amusement supported by the population (in winter) of some 2,500. This show is typical of many of the smaller ones in the greater cities. Given in a shop—of the long kind common in America—it has two great blackboards outside its windows, on which are chalked the attractions of the day. “Four long new reels and three new songs, Saturday,” “The greatest entertainment ever offered for ten cents”—such are the brief announcements. From shows of this class to the elaborately produced exhibitions in gorgeous theatres, all degrees are to be found, and all seem prosperous. But they are in some disfavour with the better class of citizens, who suspect that much of their popularity is due to risky and vulgar, if not actually immoral, suggestion in the pictures and the accompanying songs. This feeling came to a head on Christmas Eve in New York, when the Mayor closed every one of the five hundred and fifty exhibitions and let it be understood that their licences would only be re-issued on written undertaking to comply with all the fire and panic regulations and the Sunday closing rules, and to omit from the programmes all pictures detrimental to public morals. As many of the buildings are condemned by the fire department as being unsafe for public exhibitions, it is anticipated that about two-thirds will remain permanently closed, a very drastic use of mayoral power in the interests of public safety.

In the highest class of lantern shows are the lectures of a few men who have specialised for years and brought this form of exhibition to a very high state of perfection. Amongst the most successful of these is Dr. Dwight L. Elmendorf, an old-time member of the New York Camera Club, who was a painter before he became a photographer, and who has made many journeys to the beauty spots of the Old World with his camera

and cinematograph. All his lantern slides are coloured, and as they are specially prepared for this purpose, from the selecting of the view to the finishing of the slide, they are a strikingly beautiful set of pictures, totally different from coloured lantern slides as known in England, even in the best days of the old colourists. With these slides, and with uncoloured living pictures, Dr. Elmendorf attracts great audiences to the largest halls in such cities as New York, Philadelphia, Washington, Boston, and Pittsburg, working six or seven evenings and two or more matinées each week. The cities are worked in series, so that each will have two or three lectures a week for from three to six weeks, and often three or four hundred people have to be turned away from halls holding fifteen to eighteen hundred persons. Another proof in a small way of the popularity of lantern lectures may be found in the fact that when I lectured on “The Land of Lorna Doone” a few days ago in a school in a country village, over forty per cent. of the whole population—or more than four hundred out of a population of less than a thousand—were in attendance.

At the time of writing Boston is the only city where I have had time for calls, and there two things are particularly striking: First, the important position of professional photography; and second, the large number of strongly individual photographers. No British city of similar standing can show such a batch of men as Garo, Wesley Hearn, H. H. Pierce, and Parkinson. And few British studios are fitted on such a lavish, luxurious, wealth-evincing, and taste-evincing scale as the best of these. There is a suggestion that photographers are men of very ample income, and there is an unusual combination of artistic individuality with good commercial management. Making a memory comparison with the conditions of fifteen, ten, or even five, years ago, there is evidence of a great, a rapid, and a continuous improvement, an increase of success, and of the sense of the dignity of the profession. This is attributed by the photographers themselves very largely to the influence of the State Conventions, which have caused competitors to “get together,” and to substitute co-operation for throat-cutting. It is the same work that is being attempted by our own P.P.A., taken up with enthusiasm and carried to great success. The result is that when I wrote asking for an appointment with one of these leaders, he replied regretting my visit was so exceedingly short, “or we would have got the boys together and had a little dinner.” Another, when I called upon him, at once said, “Come along and see some

the other boys." The spirit is right, and its results are right, in spite of the fact that the millennium has not yet fully come, and that there are still complaints of "cutting" and unfair trading in certain quarters.

The Camera Club of Boston, one of the oldest in the country, is like most of the camera clubs in America, in being used for much greater amount of serious photographic work than is usually done at the club-rooms in Britain. Its premises are planned, first, for working, not for meeting. An early morning I found a couple of amateurs collecting prints they had left lying over night; a professional lecturer, who, with his wife, was completing a set of lantern slides from the results of exposures made during the summer; and a professional photographer dealing with a sitter in the studio. No assistant or caretaker was left in charge; each member admits himself, and locks the door if he is last to leave; the studio and enlarging-room are reserved by writing name and times in a book lying in the entrance-hall, and every one seems to respect the property of the club, keeping it in good, serviceable condition.

Apparently both the professionals and the amateurs are taking the Dresden Exhibition very seriously, and are preparing for such a display of American work as has never been seen on either side of the Atlantic. They not only mean to send, but also to go, to Dresden. Pirie Macdonald is arranging a party of professionals for the Continent, with a call in London; and Frank E. Fraprie, editor of "American Photography," is planning a series of parties, all of them to tour in England on the way to Dresden, and one of them intended to include the week of the Photographic Convention in Canterbury amongst its engagements. I have assured them that they will receive hearty welcome from the photographers of the Old Country.

Another International Exhibition, having the highest possible artistic aims, is being planned for Buffalo, N.Y., as the result of an exhibition arranged there twelve months ago by "The Photo-Pictorialists," an advanced photographic society in that city. The work then shown had a convincing effect upon Dr. Charles M. Kurtz, director of the magnificent Albright Art Galleries in Buffalo. He had long been interested in and sympathetic towards the artistic efforts of photographers, and was induced to discuss the use of the galleries under his charge for an exhibition adequately representing photography. The spring of 1910 has been provisionally arranged for the show in order to avoid clashing with Dresden, and it is hoped that the efforts of the Photo-Pictorialists, supported by the worldwide connections of Dr. Kurtz amongst artistic circles, will lead

to the assembling of a truly representative show, and even to the unearthing of talent which has hitherto remained unknown. It is intended that the bulk of the exhibition shall consist of prints individually invited; but there will almost certainly be a selected section, consisting of works chosen by an international committee.

The City of Buffalo, lying at the head of New York State, on the great steel highway to the West and North, on the border of Canada, within a few miles of Niagara Falls, and in the centre of a web of railways radiating to every point of the continent, is most admirably equipped for carrying out a great international enterprise. It is a great centre of manufacture and of transport, at the foot of the Great Lakes system of navigation, and enriched by the tapping of the boundless power of Niagara. Its citizens are enormously wealthy, full of public spirit, and of pride in their great progressive city, and accustomed to welcoming conventions and congresses of national and international character. Their distance from the older centres of photo-pictorial politics is just sufficient to guarantee that the exhibition will not be controlled in the interests of any clique or "school," but will be on lines of broad, inclusive catholicity, while the equipment of the Albright Galleries and the personality of their conductor will ensure adequate treatment for such pictures as are selected.

As it is sometimes interesting "to see oursel's as ithers see us," and to know what of all the doings in our own country seems interesting to the papers and the people of another land, I cut from an issue of the "Boston Herald" during Christmas week the only paragraph that I have seen since landing that deals with any phase of European photography. It says:—

"We have seen trained fleas, and been glad they were where they were, but now flies have been impressed into service and a new interest given to the troublesome, disease-spreading companions of summer days. At the Royal Photographic Society of London last month trained flies were put through some curious feats by their educator. It seems that flies in a glass case learned, after repeated flying against the sides, that they could not escape. Some flies had been taught not to fly away when opportunity was given, and some had been trained to revolve wheels and roll balls and dumb-bells. The fly performs such work under the impression that it is walking on a continuous surface. But the fly always was a persistent, if not an 'amoosin' cuss,' as the humorist has said. Once taught a trick it will last for ever. It is to be hoped that none of these trained flies will break away and begin performing on our defenceless heads next summer."

H. SNOWDEN WARD, F.R.P.S.

EXPERIMENTS IN COLOUR-SENSITISING CHLORIDE EMULSIONS.

III.

The Properties of the Undyed Emulsion Plates.

A plate coated with the mother emulsion was first exposed in the spectrograph in order to obtain an idea of its characteristic sensitiveness. As this concerned only the violet and blue parts of the spectrum, and as the subsequent experiments on the red portion of the spectrum would apply only to portion from 490 $\mu\mu$ to the ground glass and dark-slide were slightly shifted sideways in order to include the full range of the violet. On the negative resulting from an exposure in this position, the maximum density was measured with the polarisation photometer, and it was seen that with exposure up to 120 seconds an appreciable action on the silver chloride could be seen up to 370 to 410 $\mu\mu$, whilst by longer exposure the band spread right and left, and at 960 seconds exposure extended from 360 to 450 $\mu\mu$. Contrary to gelatino-bromide of silver, the maximum of which lies at 450 $\mu\mu$, the maximum was

found among rays of shorter wave length, namely, at 395 $\mu\mu$. The density values were small, owing to the comparative unsensitiveness of the emulsion, and did not permit of any conclusion as to gradation since the times of exposure did not give readings higher than the limits of the schwellenwert. The results of this exposure are given in Fig. 1.

General Methods of Sensitising.

In trying the effect of different strengths of dye solutions, the stock alcoholic solutions of the colouring matters were diluted with distilled water to the required degree, and to the baths so obtained—except in cases where the contrary course was necessary—a few drops of ammonia added, preliminary experiments having shown, as already pointed out by Eder, that addition of ammonia favours the action upon silver chloride. The time of bathing was kept uniformly to 180 seconds, washing in running water was for the same time, and

the plates were quickly dried in a well ventilated cupboard, and were usually exposed and developed on the same day.

The Results of Bath-Sensitising with Various Dyes.

EOSIN-BATHED CHLORIDE PLATES.—Eosin solutions containing a little ammonia were used in the six strengths of 1:7,500, 1:15,000, 1:25,000, 1:50,000, 1:75,000, and 1:100,000, the plates in each case being bathed for three minutes, washed for the same time, quickly dried, exposed, and developed. The six negatives showed strong sensitising bands extending far into the blue part of the spectrum, and of length and density increasing with the concentration of the

to the bromide plate so that the sensitising band approximated to that of the general sensitiveness, it was found that in the case of silver bromide a spreading of its strong action in the blue toward the orange was observed, whilst the colour-sensitiveness moved only slightly forwards and remained within the limits of about 525 to 595. This confirmed the fact noted by Eder of the relatively great yellow-green sensitiveness of eosin chloride plates in comparison with bromide plates.

ERYTHROSIN-BATHED CHLORIDE PLATES.—Erythrosin solutions, of the strength already given for eosin, were prepared and applied to the plates. They gave strong yellow-green sensitising, even at the shortest exposure of 15 seconds. Comparison with eosin plates showed

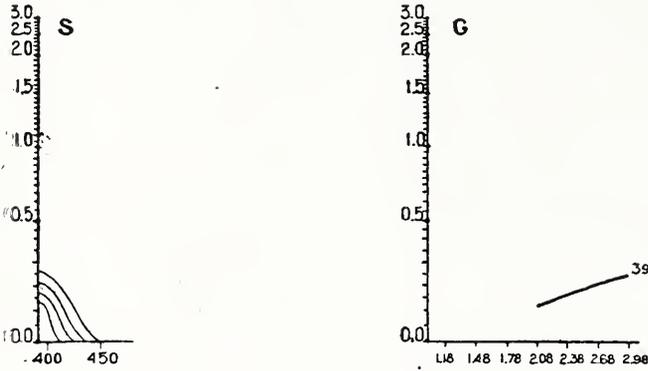


Fig. 1.

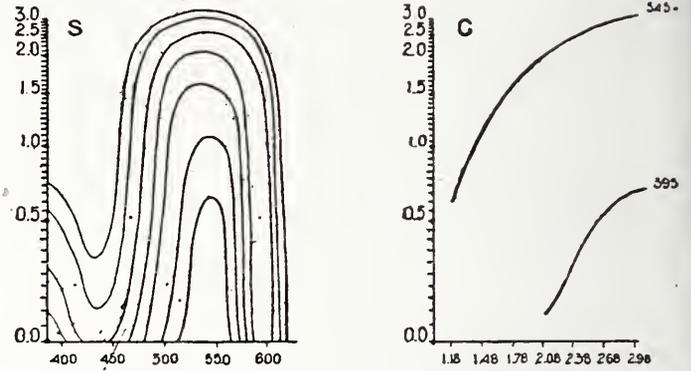


Fig. 2.

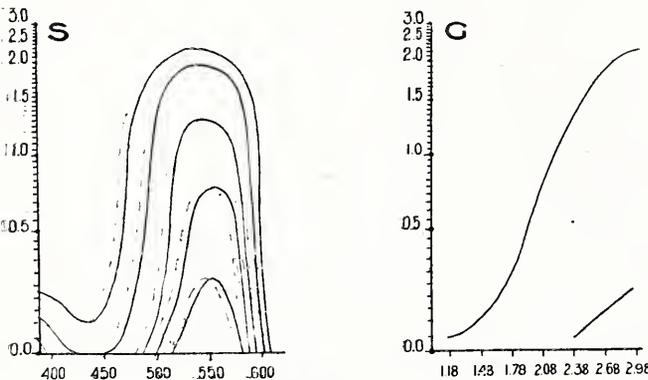


Fig. 3.

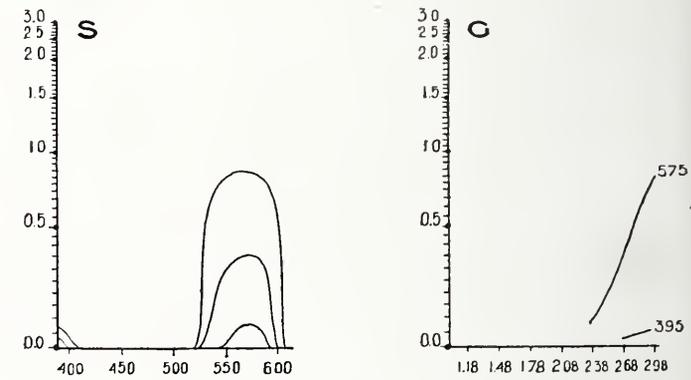


Fig. 4.

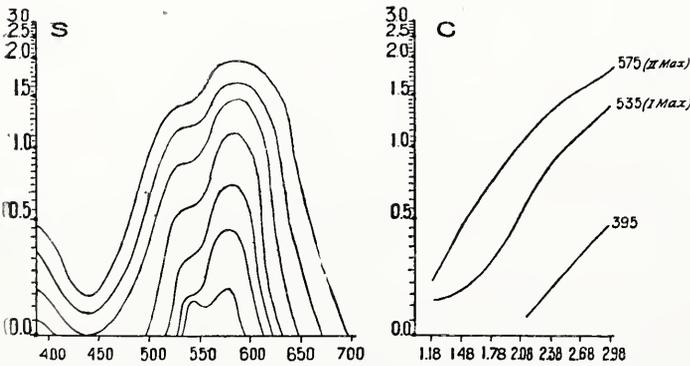


Fig. 5.

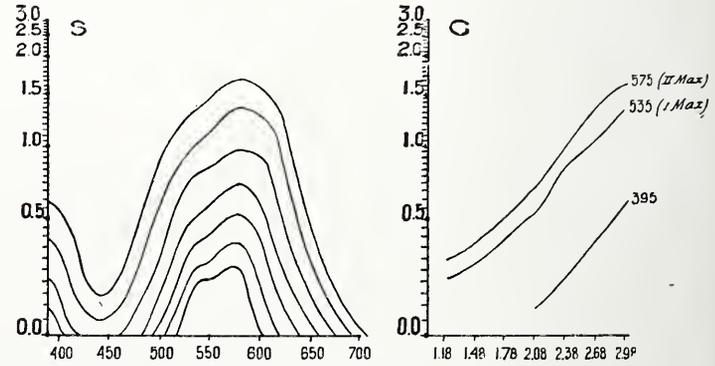


Fig. 6.

bath, becoming again weaker in the case of the 1:75,000 solution. The plate bathed in 1:50,000 showed the best sensitising, and its measurements are given in Fig. 2, from which it is seen that, even with short exposure, the sensitising for green and yellow is very strong, giving at 15 seconds' exposure practically the same density as the mother emulsion at the longer time of exposure of 960 seconds. In comparison with a bromide plate sensitised with eosin of 1:7,500 strength a slight shifting of the maximum towards blue was observable in the case of the chloride plate, whilst the sensitised region in the case of the chloride plate extended in both directions, and especially towards blue, distinctly further than in the case of the bromide, even with longer exposure. With longer exposures given

that the sensitising action was less than that of eosin. The best strength of dye solution for erythrosin was found to be 1:25,000. As regards the shifting of the maximum towards the blue the erythrosin plates behave similarly to eosin. (Fig. 3.)

ROSE-BENGAL-BATHED CHLORIDE PLATES.—The solutions were those used with eosin, but the action was far weaker than with either eosin or erythrosin, and the best result was found to be with a dilution of bath of 1:100,000, and an exposure of 60 seconds. For comparison with silver bromide a plate of the latter class was bathed in 1:30,000 rose-bengal solution, when it was found in contradistinction to the previous experiments that a shift of the maximum away from the blue was not discovered. Owing to the shortness of the

gives no conclusion as to the gradation of the plates sensitised with ethyl-red-bath. (Fig. 4.)

ETHYL-RED-BATHED CHLORIDE PLATES.—The time of bathing of three minutes was adopted and an equal time of washing. Of the different concentrations tried—namely, 1:50,000, 1:75,000, 1:100,000, and 1:200,000, the best result was obtained from 1:75,000. Two maxima were obtained as with bromide of silver—namely, at 535 and 575, becoming more plainly separated with shorter exposure. With longer exposure a somewhat indistinct gap could be recognised between them, this minimum being at about 555 μ . The course of the sensitiveness curve shows an increase of the general sensitiveness of the silver chloride, though this latter is still far behind that produced by sensitising. The former extends on longer exposure to 395 μ , for 960 seconds exposure the curve gradually rises, showing first maximum density at 515 to 545, which is followed by a second between 555 and 630. A bromide plate bathed in ethyl-red 1:50,000 showed no alteration in the position of the maxima, these being at 535 and 580. Comparison of the bands of sensitiveness of equal maximum density in the region 560 to 600 showed that in the case of silver bromide the band extended in both directions, and became

exert a remarkable dyeing action on silver chloride in comparison with the other dyes examined. At a dilution of 1:300,000 a very energetic action took place; a plate bathed in 1:200,000 was taken as the best result. The two maxima corresponding to the action of the dye on bromide plates were found to lie at 580 and 650 μ , with a more or less prominent maximum at about 615. A bromide plate bathed under the best conditions in a bath of 1:75,000 gave its maxima at 580 and 670, so that there is a shift towards the blue on the chloride plate only at the second maximum: the gaps showing between 500 and 520 in the case of the bromide plate are not so noticeable with gelatino-chloride. (Fig. 8.)

CYANIN-BATHED CHLORIDE PLATES.—Dye solutions of strengths 1:25,000, 1:50,000, 1:100,000, 1:150,000, 1:200,000, and 1:300,000 were applied, and gave almost corresponding negatives, with the exception of the last only. The composition of the bath was that recommended by Eder and Valenta for bromide plates, using an alcoholic stock solution of cyanin, diluted with distilled water and adding a little ammonia. Apparently the best result was given by a solution of 1:100,000. A bromide plate was sensitised in a 1:20,000 solution, and showed its maxima at 560 to 620, so that in the case of the

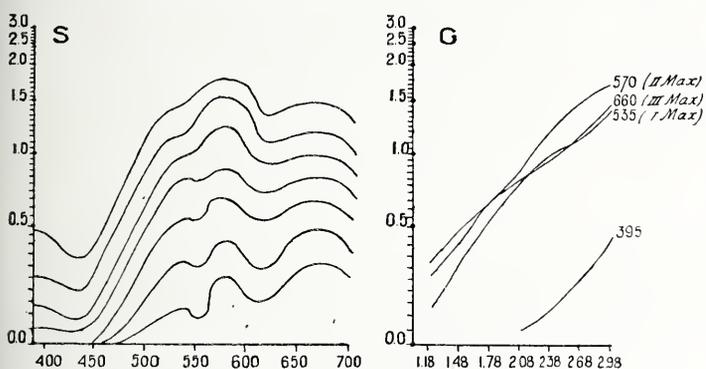


Fig. 7.

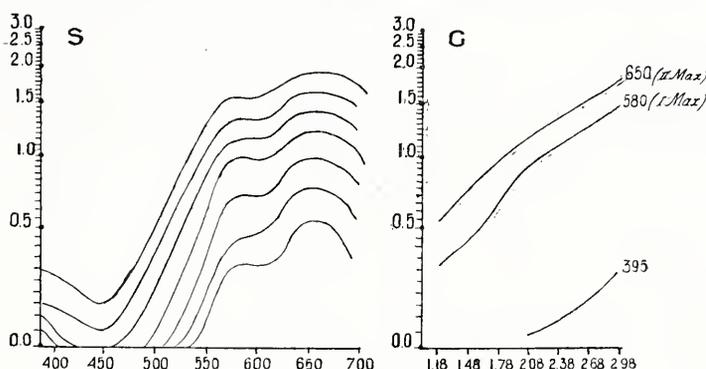


Fig. 8.

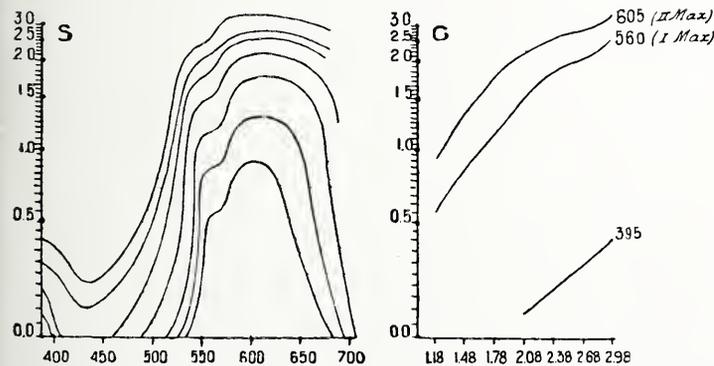


Fig. 9.

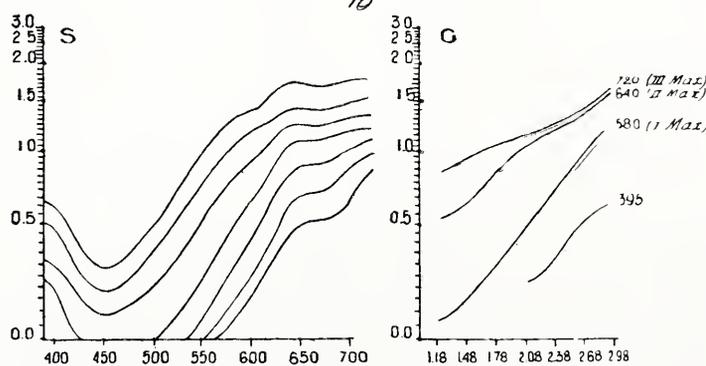


Fig. 10.

prolonged on increased exposure towards red more quickly than did that of silver chloride, but not, on the other hand, in the direction towards blue. The band of sensitiveness was more uniform in the case of the silver bromide. (Fig. 5.)

PINAVERDOL-BATHED CHLORIDE PLATES.—The use of dye baths, as given for ethyl-red, showed almost equally strong sensitiveness for all, and even the great dilution of 1:200,000 gave the same activity as the stronger solutions. Plates bathed in the 1:75,000 were measured and gave a good colour-sensitiveness, according to the length of exposure, up to 600 or 700, and containing, as in the case of silver bromide, two maxima at about 535 and 575. In the case of a bromide plate bathed in 1:50,000 pinaverdol, two maxima at 535 and 580 were obtained, so that there is only a very slight shift of the second maximum towards blue in the case of the chloride plate. (Fig. 6.)

ISOCOL-BATHED CHLORIDE PLATES.—The best results were obtained with 1:50,000 ammonia solution, though the sensitiveness bands were strongly marked in plates bathed in 1:200,000. In the case of a bromide plate bathed in 1:50,000 the three maxima lay at 530, 580, and 670, there being thus a slight shift towards the blue in the case of the chloride plate of the second and third maxima. (Fig. 7.)

PINACYANOL-BATHED CHLORIDE PLATES.—Pinacyanol proved to

chloride plate there is a shift in the second maxima about 15 μ towards the violet. (Fig. 9.)

DIYANIN-BATHED CHLORIDE PLATES.—The best effect was seen to be that with a bath of 1:150,000, three maxima not readily distinguished from each other, being seen at 580, 640, and 720. A bromide-plate was sensitised according to the directions of the Hoechst Works, washed free with alcohol instead of water, as otherwise the result was not free from fog. It showed a gap at 510 to 540, and maxima at 585, 650, and 730, a slight shift in comparison with the chloride-plate. (Fig. 10.)

DIAZO-BLACK BATHED CHLORIDE PLATES.—The stock solution of this dye was made of 1-500 strength in a mixture of equal parts-water and alcohol, and was used further diluted with water in order to give strengths of 1-2,500, 1-5,000, and 1-10,000 with the addition of a little ammonia. The plates were bathed and washed in each case for three minutes. The sensitising was almost the same in each case. Whilst in the case of the dyes hitherto examined the colour sensitiveness was unequally stronger than the characteristic sensitiveness of the silver chloride, in the case of the diazo-black the latter exceeded the colour sensitiveness, yet was not inferior in density to an unsensitised plate. Bromide-

plates bathed in 1-5,000 and 1-10,000 diazo-black showed, on full exposure, weak bands of sensitiveness with a maximum at 620, the maximum in the case of the chloride plate being at 610. The general action of the sensitiser on the chloride emulsion was so slight that it was not possible to obtain a curve of gradation nor a graphic record of the curves of sensitiveness. (No figure.)

Experiments on Emulsion Chloride Plates.

In testing the action of the dyes on plates coated with emulsion containing the latter the same formula already given was employed, the emulsion being subjected to lengthy treatment with alcohol. After washing the emulsion was freed as far as possible from adhering water, and the nodules placed in 96 per cent. alcohol. This latter was poured off after some days, replaced by fresh, and the emulsion then put aside in well-closed vessels and stored in a cool place for three months. Before being worked up the alcohol was again employed to saturate the nodules after they had been allowed to remain standing for some hours in distilled water, the emulsion liquefied, and, as it proved in this state to be much too viscous, brought to its original volume by addition of water, and, finally, filtered. Thus treated the emulsion was divided into a number of measured portions for the purpose of dyeing-up with the colouring matters already mentioned, and, further, in order to test the effect of each separate dye in different degrees of concentration. In adding the dye solutions the prescriptions used for the manufacture of orthochromatic and panchromatic bromide plates were taken as a working basis and applied to other dyes of the same class. Thus in the case of erythrosin the usual

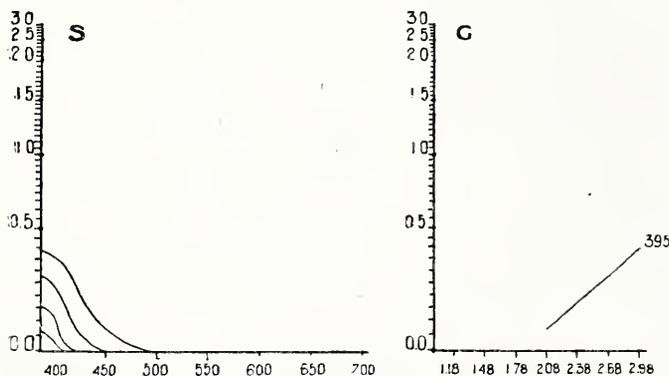


Fig. 11.

mixture of 3 ccs. of 1-500 dye solution per litre was applied also to eosin and rose bengal, whilst 3 ccs. of ethyl-red 1-1,000 added to each litre of emulsion was employed in the case of the pinaverdol, isocol, and pinacyanol, and the same quantity of cyanin emulsion as of dicyanin was used. In the case of diazo-black 30 ccs. of a 1-500 solution per litre were employed as recommended by Neuhaus.¹ Further, in the case of each of the ten dyes a smaller and greater proportion was employed, so that altogether 30 emulsions were prepared, composed as follows:—

Nos. 1 to 9, sensitised with eosin, erythrosin, and rose bengal, to the amount of 1, 3, and 6 ccs. respectively of 1-500 dye solution per litre of emulsion.

Nos. 10 to 21 sensitised with ethyl-red, pinaverdol, isocol, and pinacyanol to the extent of 1, 3, and 6 ccs. 1-1,000 dye solution per litre of emulsion.

Nos. 22 to 27, sensitised with cyanin and dicyanin to the extent of 1, 3, and 6 ccs. 1-1,000 dye solution per litre of emulsion.

Nos. 28 to 30, sensitised with diazo-black with 10, 30, and 60, ccs. dye solution 1-500.

The coating of such a number of different emulsions, most of which were more or less sensitive to all parts of the spectrum, was a task of no little practical difficulty, and, therefore, only one-half of the mother emulsion was prepared in the way described, the remainder on the following day. In order to prevent possible alteration of the proportion kept over-night it was, after setting, covered with benzole, as recommended by Homolka for such cases.² The dyeing of the emulsions in the case of the smaller quantities

necessary for the few experimental plates was carried out in such a way that the dye solutions measured in a pipette were added to the correct quantity of emulsion previously placed in an Erlenmeyer flask, the addition being made with a vigorous rotatory motion. A proper mixture was thus obtained, and it was thus possible to manipulate emulsions sensitive to the more refrangible parts of the spectrum, since after the necessary measurements which were done by aid of a dark-room lamp fitted with "flexoid" filter absorbing light up to the wave length 660, the mixing could be done in almost total darkness.

The coating of the plates containing the dye was done, as far as possible, in the shadow of the lamp, and with all possible expectation. With the exception only of the dicyanin plates, which showed only a very slight fog after developing, the whole of the exposures gave perfectly clear negatives. The coating with emulsion of the glass plates, which in this case were 13 x 12 cm. size, was done in the way already described for the undyed emulsion, as was also the drying and further operations. In order to ascertain whether any alteration in the nature of the mother emulsion, due to three months' storage under alcohol, had taken place, an unsensitised plate was exposed in the spectrum and developed. It gave a band of sensitiveness inappreciably longer and denser than that previously obtained with emulsion fresh made. (Fig. 11.)

F. WENZEL.

(To be continued.)

THE PROPOSED COPYRIGHT BILL.

The following is the draft of the Copyright Bill which has been drawn up by the Artistic Copyright Society, and is a drastic revision of the Bill which we reprinted and commented upon about two years ago. Since that time the Artistic Copyright Society, as we explain on another page, has embodied clauses in the Bill and has modified others, with the result that the Bill, as it now stands, is fair to photographers, and greatly simplifies many of the intricacies of copyright law:—

A Bill intituled An Act to Consolidate and Amend the Law Relating to Copyright in Artistic Works.

Be it enacted by the King's Most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and, by the authority of the same, as follows:—

PART I.—NATURE AND DURATION OF RIGHT.

1. Except as hereinafter provided, the author, (being a British subject,) of any work of fine art, photograph or cast from nature made after the passing of this Act, in any country whatsoever, and the author, (whether a British subject or not,) of any work of fine art, photograph, or cast from nature, made after the passing of this Act in any part of the British Dominions, and their respective assigns shall have copyright throughout the British Dominion.

2. (1.) The copyright in any work, the subject of this Act, shall consist in the exclusive right of the author or other owner of the copyright and his assigns to make, or permit to be made, for sale, distribution, exhibition or hire, any copy of such work.

(2.) All copies made in infringement of the said exclusive right shall be unlawful copies within the meaning of this Act.

3. The copyright conferred by this Act shall endure for the following terms:—

(a) In the case of an original work of fine art, for the life of the author and until the expiration of thirty years after the end of the year in which he died.

(b) In the case of a work of fine art, made by one person from any work of fine art designed by another, of a cast from nature and of a photograph, for a term commencing on the completion of such work, cast, or photograph, and continuing until the expiration of thirty years after the end of the year in which the same shall have been completed.

4. Every assignment of copyright under this Act, other than an assignment by operation of law and every licence respecting the same shall be in writing signed by the assignor or licensor.

5. (1.) In case any work of fine art, the subject of copyright under this Act, shall be a portrait made on the request of any person, for pecuniary consideration, the copyright in such portrait shall, on payment of the consideration and in the absence of agree-

¹ Eder's "Jahrbuch," 1901, page 121.

² Eder's "Jahrbuch," 1906, page 15.

ent in writing to the contrary, belong to such person. But this shall not extend to a work of sculpture intended for a place or building of a public nature.

(2.) For the purposes of this section any work shall be considered a portrait whose principal object is the likeness in any form of art of any specified person.

6. In the case of a photograph which is made to order for a valuable consideration, the person to whose order it is made shall be entitled to the copyright therein in the absence of agreement in writing to the contrary, upon payment of such consideration.

7. Except as in this Act provided, the copyright in any work the subject of this Act shall remain in the author, whether such work is sold or disposed of by such author or not, unless such copyright is expressly assigned in writing by him; or pass by operation of law.

8. (1.) If any work the subject of copyright under this Act forms part of any scene, the copying of such work, merely as forming part of such scene, shall not be deemed to be any infringement of the copyright in such work, unless the special purpose for which the scene is represented is the copying of such work.

(2.) Notwithstanding anything in this Act contained, sketches, studies, models and casts, used in executing any original work of fine art may, in the absence of agreement in writing to the contrary, be used or dealt with by the author of such work or a person claiming title through him, without infringing the copyright in such work, provided that he does not thereby repeat or imitate the main design of the work.

PART II.—INFRINGEMENTS AND REMEDIES.

9. If any person shall, without the consent in writing of the owner of the copyright when such act is done:—

- (1) Make any copy of a work, the subject of copyright under this Act: or
- (2) Sell, distribute, exhibit or let for hire, or offer or keep for sale, distribution, exhibition or hire any such copy: or
- (3) Import into or export from any part of the British Dominions any such copy:
- (4) Cause or procure any of the above acts to be done:

Such persons shall be liable at the suit of the owner of the copyright to:—

- (a) An injunction to restrain such infringement.
- (b) Damages, or at the option of the party suing, an account of profits.
- (c) Penalties of a total amount to be fixed by the jury hearing the case, or if there is no jury, by the judge, not exceeding ten pounds for each offence, together with twice the price at which such copy shall have been sold or offered for sale.
- (d) An order for delivery up on oath for forfeiture or destruction of all unlawful copies.

10. (1.) Any person having in his possession or control any unlawful copies of any work the subject of this Act, shall, upon demand in writing served upon him by the owner of the copyright, make to such owner, within forty-eight hours after service of the demand, full discovery of the name and address of the person from whom he obtained the unlawful copies, the number thereof, and the date when they were obtained, and of all invoices, accounts, and other documents relating thereto; and in default of such discovery may be summoned before a Court of Summary Jurisdiction, and ordered under a penalty of ten pounds to give such discovery within a reasonable time to be appointed by the Court.

11. Any Court of Summary Jurisdiction, on the application of the owner of the copyright in any work the subject of this Act, on being satisfied that there is reasonable ground to suspect that unlawful copies of any such work are to be found in any house, premises, or other place within its jurisdiction, shall grant a warrant to any constable to search for such suspected unlawful copies in such house, premises, or other place, between sunrise and sunset, and to seize and bring before the Court any such suspected unlawful copies, and the Court on proof that such copies are unlawful copies within the meaning of this Act, shall order them to be destroyed or delivered up as forfeited to the owner of the copyright.

12. (1.) If any person in any street or highway, or elsewhere than at a house or shop, shall hawk, carry about, sell, or offer for sale any copy suspected to be an unlawful copy of any work, the subject of this Act, every such suspected unlawful copy shall be summarily

seized by any constable, without warrant, on the request in writing of the apparent owner of the copyright in such work and at his risk.

(2.) On seizure of any such copies, they shall be conveyed before a Court of Summary Jurisdiction, and the Court on proof that such copies are unlawful copies within the meaning of this Act, shall order them to be destroyed or delivered up as forfeited to the owner of the copyright.

(3.) An order for destruction under this and the preceding section may, if the Court think fit, be made *ex parte*, and, pending the making of an order, the copies seized shall be detained by the Court.

13. All unlawful copies of any work, the subject of copyright under this Act, imported into any part of the British Dominions, shall be detained by the officers of His Majesty's Customs on receipt by them of a notice in writing from the owner of the copyright in such work declaring on oath his title to and the period of copyright in such work, or if not on oath stating such title and period and accompanied by a certificate of registration of such work. Every such notice must be accompanied by a description, photograph, sketch, or other copy of such work.

14. (1.) If any person fraudulently signs or otherwise affixes or causes to be signed or affixed upon any work of fine art, any name, initials, monogram, or distinctive mark so as to give reasonable ground for belief that such work is an original work of fine art, contrary to the actual fact, executed by an author either then alive, or who died within thirty years preceding the acts complained of, such person shall be guilty of forgery, and on conviction be liable to be kept in penal servitude for a term not less than three nor more than ten years.

(2.) If any person commits any of the following offences:—

- (a) Fraudulently sells, distributes, exhibits, lets for hire, or offers or keeps for sale, distribution, exhibition, or hire, any work of fine art so falsely signed or marked as aforesaid or permits, or causes to be done any of the said acts,
- (b) Fraudulently sells, distributes, exhibits, lets for hire, or offers or keeps for sale, distribution, exhibition, or hire, any work or the copy of any work the subject of this Act, representing, contrary to the fact, that such work or copy was executed by, or from the work of, an author then alive, or who died within thirty years preceding the acts complained of or causes to be done any of the said acts,

he shall be guilty of an indictable misdemeanour punishable by imprisonment for a term not exceeding two years, and he shall (without prejudice to any other remedy) be liable to a penalty of one hundred pounds, to be paid to the person aggrieved.

(3.) The provisions of sections 10, 11, 12 and 13 of this Act shall apply to such false or fraudulent works or copies in the same way as if they had been unlawful copies within the meaning of the Act: and any person aggrieved shall be entitled to make demand, application, request or notice thereunder whether he be the owner of the copyright or not.

15. (1.) When the author of any original work of fine art, the subject of copyright under this Act, shall have sold or otherwise parted with the possession of such work, no material alteration shall afterwards be made in such work by addition or otherwise except with the consent in writing of the author.

(2.) Neither shall it be lawful during the continuance of the copyright (except with the consent in writing of the author) to sell, exhibit, let for hire, or offer for sale, exhibition, or hire:—

- (a) any altered original work of fine art,
- (b) any copy of such altered original work of fine art,
- (c) or any altered copy of any original work of fine art as or for
 - (a) the unaltered original work of fine art,
 - (b) the copy of an unaltered original work of fine art,
 - (c) an unaltered copy of an original work of fine art of such author.

(3.) Any person who shall knowingly commit or cause to be committed any infringement of the above provisions shall be liable to a penalty not exceeding one hundred pounds to be payable to the author of the original work or his assigns, without prejudice to any other remedies of such author, or any other person aggrieved.

16. Any person who shall falsely mark or cause to be falsely marked any copy of a work requiring to be marked under this Act, with knowledge of the falsity of the mark, or who shall fraudulently

remove or cause to be fraudulently removed the copyright mark from any such work, or who shall fraudulently claim copyright, shall be guilty of an indictable misdemeanour, and shall in addition be liable at the suit of any party aggrieved to a penalty not exceeding ten pounds for every such offence.

17. (1.) In any action for infringement the person sued must deliver with his defence or at any subsequent time which the Court may appoint, particulars of any objections to the claim of the plaintiff on which he relies in support thereof; and, if one of the grounds of objection be want of title in the person suing, such particulars must state the name of the person whom he alleges to be the true author of the work or owner of the copyright, and the title and date of any alleged previous work or publication on which he relies.

(2.) On the trial of the action, in the absence of such objections, the title of the person suing shall be taken as admitted, and no evidence shall (except by leave of the Court) be admitted in proof of any alleged objection of which particulars have not been so delivered; but any particulars delivered may be from time to time amended on such conditions as to costs and otherwise as the Court shall think fit.

18. No person shall be excused from answering any question upon examination as a witness, or from making any discovery either in answer to interrogatories or of documents, on the ground that such answer or discovery may render him liable to the penalties imposed by this Act. Provided always that no answers or discovery which any person shall be compelled by this Act to make, shall be admissible in evidence against him in support of any criminal proceedings, other than those for penalties under this Act.

19. (1.) All penalties and fines which shall be incurred under this Act may be recovered, and all unlawful copies and other things which may be liable to forfeiture or destruction under this Act, may be dealt with either by action or by proceedings before a Court of Summary Jurisdiction, against the party offending, in that part of the British Dominions where the offender is found, or the Act complained of has been committed, or where the unlawful copies or other things are.

(2.) All remedies conferred by this Act shall be cumulative, but the Court or jury shall have a discretion as to awarding penalties, in addition to damages, in any case where the defendant shall prove due compliance with any demand for discovery served on him as provided by Section 10 of this Act.

(3.) The costs of all proceedings under this Act in which an infringement shall be proved, shall, unless the Court shall otherwise direct, be taxed as between solicitor and client so as to give the person aggrieved a full indemnity for all his expenses.

(4.) All false, fraudulent or unlawful works, or copies to which Sections 13, 14, or 15 of this Act apply, shall be liable to destruction, or may be ordered to be delivered up on oath as forfeited to the person aggrieved.

(5.) When any works or copies become liable to seizure, forfeiture, destruction or confiscation under this Act, such liability shall extend to and include all plates, blocks, negatives, moulds, or other similar things from which any of such works or copies were or may be produced.

PART III.—MARKING OR REGISTRATION.

20. (1.) The owner of copyright in an original work of fine art, of which copies have been issued by or with the authority in writing of such owner or his predecessors in title shall not be entitled to sue for infringement of his copyright unless he proves:—

That he and his predecessors in title respectively have taken all reasonable steps to ensure the marking of copies issued by him or them or with his or their authority in writing with one of the following marks, either:—

(a) with the name of the Author of the original work and

the mark ,

or (b) if the copyright of the original work has been registered at Stationers' Hall before Writ issued, with the mark

.

(2.) The owner of copyright in any other work the subject of

copyright under this Act shall not be entitled to sue for infringement of his copyright unless he proves:—

That he and his predecessors in the title have taken all reasonable steps to ensure that the work and the copies thereof issued by him or them or with his or their authority in writing is marked with one of the following marks, either:—

(a) with the name of the owner of the copyright when the work was completed or the copy was issued, the year

completion of the work, and the mark ,

or (b) if the copyrights in such work has been registered at Stationers' Hall before Writ issued, with the mark

.

Provided that—

(a) Where copies are mounted the above provisions shall be complied with, if the prescribed mark appears on the mount and the attachment of the work to the mount is of a permanent nature.

(b) When the owner of copyright proves that he and his predecessors in title have taken all reasonable steps to ensure the marking of copies as prescribed, but it appears that one or more copies have not been so marked, a defendant who proves that he has been misled by the absence of such mark and had no reason to believe when he committed the infringement complained of that he was infringing copyright shall not be liable to any of the provisions of this Act in respect of copies made or dealt with previous to the written notice from the owner.

(c) The above provisions shall not apply to any work in which copyright is claimed under the provisions of the International Copyright Act, 1886, or any statutory modification thereof.

21. (1.) There shall be kept at the Hall of the Stationers' Company by the officer appointed by the said Company for the purposes of the Copyright Act, 1842, a book or books entitled "Register of Owners of Copyright in Works of Art," wherein may be registered the ownership of the copyright in any work of art the subject of this Act (including original works of Fine Art first made in the United States of America by a citizen thereof), and any assignments thereof.

(2.) Application for registration and the entries in the register shall be in such forms as the Stationers' Company may from time to time prescribe.

(3.) There shall not be entered in any such register any notice of any trust, express, implied, or constructive.

(4.) The said officer shall make and keep full indexes of the entries made under this Act, arranged alphabetically so as to show (a) the title or description of the work, (b) the name of the author and (c) the name of the owner, with references to the place in the register where the full particulars of registration may be found.

(5.) The said officer shall have power, upon written application being made to him by any registered owner, and on his being satisfied of the existence of any inaccuracy in the registration, to make any correction in the name, address or description of the author or publisher, or of such owner, or in any other matter as stated in the original application for registration.

22. Save as in herein provided, the several enactments contained in Sections 11, 12, 13, and 14 of the Copyright Act, 1842, shall apply to registration under this Act in the same manner as if such enactments were here repeated at length so far as the same are applicable except that the fee for making any entry of a single copyright work or giving any certificate of a single copyright entry shall be the sum of one shilling.

In the event of a number of entries being made at one time by an owner of copyright in works dealt with under this Act, the fee shall be as follows:—

For 12 entries made together	5s.
For 36 " " " "	10s.
For 100 " " " "	£1

and certificates of such joint entries shall be issued at the same rate of charge.

PART IV.—SUPPLEMENTARY PROVISIONS AND DEFINITIONS.

23. (1.) The copyright existing in any work of fine art, photo-

graph, or cast from nature by virtue of any enactment in force immediately before the commencement of this Act, shall endure for the term limited by such enactment, or for the term fixed by this Act with respect to such works first made after the commencement of this Act, whichever is the longer.

(2.) The provisions as to registration or marking of copies of such existing works first issued after the passing of this Act, and the remedies for infringement of copyright therein and otherwise shall be the same as for works made after the commencement of this Act.

(2.) The registration of any original work of Fine Art first made in the United States of America by a citizen thereof, if effected within twelve months after the first recording of the copyright in the said United States, shall confer the same rights on the person named therein as owner as if the said work had been first made in the United Kingdom.

(4.) Nothing in this section shall diminish or prejudice any rights or interests subsisting at the commencement of this Act.

24. (1.) The Acts specified in the Schedule to this Act are hereby repealed, provided that the copyright in any existing work registered in pursuance of any enactment hereby repealed shall be deemed to be registered in pursuance of this Act.

(2.) The Patents Designs and Trade Marks Acts, 1883 to 1888, the Patents and Designs Act, 1907, and the Patents and Designs (Amendment) Act, 1907, shall not apply to any work of fine art being a design of an artistic nature to which this Act shall apply.

25. Nothing in this Act shall affect the right of any person at common law to prevent the publication of an unpublished work, except that the purchaser of an unpublished work the subject of copyright under this Act shall not be entitled at common law to prevent the publication of any copy of such work by the owner of copyright in such work.

26. A licensee shall have all the remedies for infringement possessed by an owner of copyright under this Act in so far as his interest shall extend, but no further or otherwise.

27. Nothing in this Act shall confer copyright in any profane, libellous or indecent work.

28. An agent duly authorised in writing may do for the author or his assigns or other owner of the copyright any act required or authorised by this Act to be done by them, and every act so done shall be as effectual for all purposes of this Act as if done personally by such author, or his assigns or other owner of the copyright.

29. In and for the purpose of this Act, unless the context otherwise requires,

(1.) "Work of fine art" shall mean and include every painting or drawing, sculpture, and engraving, as hereinafter defined, and any other like work of fine art, and shall include any design of an artistic nature applicable or applied to any article of manufacture whether so applicable or applied in respect of the pattern, or the shape or configuration, or the ornament thereof.

(2.) "Painting or drawing" means any painting or drawing in any medium or material, executed by hand and not by printing or any mechanical or chemical process.

(3.) "Sculpture" means any statue, sculpture, model, or cast (other than a cast from nature), carved or made in any material either in the round, in relief, or in intaglio by any process.

(4.) "Engraving" means any work executed by hand (and not by photography, or any mechanical means) upon any material whence prints or impressions of such work may be taken or multiplied immediately or mediately by any process, and includes any prints or proofs so taken.

(5.) "Original work of fine art" shall mean a work of fine art made by a person from or according to his own original design.

(6.) "Photograph" shall mean and include the photographic negatives or positives and every work produced by any photographic process upon any material whence prints or copies of such work may be taken or multiplied definitely or indefinitely, and any such work though developed or finished by hand, or by any mechanical means, and shall include any prints, proofs, or copies made therefrom.

(7.) "Cast from nature" shall mean and include all moulds of natural objects or parts of such objects and all casts made from such moulds.

(8.) "Author" shall mean the inventor, designer, engraver, or maker of any work the subject of copyright under this Act.

(9.) "Author" shall in relation to a photograph mean the person who shall himself (not being an employe or assistant) have taken the original photographic negative or positive, but in the case of a photographer who employs another person to do the work and who gives pecuniary consideration for work done, such photographer as against the person employed shall be considered the author of the work.

(10.) "Assign" includes any person claiming copyright through the author, either by express assignment, or operation of law.

(11.) "Copy" shall, subject to the provisions of this Act, mean any representation or reproduction or colourable imitation of a work, or any part thereof, or the design thereof, in the same or in any other form, and in any material and in any size; and shall include:—

- (a) A reproduction of a work of fine art by using or applying it either in the pattern, or in the shape or configuration, or in the ornamentation of any article of manufacture.
- (b) A reproduction of any other work of fine art, cast from nature or photograph by a sculpture, or of a sculpture by any other work of fine art or photograph; and
- (c) A representation of any work by a living picture, or by any other means whereby the design of the work is reproduced.
- (d) And the expression "copying" shall be construed accordingly.

30. No actions and other proceedings for any penalties under this Act shall be commenced later than 12 calendar months after the discovery of the offence.

31. (1.) This Act may be cited as "The Artistic Copyright Act, 1907."

(2.) The expression "The Copyright Acts," wherever it occurs in the International Copyright Act, 1886, or any Order in Council to be construed as part thereof, shall be deemed to include this Act.

SCHEDULE.—Acts or Parts of Acts Repealed.—8 George II., c. 13 (The Engraving Copyright Act, 1734); 7 George III., c. 38 (The Engraving Copyright Act, 1766); 17 George III., c. 57 (The Prints Copyright Act, 1777); 54 George III., c. 56 (The Sculpture Copyright Act, 1814); 6 and 7 William IV., c. 59 (The Prints and Engravings Copyright (Ireland) Act, 1836); 15 Victoria, c. 12, § 14 (The International Copyright Act, 1852); 25 and 26 Victoria, c. 68 (The Fine Arts Copyright Act, 1862).

RAPID ARTIFICIAL-LIGHT PORTRAITURE.—Mr. J. P. Bamber, of Blackpool, sends us a copy of the "Gazette-News" of his town for the 12th inst., containing reproductions of 96 different photographs taken at a recent children's fancy-dress ball. Mr. Bamber writes:—"I exposed 115 negatives of the same number of different sitters in three hours. I only had two moves out of the number. I send these to inform brother photographers what can be done with the Cooper-Hewitt mercury-tube lamp (one only). The lighting is perfect in the original prints. The children were taken one after the other, as fast as I could go."

REMOVING STUCK STOPPERS.—Re-agent bottles holding caustic alkalis, alkaline carbonates, etc., very frequently become fixed, and the usual method has been to tap the stopper with a wooden block, or the application of heat to the neck, or a combination of both. Results are poor in certain cases and often result in the fracture of the neck. The inverse process (writes R. Bolling in the "Scientific American") may be used to advantage. In other words, freeze the stopper, thus causing a contraction of the stopper from the neck. The bottles which I used for experiment had failed to open under the heating and tapping, and were bad cases of fixed stoppers. The bottles held sodium carbonate that had formed sodium silicate, an excellent cement, and so were firmly fixed. They were inverted in a mixture of crushed ice and calcium chloride, taking care that the freezing solution did not touch the lips of the bottles. After standing twenty minutes, each stopper was removed without the slightest exertion. This is the neatest and safest way to remove stoppers from bromine bottles and other corrosive chemicals.

PHOTOGRAPHIC TRADE WITH PORTUGAL.

SINCE the publication of our article ("B. J.," November 27, 1908, p. 903) on the photographic trade between Germany and Portugal a reader in Lisbon has sent us a copy of the last statistical report issued by the Portuguese Government. It relates to the year 1906, and as the figures show the shares of the various countries in the import trade of photographic apparatus and materials with Portugal, we may re-print them.

PHOTOGRAPHIC APPARATUS.

Total imports	1,129	pieces of value	£5,133	
Germany	571	" " "	2,355	
France	441	" " "	1,788	
England	64	" " "	860	
Belgium	53	" " "	130	
United States				
Italy				
Spain				
Switzerland				

SENSITIVE PLATES.

Total imports	43,330	kilos of value	£5,494	
England	23,458	" " "	2,630	
Germany	11,456	" " "	1,470	
France	7,309	" " "	1,288	
Belgium	485	" " "	25	
United States	407	" " "	44	
Spain	84	" " "	25	
Italy	8	" " "	4	
Other countries	123	" " "	8	

PHOTOGRAPHIC PAPERS.

Total imports	28,731	kilos of value	£4,571	
France	6,100	" " "	1,668	
England	8,156	" " "	1,639	
Germany	12,781	" " "	1,132	
Belgium	541	" " "	46	
Austria	87	" " "	27	
Spain	1,072	" " "	59	
Holland				
Italy				
Switzerland				

Our correspondent adds his opinion that during 1907 and 1908 the imports have increased in favour of France and Germany. He complains, in regard to apparatus, that the English goods are very dear, and further that the British makers do not adapt themselves to the market as do the French and Germans. They claim that the apparatus is better than that of other countries, but the writer further alleges that, whereas the Continental makers specially manufacture for metric sizes, the English supply apparatus based on inch measurements.

Exhibitions.

SCENES AND FIGURES OF THE SICILIAN COAST.

IN the fifty and odd examples of the work of Count von Gloeden, now on view at THE BRITISH JOURNAL OF PHOTOGRAPHY'S gallery, there is a haunting feeling of calamity which reads itself into every picture despite all one's efforts to forget the disaster of the fair lands neighbouring those depicted here. It is natural that, having such models at command and working in the very nest of classic things, Count von Gloeden should seek to rehabilitate the pictorial traditions of classicism. Accordingly, we find in most cases a deliberate posing of the model with that end in view. The result may not in every instance be absolutely happy, but it is probably much to be preferred to a rough and ready snapshotting, and its consequent æsthetic sins. There is just a question, nevertheless, whether the Count has been quite well advised to construct a tableau here and there, or even to garnish his models with fillets and wreaths, and to cause them to play antique pipes and hold antique vases. To the ordinary mind the bodily beauty of these youthful models is in itself enough to bridge the gulf of centuries and remind us that these are the sons of Antinous, still inheriting the soil that our school-days thought sacred to Homer, knowing nothing of Cook's Tours, and all thereby implied. The accessories do but remind us of the camera and of Count von Gloeden's taste and skill. It must be admitted that with one exception he never

introduces the solecism, that unforgivable shock to a hyper-sensitive mind. His pictures are always in scrupulous keeping; but for our own part we prefer such things as are classic intrinsically and not helped by artifice. For instance, a pair of sweethearts, in the modern garb of Italian peasants, is one of the choicest things in the exhibition. The girl's arms are round the somewhat diffident swain's neck, and their heads are near together, so that the whole is beautiful as a composition. The beauty of their faces and expressions completes the charm. As Morris said: "Love is enough." In this case it makes a better "classic" of this piece than the introduction of symbols or "attributes" could. To its left hangs a fine example of the *mise en scène* method, a group of youths dancing in a ring under a pergola formed upon massive columns. As a composition it is first-rate, and the atmospheric effect of the distant plains is all that could be desired; but one must not look into the individual figures, or self-consciousness will be found. The group as a whole is quite good. A very charming picture is made by a little pensive girl sitting in the sun upon some massive masonry overgrown with wistaria, whose roots are in large earthen jars. A sort of amphora figures also in another print, where it takes a foreground place and sets off the figure of a girl in the costume known to Londoners as Neapolitan. Some idea of the physical grace of these models can be had in the reclining turbaned figure, robed in a loose garment and examining a Turkish slipper. His legs are quite bare, but they are immense and statuesque in their beauty. In fact, were this a drawing we should question the accuracy of its proportions. We enjoy this work till we see the bare planks upon which the model has been arranged, and then we turn from it with "that tired feeling" which comes always when the art is not concealed.

Of the landscape subjects, the best is a fine and romantic view of stone pines over-towering some more of the half ruinous Cyclopean masonry which Count von Gloeden employs to such advantage. At the foot of it is a little figure, happily placed; but this time only as an accessory. The composition is a highly successful achievement, reminding one vividly of the painted work of Boecklin. Some views of the bay of Taormina, seen through trees, over carved stone seats upon a hillside, are particularly interesting.

PORTRAIT PHOTOGRAPHS BY R. DÜHRKOOP AT THE R.P.S.

WHEN the work of a man has been made public to the extent that Herr Dührkoop's has reached, one is prepared to find in an exhibition devoted entirely to his pictures a goodly number of things that the illustrated papers and catalogues have made readily recognisable. In Herr Dührkoop's case, however, this state of things does not obtain; for in the collection now on view at the rooms of the Royal Photographic Society, numbering ninety examples, we were surprised to find that about seventy were either quite new or as yet unacknowledged. This fact says something for the extensiveness of Herr Dührkoop's output. A survey of the prints proves also that it is not a mere choice picking that has hitherto been shown to the public. Many of these works, new to English eyes, have all the charm and qualities that astonished the London photographic world when, a year or two back, THE BRITISH JOURNAL OF PHOTOGRAPHY first adequately introduced the Hamburg artist by an exhibition in Wellington Street. Under the title "Her Baby" we have another version of the mother and child subject, so often affected by Herr Dührkoop, and with such invariable success. This one shows the mother reaching forward her face against the child's, and adopting a pose which was a favourite with Rossetti. It is so pictorial and painterlike that it might easily pass for a photographic reproduction of a painting by Bougereau, the manner of which it resembles in its clear-cut forms. We think "The Motor Cap" a most engaging portrait, with its pretty turn back of the head at full-face over the shoulder.

In writing of Dührkoop prints it is almost impossible to avoid references to painters. It is very evident that their author is an ardent student of the Old Masters. "The Old Jewels," a lady wearing a triple necklace, is alive with reminiscences of Velasquez. We have already mentioned Bougereau; we may further allude to "Virginia," a little plump girl whose face is shaded by a large hat; and the magnificent "Study"—a leaning figure with black velvet robe and hat—each as typical Rembrandts. Indeed, the last closely resembles that master's Don Tito, in face, dress, and the manner of presentment. Then we have certain seated profile figures, near

against walls, which inevitably call up memories of Whistler. We have Hals in the Burgomasters, whose traditional costume of furs and ruffs so greatly help the illusion. More than ever in "Mother and Children" we see a group designed, apparently by intention, upon the lines of a well-known Raphael, of the Madonna, Infant Christ, and St. John. To any who like the pastime, there are abundant parallels to be found of this nature. They are, of course, due to the creditable following, unconsciously, of the principles observed by the greatest artists in portraiture. These principles, which include not only those of form, but those of chiaroscuro, are in reality the backbone of Herr Dührkoop's success. This is proved by comparing works so inspired with others, good enough technically, which follow the ordinary photographic view, involving sharp perspective and other modernisms. As pictures these are by far the less satisfactory.

There are nine excellent enlargements, of which nothing can be said that is not praise. They show none of the awful falling away of the ordinary enlargement, but retain all the force and richness, and all the delicacy of modelling and gradation, that the direct prints possess. There are eight prints which the catalogue distinguishes by asterisks, with the information that they "were presented to the R.P.S. by Mr. E. O. Hoppé, on behalf of Mr. R. Dührkoop when the latter was elected a Fellow of the Society." Our readers will probably discover the exact meaning of this cryptic sentence. We cannot help them, not knowing how one may "present" a thing on behalf of some one else, nor understanding to whom the credit of the presentation is due, though we presume it must be to Mr. Hoppé, since his name stands first.

FORTHCOMING EXHIBITIONS.

December, 1908, to January, 1909.—Kiew International Photographic. Sec., S. T. Horovitz, Technical Society, Kreshtchatik, 10, Kiew, Russia.

1909.

January 6 to 27.—Northern Photographic (Manchester). Sec., S. L. Coulthurst, Broad Oak Road, Worsley, Manchester.

January 19 to 30.—Glasgow Southern Photographic Association. Sec., Robert Lindsay, 189, Allison Street, Glasgow, S.S.

January 27 to 28.—Bedford Camera Club. Entries close January 15. Sec., K. Gammell, 21, St. Peter's, Bedford.

February 1 to 13.—Glasgow and West of Scotland Amateur Photographic Association. Entries close January 20. Sec., James M'Kissack, 68, West Regent Street, Glasgow.

February 3 to 6.—Borough of Tynemouth Photographic Society. Entries close January 23. Sec., J. R. Johnston, 29, Drummond Terrace, North Shields.

February 8 to 13.—St. Helen's Camera Club. Entries close January 27. Sec., A. G. Else, Duke Street, St. Helen's, Lancs.

February 10 and 11.—Cowes Camera Club. Entries close February 1. Sec., E. E. Vincent, 4, High Street, Cowes.

February 11 to 20.—Leicester and Leicestershire Photographic Society. Sec., Harry Cross, 80, Harrow Road, Leicester.

February 16 to 20.—Norwich and District Photographic Society. Entries close February 2. Sec., J. T. Tanner, The Lodge, Bowthorpe Road, Norwich.

February 20 to March 6.—Edinburgh Photographic Society. Entries close February 6. Exhibition Secs., Edinburgh Photographic Society, 38, Castle Street, Edinburgh.

February 20 to March 20.—South London Photographic Society. Sec., H. Creighton Beckett, 44, Edith Road, Peckham, S.E.

February 22 to March 6.—Birmingham Photographic Society. Entries close February 12. Sec., Lewis Lloyd, Church Road, Moseley, Birmingham.

February 26 and 27.—Ilford Photographic Society. Entries close February 18. Sec., H. Eales, 53, Coventry Road, Ilford, Essex.

March 11 to 13.—Coventry Photographic Club. Entries close March 5. Sec., W. R. Harris, 17, Allesley Old Road, Coventry.

March 17 to 20.—Nottingham Camera Club. Sec., E. L. Kent, 5, Radcliffe Mount, West Bridgford, Notts.

April 10 to 17.—Midlothian Photographic Association. Entries close March 31. Sec., B. Sherratt, 8, Castle Terrace, Edinburgh.

Patent News.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention

COLOURING CELLULOID FOR SCREEN-PLATES.—No. 7,629, 1908 (April 6, 1908). In order to incorporate with celluloid dyes which are suitable for mosaic colour-filters, even though insoluble in spirit, the dyes (solid or in solution) are treated (in rolling, kneading, or mixing machines) with spirit holding as much water as possible. The water then serves, in the further treatment of the celluloid, as a carrier of the colours which are otherwise insoluble in celluloid. The mass, when rendered perfectly homogeneous and having had the water partially driven off it by warming it after the last addition of colour, is again reduced to film, which is then stained. The last remains of water are removed from the film in the drying process, which lasts several days, and the dyes, soluble in water, remain incorporated in the celluloid and not removed from it again in the succeeding processes of treatment. The rolling, kneading, or mixing process may be so long continued that the celluloid acquires as great a hardness as possible by the escape of water and spirit. The dried films are subsequently exposed to the vapour of strong spirit or absolute alcohol, which renders them soft and flexible enough for treatment by further rolling.

Dyes specially suitable for screen-plates and soluble in water, though difficultly soluble in spirit, are stated to be as follows:

For red, ponceau F. R. (Casella and Co., Frankfort a/M) or ponceau 4R (Höchst Farbwerke). For blue, silk blue (seidenblau R of Casella and Co., Frankfort a/M) or cotton light blue (baumwoll-lichtblau (Höchst Farbwerke).

For green, concentrated acid green (säuregrün concentriert D, Höchst Farbwerke) or naphthol green (naphtholgrün B, Casella and Co., Frankfort a/M).

For yellow, naphthol yellow (naphtholgelb S Baden Anilin u. Sodafabrik, Ludwigshafen) or acid yellow (echtgelb G of the same firm). Friedrich Lehner, 73, Weinbergstrasse, Zurich.

CINEMATOGRAPH CUT-OFF.—No. 9,711, 1908 (May 5, 1908). The invention consists in a design of mechanism for shutting off light from the lantern focussed on the film, such that it is put in action by the formation of the loop of film which follows as the result of a breakage of the film. Vincent Edward Horsman, "Cratfield," Grove Road, Wallasey, Cheshire.

CINEMATOGRAPH CAMERAS.—No. 3,798, 1908 (February 19, 1908). The invention consists of a cinematograph camera, the use of a dark box fitted with two spindles or rollers, the one spindle or roller adapted to hold the unexposed film, and the other spindle or roller to receive the film after it has been exposed, both spindles being in the one chamber. Ernest Francis Moy and Percy Henry Bastie, Greenland Place, Camden Town, London, N.W.

New Trade Names.

CALSERCH.—No. 307,325. Chemical substances used in manufactures, photography, or philosophical research and anti-corrosives. Isaac Bentley and Co., Limited, proprietors of the firm of Maburn and Co., "Sol Petros" Works, Trafford Wharf Road, Manchester, Lancs, chemical manufacturers. October 26, 1908.

THE "PHOTO-SECESSION" held an exhibition of caricatures in charcoal by Mr. Marius de Zayas, and Autochromes by Mr. J. Nilsen Laurvik, from January 4 to 16, in their galleries at 291, Fifth Avenue, New York. The exhibits included twenty-five caricatures of well-known public characters, whilst the Autochromes, thirty-six in number, included a variety of subjects, including portraits, landscape, still-life, etc.

Analecta.

Extracts from our weekly and monthly contemporaries.

The Bromoil Process.

A. H. Garner, writing in "Photography and Focus" for Jan. 12, gives his experiences in working the bromoil process as follows:— "The print having been allowed to dry for twenty-four hours, it is soaked in cold water a minute or two while the following bath is prepared. The quantities mentioned will be found to be sufficient for a whole-plate:

Potassium ferricyanide	2 grs.
Potassium bromide	9 grs.
Potassium bichromate	9 grs.
Anamonia alum	18 grs.
Ten per cent. hydrochloric acid	20 drops.
Water	2 ozs.

This is poured into a porcelain dish and the temperature raised to about 80 deg. F. As soon as the temperature has settled down to a steady 80 deg. to 84 deg., the print is placed in the dish quickly and rocked while bleaching takes place, seeing that the temperature does not drop below 80 deg. In this bath the image changes in colour, becoming a sad coloured brown and losing about one-half its strength. Two minutes should be sufficient, but four will do no harm. The solution is then poured off, and the print washed for ten minutes in running water, or frequent changes. Before this time has elapsed all trace of the solution should have vanished from the print. I attach importance to this thorough washing. Without it, results are somewhat uncertain. This and the bleaching at a high temperature are the principal features of the method.

"At this stage the print already shows some symptoms of relief, more marked in the case of some papers than others, and it would take ink readily enough in this state, although, in general, there would be a tendency for the whites to take up ink also, and so lead to discoloration and flatness. The next step, then, is to place the print in a 2½ to 5 per cent. sulphuric acid bath, at about 65 deg. to 70 deg. The former is sufficient with soft gelatine papers, the latter will be required with harder gelatines. At higher temperatures—as for instance in midsummer—it is necessary to use much weaker baths. This bath performs two functions. It softens the unaffected gelatine, so that the relief becomes more marked, and the ink takes and is repelled more vigorously: and secondly, it dissolves out the chromic salts which partly form the image. The time in this bath must be gauged by experience. Two to ten minutes are about the limits. If the bath is poured off and the print is allowed to drain in the dish, one can generally tell by the amount of visible relief whether it has been acted upon sufficiently.

"The image changes in this bath. It becomes very faint, and its colour changes to a pale yellowish brown. It is then washed in a few changes of water, and immersed in a fixing bath containing a little metabisulphite or even plain sodium sulphite. I generally use the same bath as I use for fixing bromide prints, and have not noticed any ill effects. It is then again washed, and the print is ready for pigmenting in the usual way. The whole procedure should not take more than half an hour."

A letter from Messrs. Ozobrome Ltd. regarding the use of a solution such as that given above appears under "Correspondence."

AT THE PHOTOGRAPHER'S.—More literary, perhaps, but a good deal beside the mark, are the two dialogues, "On Being Photographed," in the "Westminster" of last Saturday evening. The editor confesses to disappointment. We thought to have detected a reference to the "free sitting" in the phrase "photographed voluntarily." But no; the passage runs on:—"P. P. : Yes, you can be photographed involuntarily. Infancy, for example. *Si jeunesse le savait*, it would never consent to be photographed in the poses so embarrassing when the forgotten print reappears. Materfamilias coming out of an egg! The victims of the Press photographer, the inmates of our prisons—S. S. : Suffragettes? P. P. : No. They are photographed voluntarily, whether inside Holloway or outside."

New Apparatus, &c.

The "Dega" Minimeter. Sold by Chas. Zimmermann and Co., 9 and 10, St. Mary-at-Hill, London, E.C.

This is a most handy instrument for the rapid and accurate measurement of small quantities of liquids, such as rodinal, or other single solution developer, only a little of which is used at a time when developing an odd plate or two. The graduated measure, when used for quantities from 5 minims to, say, 1 drachm, can easily give rise to considerable errors arising from the angle at which the level of liquid is used, the quantity of liquid left in the measure, etc., and it is not practicable to measure off small quantities quickly. In both these respects the "Minimeter"—which is an improved chemical pipette—has claims to recommend it. It consists of a glass tube 7 in. in length, graduated to deliver up to 80 minims, or 5 ccs. The minim scale is graduated into 5-minim divisions, the metric scale to ½ ccs. To use the meter, all that is necessary is to drop it into the stock bottle of solution, squeeze the bulb strongly, and release it gently removing the tube when the liquid has risen to the 0-0 mark. Any desired quantity can now be delivered most accurately into a measure or other receptacle by gently deflating a projection on the top of the bulb. By so doing, air is admitted to the top of the tube, the liquid escapes and on releasing the projection the level of the slowly falling liquid is arrested at any point. For working in the dark-room the meter saves altogether the trouble of drip from bottle necks, economises developer, and increases the exactness of measurements, which, as we have said, may often be out to an unrealised extent. The "Minim meter" is sold at 1s. 9d.

New Materials, &c.

COLLOTYPE AND COLOUR POSTCARDS.—The Barton Pictorial Postcard Co., 15, St. James', Barton, Bristol, send us specimens of the work they are turning out in monochrome collotype and glossy and coloured postcards. The results, particularly in the straightforward collotype show the consistently good work of the Barton Co., by whom moderate prices for any description of card can be quoted.

COLOURED GLOSSY POSTCARDS.—The Vanguard Manufacturing Co. Ltd., Maidenhead, send us a few glossy postcards—"Rotary," as sold in the shops—printed with "Bertha" colours. The cards show great depths of tint, although coloured in the glazed condition and not treated other than with the dyes made up with water. The dyes contain the necessary mordant, and unless very heavy colours are desired such as "cardinal velvet," it is not necessary to use any medium. In the case of the deepest effects a little "glossy medium" is advised to retain the gloss. As a proof of the capabilities of the colours the Vanguard Co. offer to send a "Rotary" card (retail price 2d.), coloured with the "Bertha" dyes, post free for two penny stamps.

New Books.

"Le Salon International du Photo-Club de Paris," par C. Ménard. (Paris: Charles Mendel.) 10fr.

As a souvenir of an exhibition this volume is without doubt the most sumptuous yet attempted. Its publisher is to be commended upon its appearance, for he has spared no pains in its production. It is luxuriously illustrated by more than sixty pictures, of which a dozen or more are full-page plates on heavy surface paper. The author's part covers a large ground. M. Ménard, after having apportioned to the promoters of the Salon their due meed of praise, treats of oil-printing; studies the æsthetics of the Photo-Club; analyses carefully the psychology of the outside contributors to the exhibition; puts into relief the different processes employed, and the general character and physiognomy of the show; then, passing in review the principal works, he deals with the ideas of the workers and the tendencies of the different schools. We read with particular

pleasure and interest the parallels drawn between the two masters of the French Pictorial School, M. Robt. Demachy and M. le Commandant Puyo.

The picture of all that delights us is a full-page plate of a "Portrait," by M. René Michau, presumably from an oil-print. It represents a young lady in outdoor garments, who stands with her hand upon the knob of a door. In delicacy, richness, fine and simple design, it is surpassingly good, and it boasts also a general prettiness. Another fine thing is the "Pâtures," by M. Léonard Missonne, charming landscape of fine effect.

The volume will be studied with pleasure and profit by all lovers of photographic art.

"THE WATKINS MANUAL."—The fourth edition of Mr. Alfred Watkins's manual contains a new chapter on "Thermo-Development," in which directions are given for the construction of a chart to be used when adjusting the time of development in accordance with the temperature. Some useful notes on the exposure and development of Autochrome plates are also given. For the rest, the arrangement and text of the manual remain the same, and the chapters on exposure and development may be cordially recommended to the elementary worker as giving him a set of rules, by adhering to which he may quickly reach a far higher average of work than by following his own unaided judgment.

"THE TELEPHOTO QUARTERLY."—No. 4 of Captain Wheeler's "T.Q." is a special "Alpine issue," and contains a number of interesting contributions on "Mountain Telephotography," by J. C. Smith; "Exposure in Telephotography," by E. A. Biermann, with other notes by the editor and others. Captain Wheeler's reviews of recent introductions for telephotography are alone worth a year's subscription (1s. 6d.) for "T.Q.," the distribution of which, we are glad to hear, is from China to Peru. In America "T.Q." is now obtainable from Messrs. Tennant and Ward, 122, East 25th Street, New York; in England from Captain Wheeler, "Strathmore," Princes Road, Weybridge.

"PHOTO NOTES."—The 1908 volume of our monthly contemporary shows us the variety of topics touched upon in the course of the year. The issues show that current progress has secured discreet representation in its pages, under the editorship of Mr. C. Welborne Piper. In the January issue of the present year there is the announcement of a series of competitions, which should interest more serious and thinking workers. "Photo Notes" is sold by most photographic dealers, or is obtainable direct from the publishers, the Rotary Photographic Company, Limited, New Union Street, Moorfields, E.C.

CATALOGUES AND TRADE NOTICES.

DEMONSTRATION APPARATUS.—Messrs. Newton and Co., of 3, Fleet Street, Temple Bar, E.C., have newly issued a list of recent apparatus for optical and other demonstrations. These include a number designed by Mr. F. J. Cheshire, including an optical bench, projection spectroscope, and model eye. The list, which is sent free, should interest those having to lecture on philosophical subjects.

LANTERN SLIDES.—The latest supplementary list just published by Messrs. Newton and Co., 3, Fleet Street, Temple Bar, London, contains a large selection of sacred subjects, including one of the Pan-Anglican Congress and a number of sets, each of a few slides, to illustrate hymns sung as solos. These latter in most cases are reproductions of celebrated pictures, and are an immense improvement on the slides which often pass muster as "illustrations" of such local solos. Among the other sets are those on the Franco-British Exhibition, and modern industries such as paper-making, steel-manufacture, tanning and coal-mining. The list forms a useful addendum to Messrs. Newton's full catalogue.

THE THORNTON-PICKARD 1909 CATALOGUE.—The new full list of the Thornton-Pickard Manufacturing Co., Ltd., is a most attractive publication. It runs to nearly 120 pages, and describes a whole series of new publications, including the folding pocket cameras which the T.-P. Co. are making in Altrincham in competition with continental manufacturers. The full specification of the highest class instruments, the Ruby cameras, should particularly interest our readers, who can obtain the list free by writing to Altrincham.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, JANUARY 15.

Kinning Park Camera Club, Govan. Annual General Meeting.
Sutton Photographic Club. "Impressions of a Tour through France." J. W. S. Burmester.
Barrhead Art Club. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Aberdeen Photo Art Club. At Home.

MONDAY, JANUARY 18.

Ardrrossan and District Camera Club. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Scarborough and District Photographic Society. "A. P." Prize Slides.
Catford and Forest Hill Photographic Society. Monthly Competitions.
Stafford Photographic Society. "Yesterday and To-Day." Burroughs, Wellcome, & Co.
Cleveland Camera Club, Middlesbrough. Dutch Lantern Pictures. A. E. Staley & Co.
Kidderminster and District Photographic Society. Midland Federation's Slides.
South London Photographic Society. "Exhibition of Thornton-Pickard Prize Slides and Apparatus." R. Hesketh.
Southampton Camera Club. "On Novel Lighting Effects obtainable by Daylight in an Ordinary Room." H. Essenhigh Corke.
Bradford Photographic Society. Annual Meeting.
South London Photographic Society. "Exhibition of Thornton-Pickard Prize Slide and Apparatus." R. Hesketh.

TUESDAY, JANUARY 19.

Royal Photographic Society. "Holy Days and Fête Days in Spain." R. Falconer Jameson.
Kinning Park Camera Club, Govan. "The Process Block, Manufacture, and Printing." Angus Barclay.
Chiswick Camera Club. Lantern Lecturettes. By Members.
Hanley Photographic Society, Y.M.C.A. Lecture by J. Wright.
Liberal Border City Camera Club, Carlisle. French Lantern Pictures. A. E. Staley & Co.
Edinburgh Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.

WEDNESDAY, JANUARY 20.

Croydon Camera Club. Annual General Meeting.
Sale Photographic Society. Lantern Slide Competition.
Brecht Photographic Association. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Leeds Camera Club. "Preparation and Development of Salted Papers." W. A. McLean.
Borough Polytechnic Photographic Society. Lantern Slide Competition.

THURSDAY, JANUARY 21.

London and Provincial Photographic Association. "Preparing Objects for Photo-Micrography." J. I. Pigg.
Dundee and East of Scotland Photographic Association. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
L.C.C. School of Photo-Engraving, Bolt Court. "Some Applications of Theory to Practical Photography." C. E. Kenneth Mees, D.Sc.
Leek Photographic Society. Whist Drive.
Handsworth Photographic Society. "A Chat on China and the Customs." W. A. Mace.
Hackney Photographic Society. Whist Drive.
Maidstone and Institute Camera Club. "Various Novel Lighting Effects." H. E. Corke.
Southend-on-Sea Photographic Society. Seventh Annual General Meeting.
Rodley, Farsley, Calverley, and Bramley Photographic Society. Members' Night.
Midlothian Photographic Association. Social Evening.
Aberdeen Photo Art Club. Informal Meeting.

ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held Tuesday, January 12, President (J. C. S. Mummery) in the chair.

Appropriate to the occasion of the opening of an exhibition of portraiture by Herr R. Dührkoop, Mr. E. O. Hoppé read a paper dealing with the career, aims, and methods of Herr Dührkoop, on behalf of whom he expressed regret that the author of the photographs himself was unable to be present and deliver the address with which such house exhibitions are customarily inaugurated. Herr Dührkoop, continued Mr. Hoppé, was born in Hamburg sixty years ago, and after an uneventful youth became a soldier during the time of the Franco-German War of 1870 and 1871. His first visit to Paris was with the German Army, who lay outside its walls. On his return to civil life he was, up to his thirty-fourth year, engaged in retail commercial business, in the course of which he took up photography as an amateur, and finally relinquished his business proper to become a professional photographer. He had had no professional training whatever, nor any studio practice. He had learnt all he knew from books and his own experiments, a fact which perhaps accounted for the great individuality which his work

now shows. However, for the first few years of his professional career his work was quite of the conventional order. He planted his sitters before the usual painted background, held them steady with the traditional head-rest, and it is even supposed that in this commercial pursuit he was accustomed to supply the many soldiers who were his clients with cheap miniatures of themselves for presentation to those damsels with whom they "walked out." But one fine day Herr Dührkoop discarded these time-worn methods, and announced in a notice outside his studio that henceforth his portraits would all be taken in a different style by a different method. The freshness and originality of the work which he produced from the commencement of this new era of his career make him the pioneer of really artistic portrait photography on the Continent. Throughout these years his guides in the application of the camera to portraiture have been the great masters of painting, to the study of which he has always attached the greatest importance. The help and advice of a well-known art critic and teacher, Herr Lichtwark, have been great factors in his progress. Through them he was led to abandon the studio for a "portraiture-room," lighted like any other, but perhaps the most intimate secret of his success and versatility is the fact that his aim is to express to others the delight which he himself takes in the particular beauty or characteristics of each sitter. As those who had met Herr Dührkoop well knew, he was a remarkable, almost extraordinary, personality. Always well dressed, bright, and with the freshness of perennial youth, he was able to interest his sitters, and his mental vitality, and particularly his admiration of the fair sex, were expressed in a manner which in many another man would come dangerously near extravagance and absurdity, but in the case of Dührkoop attracted and entertained his sitters.

In the year 1900 Dührkoop was officially sent by the town of Hamburg to the Paris Exposition, but confessed himself disappointed. In 1901 he first visited London, where the photographic work of the leading amateurs greatly influenced his ideas of tone values and pictorial composition. In 1904 Hamburg sent him to the St. Louis World's Fair, and while in America he visited the studios of the leading American photographers, such as Pirie MacDonald, Strauss, Mrs. Käsebier, and others. It was not until 1905 that he first exhibited at an English photographic exhibition—namely, that of Leeds—since when medals and distinctions have been awarded him at almost every leading exhibition.

For his professional work Herr Dührkoop has two studios, one in Hamburg and another in Berlin, alternately superintended by himself and his daughter, Frau Diez-Dührkoop, a lady who shares with her father much of his genius, and is his most skilful assistant. Both his studios are only lofty rooms, lighted in the ordinary way, but magnificently furnished and decorated. Without any of the ordinary photographic accessories in evidence, not even a camera, the sitter is received as would be an ordinary visitor, is entertained in conversation by Herr Dührkoop, who will give a signal later on for a camera to be brought in and placed in position. Within a few seconds a series of exposures are made, in many cases with the assistance also of a portable arc or magnesium light, which is likewise put in position by an assistant. In his method of presenting the photographs, Herr Dührkoop is equally versatile. He will supply one in platinotype, one in carbon, another in silver (matt albumen), and he will ensconce each one in a different and differently ornamented folder. When he was fifty-three he went to a technical school and learnt photogravure, and has installed a special photogravure plate-making and printing department in his Hamburg studio, from which he has published several large portfolios of photogravure portraits of German notabilities. Men, women, and children are all equally welcomed as sitters to Herr Dührkoop, and the examples of his work show the intimacy with which he can enter into the mental attitude and disposition of each class. Always unconventional, he yet succeeds in producing compositions which are harmonious and well balanced, his strong point being the power to accentuate those characteristics of the sitter which give him or her vitality and beauty.

EDINBURGH PHOTOGRAPHIC SOCIETY.—On Wednesday in last week a lecture was given by Mr. J. Campbell Noble, R.S.A., on "Light and Shade." The lecturer spoke of the importance of motive in producing works of art, and drew a number of charcoal sketches to

illustrate how different effects were obtained by altering the balance of light and shade. Mr. J. F. Duthie, the president of the society, was in the chair.

SOUTHAMPTON CAMERA CLUB.—The members of the above club enjoyed on Monday last the annual visit of Mr. E. W. Harve Piper, who gave a lecture entitled "Two Benedictine Minsters." The lecturer began by showing the plans of both edifices, and describing the differences in the structures. He pointed out that no cathedral in England retained its original Norman plan so nearly undisturbed as Norwich, which was long and narrow compared with that of Gloucester Cathedral. Mr. Piper then described alternately both the exterior and interior of the buildings in detail. He thought that the tower at Gloucester was one of the most graceful in the country, with its pierced parapet and delicate carving, which appeared like petrified lacework. Mr. Piper thought the cloister at Norwich, with the exquisitely worked tracery, were superior in design to those at Gloucester.

Commercial & Legal Intelligence

THREE MONTHS FOR A CANVASSER.—At Ayr Sheriff Court last week before Hon. Sheriff-Substitute Lockhart, Thomas Lyle Smith, of no fixed residence, having formed a scheme for fraudulently obtaining money and goods, was charged on indictment with having (1) defrauded thirteen persons in Kilwinning and Irvine by taking payment for photographs which he promised to supply and did not supply; (2) obtained board and lodgings by false pretences; (3) stolen two printing frames which he got a loan of from a chemist; and (4) obtained photographic material to the value of £1 8s. 9d., which he did not pay. The offences were committed between August 11 and September 15. The Sheriff sent the accused to prison for three months.

LIVING BY FRAUD.—A respectable-looking man named James Wilson pleaded guilty in Glasgow Sheriff Court last week to a series of charges of fraud in Ayr and Ayrshire in November last, getting subscriptions amounting to £14 by representing that he wished to secure a camera outfit for himself to follow outdoor pursuits, as he was in consumption and unable to follow his employment. An agent stated that accused was forty-five years of age, and had been a photographer's assistant in Ayr. He had never been in trouble before, and had been five weeks in prison. Wilson came to Glasgow with a considerable sum of money, but lost it through being assaulted in George Square, and was frightened to report it to the police, as he had the list of subscriptions obtained in Ayrshire on him. Sheriff Mackenzie said it appeared from the indictment that for months accused had been living by fraud on the public. Looking at the great number of the frauds committed, his Lordship could not do less than pass sentence of six months' imprisonment.

THE PARTNERSHIP between Messrs. Thos. Elisha Stagg and Alfred Mann, carrying on business as photographers at 400, High Street, Lewisham, S.E., under the style of "The Imperial Miniature and Enlargement Co.," has been dissolved from the 5th inst. All debts due or owing by the late firm will be received and paid by Mr. Stagg.

BANKRUPTCY DIVIDENDS.—Notice is given of an intended dividend in the estate of L. H. Bourlet and F. F. Bourlet (trading as Jas. Bourlet and Sons), fine art agents, etc., 17 and 18, Nassau Street, Middlesex Hospital, W. A dividend is also to be paid in the separate estate of F. F. Bourlet. Mr. Wm. Hardy (the trustee), Coventry House, South Place, Finsbury, E.C., will receive proofs up to the 31st inst. In the estate of W. G. Lewis, photographer, 1, Seymour Street, Bath, Mr. F. L. Clark, official receiver, 26, Baldwin Street, Bristol, will pay a dividend to creditors whose proofs are lodged with him on or before the 20th inst. Creditors in the estate of W. T. Radford, photographer, etc., 7, Bampton Street, Tiverton, Devonshire, will receive a dividend on lodging proofs before the 22nd inst. with Mr. A. E. Ward, official receiver, 5, Bedford Circus, Exeter. The estate of G. R. Harris (also trading as Harris and Co.), photographer, etc., 222, Broadway, Bexley Heath, Kent, has paid a first and final dividend of 1s. 2½d. in the £1. Mr. Thos. Keen, trustee, 29, King

reet, Luton, Bedfordshire, will receive proofs up to the 22nd inst. m creditors of Arthur Joseph Anderson, photographer and picture-mer, 37, Wellington Street, Luton, 36, High Town Road, Luton, 17, High Street, Leighton Buzzard, in whose estate a dividend is out to be paid.

News and Notes.

GOLD VARNISH.—A clear solution of shellac in alcohol, with an addition of picric acid and 1 per cent. of boracic acid, makes a gold varnish that produces a fine hard surface and brilliant finish on metals.—“Scientific American.”

THE LATE MR. W. E. DOWNEY.—Mr. William Edward Downey, 38, Carlyle Square, Chelsea, and of Messrs. W. and D. Downey, 57 and 61, Ebury Street, S.W., who died on November 30 last, aged 54 years, left estate of the gross value of £8,082, with net personalty £4,352.

“KNOWLEDGE.”—The reading matter in our contemporary has been nearly doubled, and each issue also contains four full-size plates on art paper. The “Aeronautics” supplement is an attractive and valuable feature. In this revised form, which takes effect with the current January issue, the price is one shilling.

MR. W. FRIESE-GREENE has patented and is now building an airship, so we read in a daily paper. The novel feature of the vessel is its “twin construction.” It consists of two elongated airbags placed side by side. There are four motors, one driving the gyroscope, another the propeller fan, and two others for emergency. A gyroscope is used for steering, its position being altered by means of steering gear attached to an ordinary ship’s wheel.

AT THE BEDFORD PARK POLYTECHNIC, Bath Road, Turnham Green, London, N.W., from January 18 the Monday evenings will be occupied with work for elementary students, 7.30 to 8.30; advanced photography, 8.30 to 9.30. In the advanced course there will be a full demonstration of “Autochrome,” “Thames,” and “Omnicolor” screen-plates for colour photography. On Wednesday evenings bromide enlarging, and on Thursday evenings negative retouching are on the programme.

PRINTING PAPER FOR THE TROPICS.—Messrs. the Lumière N.A. Company write: “Noticing in your issue of January 8 your reply on the above subject to your correspondent, H. Grattan Guinness, we beg to draw your attention to the fact that we have placed on the market a P.O.P. (“Actinos”), which has been manufactured specially to withstand climatic influences. This paper contains no free silver salts whatever, is manipulated in the ordinary way, and under the most trying tropical conditions has been found to be entirely unaffected.”

AUTOCHROMES AT THE LUMIERE HOUSE.—A collection of some 70 autochrome transparencies is to be seen at the offices of the Lumière N.A. Co., 89, Great Russell Street, London, W.C., from Monday next, January 18. Among the transparencies are the most varied descriptions of subject, from a portrait by lamplight to open panoramas and landscapes. Some of these latter, taken during spring and winter are perhaps the most exquisite examples of the process in point of delicacy and fidelity of subtle tones. Some excellent photo-mechanical reproductions of Autochromes add to the interest of the collection, which is open to visitors on presentation of card.

CLEVELAND CAMERA CLUB.—The annual exhibition will be held from February 10 to 13 in the Albert Chambers, Middlesbrough. The open section will consist of two classes, one open to all photographers, the other to members of the Yorkshire Photographic Union. The exhibits will be judged by Messrs. Percy Lund, A. Hutchinson and C. W. Richardson, who will award silver and bronze medals at their discretion. A special prize of a silver flower vase is offered for the best picture in the exhibition. Entries close February 1, by which date entry forms, accompanied

by the necessary fees, must reach the hon. sec., Messrs. F. W. Pearson and R. Walton, 39, Granville Road, Middlesbrough, from whom all further information and entry forms may be obtained.

ILFORD PHOTOGRAPHIC SOCIETY.—The annual exhibition will be held in the Town Hall, Ilford, on February 26 and 27, and will include five open classes, in which one silver and nine bronze plaques will be placed at the disposal of the judge, Rev. F. C. Lambert. Entry forms, together with the necessary fees, must reach the hon. sec., Mr. H. Eales, 53, Coventry Road, Ilford, not later than February 18, the forms being now obtainable from the same address. If desired, any exhibit will be forwarded to the Stratford G.E.R. Exhibition without additional charge.

A CORRECTION.—In our report of the Northern Photographic Exhibition (page 24 of last week’s “B.J.”) one or two slight errors have inadvertently crept in, which we now hasten to correct, with apologies to various authors of the pictures. “The Edge of the Dunes” (19) is by T. Longworth Cooper, not B. Ward Thompson; Cavendish Morton’s “Hebe” and “Fantasia” are two distinct pictures, not one as indicated in our article; whilst “Early Morning in the Harbour” (332) and “Evening on the Mersey” (473) are the work of Mrs. not Mr. S. L. Coulthurst.

THE CRIPPLEGATE PHOTOGRAPHIC SOCIETY’S Annual Exhibition, which is to be opened on March 22 by the Rt. Hon. the Lord Mayor of London, promises to be a great success this year, and we hear that in the open classes, of which there are six, one will be for “Straight Prints or Enlargements from Straight Negatives,” and one for “Prints in either Oil, Bromoil, Gum, or Ozobrome.” The judges will be Messrs. A. H. Blake, F. J. Mortimer, and J. B. B. Wellington. Arrangements have been made to transfer free of cost any pictures entered for “Cripple-gate,” which are also exhibited at the “South London” Exhibition. Entry forms and further particulars may be obtained from the Hon. Sec., H. S. Cuming, 234, North End Road, Kensington, W.

Correspondence.

* * *We do not undertake responsibility for the opinions expressed by our correspondents.*

* * *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

AGREEMENTS WITH ASSISTANTS.

To the Editors.

Gentlemen,—I feel rather keen about writing on this topic, as the result of not having agreements has been brought somewhat prominently to my mind during the last few days.

In this matter, as most others, there are two sides, and not unnaturally the assistants on the one side and the employers on the other are both inclined to think that only that which is to their personal advantage is the right and proper thing. Whilst belonging to the latter class, I will strive to avoid giving my side too much prominence, and content myself as far as possible with quoting an aspect of the case that has touched me personally during the last few years.

A manager-operator, after occupying this position in my studio for ten years, seeing everyone, and being known by name to every client, since it was the rather foolish custom to so distinguish him by name instead of “the operator” or “the manager,” gave in his notice just before the season, and opened two doors below in a studio that six other people (strangers) had opened and always closed again in the space of a few months. Not unnaturally there was a falling-off in receipts much greater than when the studio had previously been opened, and the old customers were constantly seen entering the new place. A modest agreement to refrain from working in certain specified streets would have been sufficient, but unfortunately, starting as a boy as he did, he gradually grew up

and filled his last position without the probability of his resigning being taken into account. Of course, under the circumstances he had as much right as anyone else to open up, but I consider that such an eventuality should be insured against by all.

If I sold my business I should be charging for the handing over of regular customers, an established name, my books, and a ready-made introduction to the town. A new man would suffer all the trials and expenses of becoming known, and would have to keep himself meanwhile. Why should I pay a man to introduce himself at my establishment, at my expense, and present him with a great part of my most valuable asset—goodwill—into the bargain?

No one can object to a new photographer starting in a town, so long as he starts fair, but to present him with ready-made customers is a rather considerable addition to his agreed-upon salary. However, our place had become somewhat old-fashioned and backward, and after a thorough overhaul we gradually, and at a great deal of expense, got back, retained, and increased our old volume of business, and now the manager's studio is empty, and the late proprietor (late manager-operator), with whom, by the way, I am on real good terms and constantly correspond, has taken a similar situation abroad. By a strange coincidence, he is called upon to resurrect a business that has gone flop owing to the late manager having opened for himself opposite, taken away most of the trade, and in all respects acted in precisely similar fashion to the former case.

I mention this at some length because these are absolute facts of recent occurrence, and it answers those optimistic assistants who say that the name of an old firm is sufficient to keep it from harm.

Personality in photography is everything. The public not unnaturally prefer the operator they know to the operator they know not.

PROVINCIAL PRO.

To the Editors.

Gentlemen,—Yours being the recognised trade photographic journal, I am sure many photographic employees, like myself, are grateful to you for calling attention to the one-sided agreements that many assistants are often compelled to sign in order to obtain an engagement. It is said that when one signs an agreement he knows at the time what he is signing. That is true; but when one has been out of employment, perhaps for months, and become "hard up," one is over-anxious to get a job, and does not duly consider the terms of the agreement. In this way employers sometimes take advantage of the unfortunate assistant. I may give a case in point. A friend of mine, being somewhat in these conditions, obtained an engagement as managing operator of a branch at a salary with commission. But to obtain it he had to sign an agreement to the effect that in the event of his leaving or being discharged he would not work for any other photographer, or be connected with photography, within twenty miles of the town hall of —, which is his native place. He was in the berth for nearly three years, and by his skill and perseverance worked up the business to such an extent that the commission amounted to more than the salary. One day the employer told him he was getting too much out of the business, and that in future the commission would be reduced by one-half, as he could get a good operator for much less than he was then paying. The operator then said that if the pay was reduced he would leave. The employer replied that if he did he could not take another appointment within twenty miles of the town, according to their agreement, which he would certainly enforce. On reading through the agreement with my friend we found that he was bound by it not to start in business for himself or be engaged by another photographer within the radius of twenty miles. Although this restriction is placed on him in the event of his giving notice, the employer can at any time discharge him with a fortnight's notice, but the radius clause still applies; so it will be seen that the employer has the man entirely in his hands. It seems to me from what I have read in your leading articles that this is such an unreasonable agreement that it would not hold good in law. I once had a somewhat similar one put before me, but I declined to sign it, and as a consequence did not get the berth. I would suggest to all employees to read through any of the agreements they may be under. Possibly many will find they are in a more independent position than they imagine to be the case.—I am, yours faithfully,

AN OPERATOR.

Yorks.

January 11, 1909.

A CORRECTION.

To the Editors.

Gentlemen,—I regret that owing to a mistake of mine the two last columns of figures in the table of my paper on the printing frame for colour-screen positives, contained in this month's "Colour Photography" Supplement, have been transposed. The last column is that of the lengths of the mirrors BC, while the second last is that of the widths BD.

With regard to the paper by Dr. Merckens, on page 1 of the same supplement, you are quite correct in pointing out in the footnote that I am joint patentee with Dr. Merckens of the two French patents quoted. The work embodied in the subject matter of these patents was carried out by us jointly in my laboratory in Zürich. The corresponding English patents, 2,461 and 7,217 of 1907, and all the corresponding foreign patents were applied for in our joint names.

I may mention that Dr. Merckens has no further claim upon any of these patents, or upon those relating to the printing frame for colour-screen positives, I having complete control over the disposal of all these patents and patent applications.—Yours faithfully,

J. H. SMITH, Ph.D., F.I.C.

MARKING PACKETS OF PLATES AND PAPERS.

To the Editors.

Gentlemen,—I have read with interest the letter of Mr. R. Ballantine and your "Ex Cathedra" note thereon in your last issue. The suggestions made therein would no doubt be of convenience to the dealers. I would, with your permission, make another suggestion with regard to the marking of the packets of plates and papers by the makers. It is that they should bear the date they were issued by them, in which case the purchaser would see if he was buying stale goods or not. I have to draw my supplies from a local dealer who does a fairly good trade. A short time back I bought four packets of P.O.P. The maker's numbers on three of them were different, and there was a very long difference between the earliest numbers and the others. On opening this one I found the outer sheets much discoloured, and the edges of the others also discoloured. With this packet I could not get good prints; the others were all that could be desired. This showed that the one packet had been a long time in stock, and had become spoilt by keeping. I had a similar experience with plates a few months ago. I bought three packets of —'s plates; all bore different numbers. Two were all right, but the plates in the third, which had a much lower number, were all stained round the edges. If that packet had been the first I had had of that brand of plates I should at once have condemned it and had no more, and so I think it would be to the interest of plate and paper manufacturers to mark the packets with the date of their issue.—Yours faithfully,

F. R. C.

BROMOIL AND THE OZOBROME PATENT.

To the Editors.

Gentlemen,—We notice that in some of the articles on the bromoil process which are published from time to time in the various photographic journals, formulæ are given for the use of a bath containing bromide, ferricyanide, and bichromate. These ingredients are claimed in Mr. T. Manly's patent, No. 17,007 of 1905, for the insolubilising of gelatine in the presence of metallic silver.

As the action in the bromoil process depends entirely upon the different degrees of tanning of the gelatine in the presence of metallic silver, it will be readily seen that the makers and users of such solutions render themselves liable to prosecution by Ozobrome, Limited, the owners of the above-mentioned patent.—Yours faithfully,

OZOBROME, LIMITED.

G. A. Collinson, Sec.

BENJAMIN SANDFORD (LIMITED) has been registered with a capital of £1,000 in £1 shares to acquire the business carried on by Mr. B. S. Taylor, at Bradford, as Hamnett and Walters; at Leeds, Colne, Halifax, and Stockton-on-Tees as Hamnett; at Rochdale and Wakefield as Taylor; and at Stockport as Moreton; and to act as photographers, etc. The first directors are Mr. B. S. Taylor, Mr. C. Bish, and Mr. A. J. Taylor.

Answers to Correspondents.

All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.

For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPH REGISTERED:—

Gough, 94, Richmond Street, Coventry. Two Photographs of Mr. Wm. Morgan, B.Sc.

LEHOUETTES.—I enclose print of photograph on the "silhouette" principle, which I am thinking of introducing at a seaside resort in the coming season. Is it possible to copyright or protect the idea in any way? Should be grateful for any information.—INTERESTED.

Of course you cannot secure to yourself the sole right to make a type of photograph which has been known for many years. All you can do is to register a trade name for the silhouettes you may make. If you elect to call them "Profylettes," "Photosilles," or some such made-up name, you can register the word and prevent anyone else from using it for the same or a similar description of photograph.

F. S.—From your description there should certainly be a large demand for such a lamp—that is to say, if it can be made for about £1 or 30s., which should be about the first cost to market at the figure you name. We advise you to take out provisional protection. This will cost you £1. Particulars and instructions from the Comptroller of Patents, 25, Southampton Buildings, E.C. (Meanwhile, we should think a firm such as the Tress Company, which has made a specialty of studio gas lamps, would be prepared to discuss taking up the lamp.

CLOUD NEGATIVES, ETC.—A short time ago I read an article about printing clouds into landscapes, and I fancy it was in your paper. In it the writer recommended cloud negatives, the lower part of which was gradually tinted red so that it was not necessary to use a mark if the sky-line was straight—a great advantage, especially in P.O.P. printing, as it is in this case difficult to avoid a hard line. Can you tell me the makers of the cloud negatives? 2. Are negatives reduced with ferricyanide as permanent as if not reduced? 3. How does it stand as regards permanency with negative intensified by the bleaching-out and redeveloping method? 4. Is there any means of enlarging a film negative (celluloid and emulsion together) in a similar manner as the film of a glass negative is enlarged after being stripped?—C. G.

1. Such negatives were sold some years ago by the dealers, and probably are now. Better write to one of the large houses. 2. Yes. 3. Those intensified by the chromium method are fully as permanent as an untreated negative. 4. The film negative can be stripped by the method on p. 792 of the "Almanac," and allowed to expand in water before remounting. In this case it will be advisable to use less formaline in the first solution.

URHAM.—The list price of the former is £6 12s. 6d., and that of the latter £2 5s. From these prices you will be able to estimate their value, according to their condition, as we do not value second-hand goods. Both lenses are of the same type, and are good for general all-round work, but are slow for portraiture.

SUBSTITUTE FOR GROUND GLASS.—1. I believe there is a method of precipitating baryta on a gelatine film, say on a plate which has had the silver fixed out before exposure or development. Could you please oblige me with details? 2. Is there any method of

treating a bromide print on paper so that, by transmitted light, it may bear the appearance of a transparency backed with ground glass.—REYLLOC.

1. Soak the fixed and washed plate in 5 per cent. sulphuric acid, drain off and transfer to 5 per cent. barium chloride solution. 2. The print can be rendered partially transparent by ironing in vaseline with a hot iron or immersing in a mixture of castor oil (4oz.) and ether (1oz.).

W. M. HARRISON.—The only book we can refer you to is the "Art of Retouching Negatives and Finishing and Colouring Photographs," by R. Johnson (Marion and Co., 2s.).

DRYING NEGATIVES, ETC.—1. In drying negatives quickly by the formaline process (short wash in water after fixing, then pouring over the plate hot water and drying in front of fire) I have been troubled by finding the film quite loose on the plate, more particularly at the stage between the pouring over of hot water and drying in front of fire. Recently I was drying a press negative in this way when the film seemed to burst, and the whole of it shot off the plate in fragments whilst drying in front of a moderate fire. Can you explain the cause and give me remedy for this? 2. I have a number of negatives, which have been intensified (ammonia-mercury process) and put away for some time, and I find them now very much clouded over. I believe this is usually with negatives intensified in this way, and then left without varnishing. Will anything remove this cloudiness, which in many of them is in patches and not even all over the plates? Also, is there any preventive other than immediately varnishing?—SAXON.

1. Probably the formaline has been used too strong; a weaker solution, say 5 per cent., used for longer, would give a more even action throughout the film. In any case, it is not every brand of plate that will withstand such vigorous treatment. 2. We know of no remedy for the negatives. Varnishing is the best preventive, but we advise you to use a more reliable intensifier, such as the mercuric iodide, followed by a developer.

HAVERHILL.—Yours seems to be a hard case. But as you agreed to the employer holding your belongings if he advanced you the money for your fare back to London, it seems to us that he has a legal lien upon them until he is paid. The only suggestion we can make is that you refund him the money and demand your things back.

C. WHITFIELD SIMS.—Provisional patent protection will cost you £1. It is most advisable to take out a separate patent for each article. If you apply to the Comptroller, 25, Southampton Buildings, London, E.C., you can obtain a circular of instructions.

CLUB.—The notice is sufficient in regard to the studio, we think; but if you are in business after that date, we think the sitters can still claim to be taken, or have the money returned. We think you will have to take them, even if you have no studio.

GUSTAY THEILKULD (New York).—Homocol is made by the Bayer Company, Elberfeld, Germany; the others by Meister Lucius and Brüning, Höchst a/M, Germany. We advise you to write direct to these firms.

JAMES F. COYLE (Rochester, N.Y.).—Abney's "Photography with Emulsions" and Eder's "Handbuch der Photographie" (Part III.) (gelatino-bromide and gelatino-chloride emulsions) are the best two books for your purpose. We believe the former is out of print, but the latter is published by W. Knapp, Halle, a/S, Germany. A very great deal of the published matter on emulsions is out of date and of little use for practical purposes.

REVERSING LENS IN CAMERA.—I have a 5 by 4 Planex reflex camera, and use my lens from my half-plate Goerz-Anschütz (Dagor III.). The lens is really too short focus, but I have made it work by dropping it in the camera backwards reversed—that is, the front lens is inside. Would that alter the focussing of a picture in any way, because I do not get them quite sharp?—REFLEX.

In the case of the Dagor III. lens, reversal can make no difference whatever, as the lens is absolutely symmetrical in construction. We assume that the lens is not mounted in a shutter, but if it is so mounted, then the symmetry of the construction is disturbed to a slight extent. We should not, however, expect to find any appreciable difference, even in this case. With unsym-

metrical lenses reversal will, of course, make a difference, though not necessarily an appreciable one in all cases.

AMIDOL DEVELOPER.—Can you give me a formula with "Amidol" for plates and gaslight paper?—**AMIDOL.**

Make the following stock neutralised sulphite solution:—

Sodium sulphite	4 ounces.
Potass metabisulphite	1 ounce.
Water to	20 ounces.

This will keep for a long time. For use take:—

Amidol	2 to 3 grains.
Stock sulphite solution	100 minims.
Water to	1 ounce.

Add a drop or so of 10 per cent. potass bromide solution for gaslight papers.

PRESS.—A. Both instruments are of a type generally in use by professionals; ii. probably more than i. B i. The chief advantage is the great constancy, the chief drawback the need of high voltage (250) for the best results; ii. apply to A. E. Staley and Co., 19, Thavies Inn, London, E.C. C 1. For a half-plate instrument a lens of about 9in. focal length is best; ii. a good anastigmat of $f/6$ aperture is advisable. You can buy one of the above focal length for about £6.

GELATINE SHEETS.—Where can I buy thin sheet gelatine to dye for filters? I mean to dye it as it is, not to melt and mix with the dye.—**E. A. D.**

From Penrose and Co., 109, Farringdon Road, E.C., but we fancy you will have some difficulty in dyeing and drying evenly.

ALBUMEN LANTERN SLIDES.—Will you kindly inform me in which number of the "Journal" I can find instruction for making lantern slides by the "albumen process"? I believe some articles thereon have been published recently. Is this a suitable process for "stereo" transparencies?—**A. F. P.**

December 20 and 27, 1907. Our publishers can supply. The method is equally suitable for stereoscopic transparencies.

DYES.—Will you kindly tell me what filter dye will cut out the extreme red while transmitting the violet? "Crystal violet" and "filter blue" (Fuerst) both pass this red.

No dye will do this perfectly; those you name are about the worst. Methylene blue or patent blue is about the best.

J. M.—The name is Sumner, and the address, 41, Poland Street, W. You might also write Art Photographic Supply Company, Grosvenor Buildings, Steelhouse Lane, Birmingham.

HYP.—Seven pounds of hypo in three quarts of water (=19 oz. hypo per pint) is too strong. Use at least half or quarter the strength, and see that solution is not colder than 60deg. You should not have any further difficulty in fixing.

ROGERS.—A ten-shilling licence from the Excise is necessary to use a still. That will entitle you to re-distil the used methylated spirit, but you must not in any way attempt to remove the methyl or the petroleum spirit or other impurities, the addition of which is enforced by the law. Neither must you treat the spirit so as to get it beyond the strength that is obtained by simply re-distilling the spirit by simple distillation.

POISONS ACT.—I am told that I, not being a pharmaceutical chemist, must not sell an intensifier that I make, because it contains some bichloride of mercury. I have seen the Poisons Act, and see it is not included in the prohibited things. Will you please say if what I have been told is right or not?—**PROVINCE.**

Yes, it is quite right. Bichloride of mercury is what is called in the Act corrosive sublimate, which is another name for bichloride of mercury. According to the Act, you must not sell your intensifier.

LENS QUERY.—I have just bought a half-plate portrait lens second-hand, but I find it very unsatisfactory, as it will not give sharpness all over a cabinet portrait. When the middle of the body is sharp the head and feet are quite out of focus. This should not be, as the cabinet picture is not so big as the half-plate. The lens bears the name of "Bourquin, London." Can you tell me his address, as it does not appear in the P.O. Directory. If I had the address he might be able to improve the lens at a small cost.—**W. A. WARDELL.**

Bourquin has been out of business for twenty years or more.

He was not a maker of lenses, but a photographic dealer. The lenses he supplied were mostly of French make, and he, as a dealer, merely had his name upon them. You must not expect one of the old form of portrait lens of the half-plate size to take a stand cabinet portrait sharp in all parts. These old lenses had a very round field as compared with modern cabinets and carte lenses, and at the time they were made most portraits were taken sitting, and the round field then is not a disadvantage.

NEW DARK SLIDES.—I recently purchased a half-plate outfit and tried it a day or two ago on some groups which I was asked to take. As far as I know, the plates, developer, etc., were all as usual, but the plates are all fogged. Do you think that this can be due to the apparatus in any way? There are no marks of light entering, but I have been told that perhaps the dark slides, being new, have caused the fog on the plates. Is this likely to be the case?—**SEVENTY BOB.**

Not unless the plates have been in the slides for some days, even then the fog more often appears as a band opposite to the leather hinge of the shutter, the dressing in which is liable to affect the plates. In any case, a few days' exposure of the open slides to light and air will put the matter right.

CLOUDS ON BROMIDE ENLARGEMENTS.—I recollect some months ago reading a description of the method used by Mr. Gill, of Colchester, for printing clouds to bromide prints by means of cellulose negatives containing both the landscape and the cloud. I have forgotten the details, but having a large order for enlargements in which I want to insert clouds, am in hopes that you can assist me by a short summary of the process, or a reference to where I can see it.—**EXCENT.**

The article appeared in "The Photographic News" for December 28, 1906, and is summarised on p. 645 of the 1908 "B. Almanac." Though appearing under the name of "William Gill," we happen to know that Mr. Gill, of Colchester, is not the author.

SELF-DEVELOPING PLATES.—For experimental purposes I wish to prepare some plates which can be developed in water or some simple solution of a chemical. Can you give me a suitable formula, either as a bath for the plates or as a backing mixture?—**SCXXD.**

You can try mixing the constituents of, say, an amidol developer with gum or dextrine to a thin paste, and applying to the back of the plates. Another formula which has been advised is to bathe the plate for two minutes in: Hydroquinone, 1 part; acetone sulphite, 10 parts; water, 100 parts; developing in a 3 per cent solution of potassium carbonate. This is said to reduce the speed of the plate to about half. You should note that a number of patents for self-developing plates have been granted.

R. D. W.—If you told your employer that you would leave unless he gave you a holiday the day before Christmas Day you need not be very much surprised that he paid you off at the end of the week. Employees cannot expect to dictate to employers what holidays they should have. We do not see that, under the circumstances, you are entitled to a week's wages in lieu of notice. You can, of course, if you like, sue for it in the County Court, but it is very questionable if you will recover.

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The British Journal of Photography

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SUMMARY.

The Professional Photographers' Association has drawn up a suitable form of indentures of apprenticeship which is at the disposal of members. At the last meeting of the general committee the question of agreements as to opening within a certain radius was discussed. (P. 71.)

Some further letters on the question of agreements with assistants appear on page 74.

The Association of Professional Photographers in Blackpool have petitioned the municipal authorities in reference to the unfair competition in outdoor portrait photography which is created by the travelling photographers who flock into Blackpool during the summer months—to the number, it is estimated, of from seventy to a hundred. (Pp. 57 and 67.)

A French lady who sued a photographer for £800 damages on account of a postcard showing her attired as a clown was allowed only £8 by the court. (P. 73.)

A recent copyright case in the Manchester County Court, in which the plaintiff obtained an adverse judgment on a purely technical ground, supplies a caution as to the observance of necessary formalities when registering copyrights. (P. 71.)

A German photographer of natural history subjects, in a recent lecture on his methods, described several patterns of camera designed for working with a large-aperture lens at a great distance from the object. (P. 60.)

A recent paper by Herr K. Martin draws attention to the advantage of a lens of the telephoto type for projection purposes, owing to its permitting of a greater distance from the condenser, which latter can thus be made of greater focal length. (P. 58.)

The Australian Government are said to have made arrangements for a very extensive scheme of advertising the country by means of the cinematograph. (P. 61.)

At a recent cinematograph congress in Berlin representatives of the scholastic profession made a strong protest against the demoralising effect of many of the exhibitions, and suggested that it should be made illegal for anyone under fifteen years of age to be admitted to such entertainments after seven in the evening. (P. 58.)

We refer to a few of the obstacles in the way of marking plates with date of manufacture, as suggested last week by a correspondent. (P. 58.)

Some of the methods which may be adopted for modifying the colour of carbon lantern slides are the subject of an article on page 59.

EX CATHEDRA.

The Scottish Salon. The Salon now closed has had a most successful, if short, run, and closed amid a scene of great enthusiasm. The Coates Challenge Plaque and Associates' Plaques in the Fédération Lantern-Slide Competition were presented to the winners. The Town Clerk, who presided, delivered a short closing address, and then the assembled multitude, as with one voice, sang "Auld Lang Syne." Thus ended the sixth Scottish National Salon, which has quite maintained the prestige of its forerunners, mayhap even added to it. The Art Union realised some £36, which is not bad when it is considered that the exhibition was only open eight days. The Salon closed, dispatch was the order of the day, no time was lost, and by Monday night (the exhibition closed late on Saturday) all the pictures were packed and dispatched. Wishaw is proud of the success achieved, and prophesies that the experience gained will enable them to make the next visit of the Salon to their town an even greater success.

* * *

Restriction of Travelling Photographers. The efforts of the recently formed Association of Photographers in Blackpool towards protecting their interests from the onslaughts of travelling photographers will be watched with no little solicitude by photographers similarly placed elsewhere. That Blackpool is a pleasure resort where such competition is most keenly felt is beyond question, and the answer which is frequently made to those who complain, "Produce better work and the public will go to you," is not applicable in the present case, since price, and price alone, is the decisive factor among most of the visitors to the Lancashire seaside town. The union of local photographers are therefore petitioning the municipal authorities to allow outdoor photography to be done only by those who are ratepayers of several years' standing in the borough, and it is to be hoped that this or some effective medium course will be found practicable in restricting the operations of the travelling fraternity, among whom one may depend on finding the "bogus" photographer who takes payment without intention of supplying, and others of a similar fraudulent character.

* * *

Cinematograph Congress in Berlin. A Cinematograph Congress was held recently at Berlin at which was discussed a number of questions relating to the cinematograph as a means of public entertainment, and also as a source of income. Schoolmasters, music-hall and concert directors were represented, as well as cinematograph-film manufacturers, cinematograph manufacturers and proprietors, and cinematograph opera-

tors. The schoolmaster delegates complained of the demoralising effect many of these performances had upon the children, expressing their regret that what might be of valuable assistance to them in imparting knowledge to the young, had only too often an effect upon them which was in no way edifying. In order to overcome this evil, it was proposed to petition the police to make it illegal to admit children under fifteen years of age to cinematograph performances after seven o'clock in the evening. By this arrangement the afternoon performances could be entirely arranged on a plan suitable for children, and those objectionable films which their parents seem to demand for their own entertainment left entirely out of the programme at these afternoon performances. In self-defence, the cinematograph proprietors pointed out that the films about which all the hue and cry was made were not nearly so bad or demoralising as much of the literature which to-day is read by most youths. After considerable discussion the motion of the teachers to petition the police was carried by a majority. A few technical subjects were also discussed, principally lighting, the prevention of any outbreak of fire, and the insurance of cinematograph theatres and apparatus. Nothing of notable importance, however, resulted from these discussions.

* * *

To be Seen at Dresden.

From time to time we have evidence of how popular the camera has become with royalty, and at intervals we have also practical evidence of the enthusiasm with which they prosecute the hobby. Yet it may be news to many to know that there are so many royal devotees to the camera, and they are turning out such satisfactory work that they have decided to place their work on public exhibition, filling with it one of the sections at the forthcoming International Photographic Exhibition at Dresden. The list of these royal personages is too long to detail, though we might mention the King of Saxony, who has consented to act as protector of the exhibition, his son and his daughter, Queen Wilhelmina of The Netherlands, and also the German Crown Prince and the Crown Princess. Another interesting feature of the exhibition will be the practical demonstration of a new system of what we may call pigeon-post photography. A number of trained pigeons are to be sent off from various points in the neighbourhood of Dresden. Each pigeon will carry on its breast a small camera, weighing seventy-five grammes. This apparatus is fitted with a clock-work arrangement for working the film roll and the shutter. During the bird's flight a number of exposures will be made, and when the pigeon arrives at its destination at the exhibition, the film will be developed, and prints made on postcards, to be sold to the visitors. This new invention will probably excite more interest in military circles than among the general public; yet if the experiments prove as successful as is anticipated, they should certainly be a decided novelty to those who witness them. Visitors to this exhibition will have an opportunity of seeing the latest improved apparatus for telegraphic photography, receiving and dispatching photographs to and from the various large towns in Germany.

* * *

Telephoto Lantern Lenses.

An article in "Eder's Jahrbuch," by Herr K. Martin (of the Busch Optical Works) on the uses of telephoto lenses, calls attention to the advantages of the telephoto construction in lantern work. In any lens made on the principle of the telephoto the nodes are some way outside the objective on the side of the positive combination. If, therefore, we use such a construction, in place of the ordinary lantern lens, and with the positive element nearest the condenser, a much greater distance is required between condenser and

projector. This means that the light must be brought nearer the condenser to obtain even illumination, and this involves a consequent gain in light. This is one of the advantages of using a long-focus projector, which many workers fail to realise. Many are surprised to find that a short-focus projecting lens gives a less brightly illuminated picture than a longer-focus lens of the same or perhaps smaller aperture, though the reason is a very simple one to comprehend. Long-focus ordinary lenses have, however, the disadvantage of increasing the distance between lantern and screen. This trouble is got over if we use a short-focus lens of telephoto construction, with which the distance from slide to screen is not much greater than with an ordinary lens of the same focal length. The ideal lantern lens is one with a long "back focus" in proportion to its focal length, and this ideal is, of course, fulfilled by the reversed telephoto construction. The Busch factory are further perfecting the new "Bis-Telar" type of lens for use in lantern work. The only material objection that we can see to the adoption of lenses of this type is the matter of distortion. This defect exists with practically all lenses of the kind, and in a lantern projection it may give a very undesirable effect. Perhaps, however, opticians may find a way to obviate its effects, and the fact that in the latest pattern of "Bis-Telar" distortion is reduced, supports the expectation that they will do so.

* * *

Photography and Art.

We are accustomed to the extravagant claims of those who rank photography among the fine arts, and who make solemn comparisons between modern photographers and the old masters; in fact, we rather like such persons, for they bring humour and bathos into a section of the world that otherwise might only be dully comparing plates, lenses, and developers. We, however, cannot help thinking that a recent writer goes a little too far when he says "Photography is an art, and as an art it should be pursued or left alone." If we could take a census of the photographic world, we should probably find that those who think they pursue photography as an art amount to an insignificant percentage of the total. Are the rest to give it up on that account? This hardly seems reasonable, especially as many of the minute minority do no more than think they pursue it as an art, while of the rest only a few succeed in proving that they do.

* * *

Marking Packets of Plates and Papers.

We referred a short time ago to the advisability of manufacturers more clearly marking the brands, prices, etc., on their packets, but since then a correspondent has made the further suggestion that the makers should add the date of issue. This is a far more serious proposition, but not a new one, for we believe it has actually been tried and abandoned. The objection to it is that it hinders, if it does not prevent altogether, the sale of plates, etc., that are not of the most recent date, and the dealer is then left with a quantity of old and unsaleable—though probably quite good—materials on his hands. Some plates and papers will keep perfectly well for years; but the majority of purchasers will reject year-old plates if their age is ascertainable by inspection of the box. Even a three-months-old box will have a small chance of sale against one dated in the current month, and if the dealer keeps his newest brands out of sight he will soon gain the reputation of stocking old plates only. To protect himself, the dealer must resort to the hand-to-mouth method of keeping no stock, and only ordering small quantities as wanted. This is advantageous to no one, for even the user will prefer an old box at once to a new box that "will, perhaps, arrive to-morrow." It stands to reason that plates must be stored somewhere; if not at the dealer's, then at the manufacturer's,

f at the latter, the "date of issue" will soon mean very little, for it will not show how long they have been stored before issue. The difficulties are even greater in the case of plates exported abroad. Many of these cannot by any chance reach the users till months after issue, and plates that are obviously old will then have a small chance against undated packets from other countries. We agree most fully with our correspondent that it would be very convenient to know the age of the material we buy; but from the commercial point of view we do not see how the dating method can be carried out. It must be remembered that when quite fresh materials are necessary for special work, there is no difficulty in obtaining them. Any dealer will get them if specially ordered, while many manufacturers will supply them direct.

* * *

The Sale of Mercury Bichloride.

In a recent issue, a correspondent raised a question with regard to the sale of mercury bichloride, and in our answer we pointed out that this is called "corrosive sublimate" in the Poisons Act, and that under this name its sale is forbidden except by qualified chemists. We happen to know, however, that this difference in nomenclature is sometimes taken advantage of. We have often bought both mercury bichloride and potassium cyanide from qualified chemists; but while we have always had to sign the poisons book for the cyanide we have never been requested to do so for the other poison. We have actually raised the point at the time of purchase, and been informed that signing was unnecessary under the Act. Now both these poisons are in Part 1 of Schedule A, and signature is essential for all chemicals mentioned in this part. The only possible grounds for the exception made by the chemists is the fact that cyanide of potassium is specifically mentioned, while bichloride of mercury appears only under its old name of corrosive sublimate. This is a quibble only, for there is no possible doubt as to what is meant, and the surprising thing to us is, that chemists should raise such a dangerous quibble apparently for no better purpose than to save themselves the small amount of trouble involved in fetching the poisons book. We have heard it stated that chemists have consulted over the matter, and have come to the conclusion that mercury bichloride is not included in Part 1. We, however, doubt this information, for it is inconceivable that they could arrive at such a foolish decision which would not deserve a moment's consideration in a court of law. The Act is difficult to interpret in some respects, but not in this item. There may be a doubt as to what "preparations of corrosive sublimate" may include, but there is no doubt whatever as to what is meant by corrosive sublimate itself.

* * *

Cinematograph Entertainments.

According to the Paris correspondent of the "Globe," the cinematograph is now one of the most popular forms of entertainment in Paris. Moving picture "theatres" exist at every few yards along the boulevards, while some of the numerous buildings erected as circuses or hippodromes are now turned to account for cinematograph shows, and draw paying houses for the first time in their lives. Of late Londoners have shown tastes in the same direction, and we have frequently heard expressions of surprise at the excellence of the dramas shown on the lantern screen. When, however, we are told that the plays are in some cases written by such eminent men as Rostand, Capus, and Lavedan, while Bernhardt and Réjane have actually acted in some of them, it is evident that the makers of the films spare no expense, and leave nothing undone to ensure that they shall be good. Possibly the greatest wonderment is caused among the uninitiated by the

trick scenes, which are so numerous and such prime favourites. A little knowledge of the possibilities of photography and of cinematography is sufficient to explain many of these tricks; but still a good number of them are mysterious, even to those who think they know a good deal about the subject. The "Globe" correspondent does not reveal any of these subtle mysteries, but he is apparently not an expert photographer, for when explaining that the space within which the scene takes place is marked out by strings tacked to the floor, outside which the actors never step, he says that these strings "mark the edge of the lens!" His article, however, certainly tends to show that cinematography is by no means played out yet as an entertainment. If only these shows are kept free from vulgarity their popularity is likely to increase rather than diminish, for the possibilities of the science of cinematography are far from being exhausted. The only regrettable feature of the subject is the apparent fact that the cleverest films seem to be made in France and not in England, yet there can be no reason why English film-makers, actors, and playwrights should not work together in similar fashion and to the same end.

MODIFYING THE COLOUR OF CARBON LANTERN-SLIDES.

In an article on the production of lantern-slides by the carbon process ("B. J.," November 27, 1908), full working details were described. By this process slides can be obtained in a great variety of colours, thanks to the many tissues their manufacturers have put on the market during the last few years. There are, however, methods by which the colours yielded by the tissues themselves may be afterwards considerably modified; indeed, in some cases they can be completely altered by subsequent toning with different reagents. It is not necessary that the toning be done directly the picture is developed, as it may be postponed until any convenient occasion, and thus old slides which, when seen on the screen, may be thought capable of improvement by a modification of the tint, can easily be dealt with.

It may be explained that in the majority of cases the process of toning carbon transparencies differs entirely from that of toning silver pictures. In the case of a carbon slide—except in one or two instances—it is the gelatine and not the colouring matter that is acted upon by the reagents. Perhaps one notable exception to this should be mentioned. Supposing we have a transparency of a brown or purple colour and we desire to make it of a warmer tone. If one of the pigments in the tissue is alizarine—and most brown and purple tissues contain it—all we have to do is to treat the picture with an alkali, such as a dilute solution of ammonia, or one of carbonate of soda—the latter is preferable—and we then get a much warmer tint, due to the alkali acting on the alizarine and increasing its redness. Prints on paper, it may be mentioned, if alizarine is one of the pigments in the tissue, may have their tints warmed up in the same way.

In the case of the methods we have now in mind, however, it is the gelatine that we have to consider, and it will be recognised that where carbon slides have to be afterwards toned they should be printed in a tissue that is thin of colour—that is, contains but a small amount of pigment in proportion to the gelatine. Such conditions obtain in most of the tissues known as portrait browns and purples. The special transparency tissues, by reason of the large amount of colouring matter they contain in proportion to the gelatine, are not so suitable for our present purpose, since the light in printing does not penetrate deeply, and, therefore, we get but little thickness of gelatine in the finished picture. Furthermore, the

large amount of black overpowers any after colour that may be introduced, for it must be kept in mind that any colour or tint that may be got by toning carbon transparencies must necessarily be *plus* that of the pigment in the tissue at the beginning. At one time it was considered that nothing but the special transparency tissues were suitable for lantern transparencies, but owing to improvement in manufacturing all the ordinary ones, by reason of the fineness of division of the pigments at present employed, these latter may be used for the purpose.

A very rich, warm brown may be added by first immersing the slide in a weak solution of nitrate of silver, say one per cent., until the film is well permeated. The plate is then rinsed under the tap, and flowed over a few times with the ordinary acid pyrogallic acid intensifier, with a few drops of a solution of nitrate of silver added, as in the intensification of collodion negatives. A good formula for our present purpose is the following:—

Pyrogallic acid	40 grs.
Acetic acid	4 drams.
Water	10 ozs.

Silver Solution.

Nitrate of silver	100 grs.
Distilled water	5 ozs.

If a colder tone is desired than is given with the above, 50 grains of citric acid may be substituted for the acetic acid.

If the transparency be put into a weak solution of iodide of potassium, then rinsed under the tap, and afterwards flowed over with a dilute solution of bichloride of mercury a light red will be obtained, owing to the formation of the red iodide of mercury in the gelatine. If a yellow tint is desired the slide is first treated with a solution of bichromate of potash, and then with one of acetate of lead. Here we get the yellow chromate of lead. The tint given by this treatment is very useful for sunset effects.

By taking advantage of the iron salts a great variety of colours, or tones, is obtainable. For example, if the slide be immersed in a weak solution of sulphate of iron and, after rinsing, flowed over with one of ferrocyanide of potassium (yellow prussiate of potash), we shall get a greenish-blue in consequence of the formation of Prussian blue in the film, which may be useful for moonlight effects.

If the slide is put into a one per cent. solution of perchloride of iron until the film is permeated, then rinsed and afterwards flowed over with a two-grain per ounce solution of gallic acid, we obtain a rich velvety purple-black. By ringing the changes on the salts of iron, and also the reagents after—*e.g.*, using pyrogallic acid, infusion of nut galls, or of logwood in place of gallic acid—a great diversity of tones may be secured. A great convenience with the iron salts, as toning agents, is that if the colour when obtained, is not considered satisfactory, it can be entirely removed by immersing the transparency in dilute hydrochloric acid—say, 30 minims to the ounce of water. The picture can then be re-toned—after washing out the acid—with any of the other solutions.

Having in the foregoing indicated how by double decomposition in the gelatine film we may obtain many modifications in the colours or tones in carbon transparencies, we shall in conclusion add a few hints on the manipulatory details. In the first place, care must be taken to rinse thoroughly the film after the slide has been treated with the first solution, so as to free the surface from it before the second reagent is applied. Unless this is done there will be a danger of stains or markings on the surface. The solutions, whatever they are, should be used very dilute, and allowed time to completely permeate the film. This is more important in the case of the first solution than the second. If the requisite depth is not obtained at the first operation, it may be repeated several times if the plate be well washed between each. If the slide is an old one and was treated with alum, it is possible that the film will be hard and repellent of the solution. This trouble may, however, be overcome by putting the plate for two or three minutes in dilute ammonia—say, one part to twenty of water—and then well washing. This will remove the apparent greasiness, soften the gelatine, and permit the solutions to penetrate the film readily. If the glass of the slide has a substratum of bichromated gelatine on it there may be a tendency for the lights of the picture to become slightly tinted in the toning; this, however, may be quite obviated by putting the plate for a minute or two in very dilute hydrochloric acid, and then well washing to free the film of the acid. When slides have been toned by any of the methods just described it is as well to varnish them, as that greatly enhances their transparency, particularly in the shadows.

REFLEX AND OTHER CAMERAS FOR NATURAL HISTORY PHOTOGRAPHY.

IN the course of a recent lecture delivered before a German society, and reported in the current issue of the "Deutsche Photographen-Zeitung," Herr Max Steckel dwelt, among other matters, upon the various types of apparatus specially adapted to the requirements of the photographer of natural history subjects, and particularly of timid animals easily alarmed by the proximity of a camera. The method preferred by the lecturer, in contrast to that of the Kearton brothers and others in this country who patiently wait for hours in a property haystack or cow, was to work at a considerable distance with a telephoto lens. Distance, in fact, remarked the lecturer, was the best disguise of the presence and operations of the photographer; but the ordinary telephoto lens system was recognised by him as possessing the fatal drawback of insufficient rapidity, although Herr Steckel admitted that the latest introductions in the way of telephoto apparatus—namely, the *f*/7 "Bis-Telar" of the Busch Optical Company, and the new telephoto of the Zeiss Works—were of such recent introduction that he had not had

the opportunity of putting them to the test. Yet the fact that many animals could only be photographed towards evening, when they returned to their haunts, made it almost essential to use a lens of the largest possible aperture, whilst, in order to work at a sufficient distance, it was advisable to have a focal length of three to even six feet, though the latter, he admitted, could be regarded as a most extreme measure. Obviously, any apparatus capable even of providing an extension in the ordinary way for a lens of 36 inches focal length could not be highly portable, and, if made on the usual lines with a double or triple extension, was liable at its full length to be lacking in rigidity. Hence, the worker requiring such great focal length was compelled to adopt a mirror method such as that of the Dufour telephoto camera, a model of which was made and shown in London a year or two ago by the firm of Dallmeyer. The rays of light from the lens were reflected from one mirror on to another, and finally on to the plate, the outside dimensions of the camera being thus reduced to about half the focal length of the lens, owing

this doubling of the path of the rays. As a modification of his system, Herr Steckel had advised an apparatus such as that shown in Fig. 1, which consists of a solidly built base on the top of which a mirror, F, is fixed. Two other mirrors placed at about an angle of 45 deg. to the axis of the lens are fitted in the upper part of the camera, a focussing screen is placed vertically at V, and a dark-slide is placed in readiness for the exposure at K, the focal-plane shutter being fixed in front of it. The instant subject is thus viewed on the focussing screen, and exposure is made by a release, which first actuates the mirror S, and then the blind of the focal-plane shutter. But, as the lecturer pointed out in a vein of irony, one of the pleasures of employing the apparatus was the fact that it conferred upon the photographer the society of at least three assistants to carry it. It

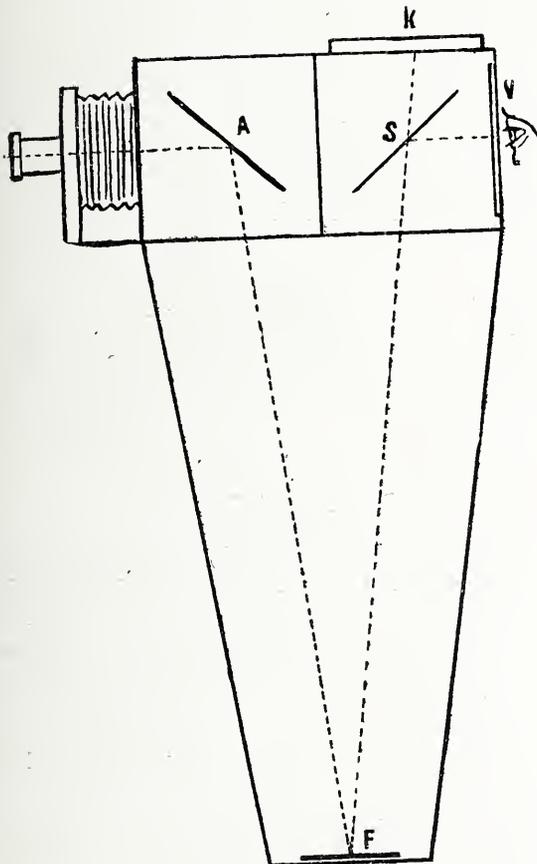


Fig. 1.

was made so that the upper and lower portions of the body could be separated, and the lens, itself also of considerable weight, carried as another parcel. The combined weight and bulk of the apparatus largely defeated its object, since the animal which the photographer might be thus stalking from a distance could hardly fail to perceive the caravan approaching, and most probably take fright. It was necessary for the members of the party to cover themselves with branches and leaves torn from trees, and in this disguise to advance cautiously to their quarry.

Although the author has obtained very satisfactory results with this apparatus, yet for convenience in transport a camera in the shape of a long, narrow box has been found preferable. In this case the reflex principle has been abandoned, and a device employed in its place by which focussing could first be done

and the subject then accurately watched so as to obtain it in proper position on the plate. The method by which this result was secured is illustrated in Fig. 2. The camera is seen to be one focussing from the rear and provided with a back, the lower half of which takes the dark-slide, whilst the upper, No. 2, carries the focussing screen. At the front of the camera is seen a rectangular frame, which is affixed to the lens, and is divided into two portions, I. and II., corresponding to Nos. 1 and 2 at the back. The subject is focussed on the ground-glass (2), and the lens then depressed so that the image is thrown upon the plate (1); the subject itself is then viewed through the sight-

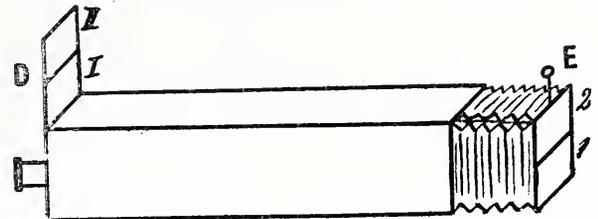


Fig. 2.

hole, E, and when everything is seen to be in readiness for exposure the release is made. The objection to this method, according to Herr Steckel, is that the plate is covered only by the blind of the focal-plane shutter, and has not the double protection which it obtains in a reflex camera. It has, however, the advantage of being used at the eye level; and in order, therefore, to secure these two conveniences in one and the same instrument the pattern of reflex shown in Fig. 3 has been designed. It will be seen that an additional mirror, F, is used in re-reflecting the image from the first mirror, S, on to a focussing

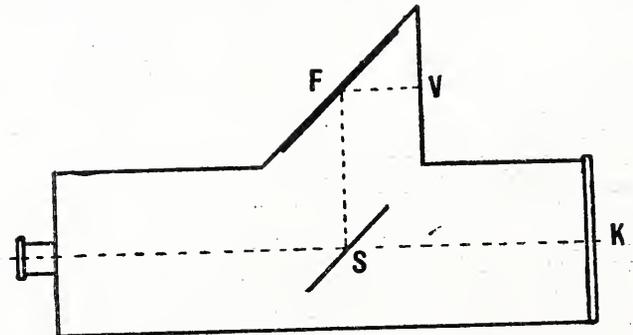


Fig. 3.

screen placed at V. On release of the mirror S in the ordinary way, the image of the subject is received on the plate at K. (It should be mentioned that this method is employed in at least two reflex cameras upon the British market—namely, the "Graflex," of Kodak, Limited, and the "Birdland," of Sanders and Crowhurst. Herr Steckel, however, appears to use this method to the exclusion of the ordinary procedure, in which the image is viewed upon the horizontal focussing screen, whereas in the two cameras mentioned it is employed as an accessory to the usual practice, and is intended to be employed when particularly desirable to use the reflex at a higher level.—Ems. "B.J.")

According to the lecturer, this type of apparatus is commendable, in that the face of the operator is excluded from view. The camera can be partly supported by a strap round the neck, leaving the worker's hands free when required, and the dark-slide is kept well covered.

PATHÉ CINEMATOGRAPHY OF AUSTRALIA.—Advices received by the Australian mail this week, which were telegraphed from Melbourne to Freemantle, the last port of call in the Commonwealth, state that the Federal Government has accepted an offer made by Messrs. Pathé Bros., of Paris, manufacturers of cinematograph films, to advertise the resources of Australia by means of special films illustrative of leading characteristics of the Common-

wealth. The Minister for External Affairs (Mr. Batchelor) states that the Commonwealth is to bear half the cost of the production of the films, and the intention is to take about fifteen pictures at a cost not to exceed £2,200. All the States will be visited. The firm guarantees the exhibition of the films in every European capital simultaneously for one week, after which smaller towns will follow, and alternately country districts.

FIELD WORK OF PHOTOGRAPHIC SURVEYING AS APPLIED IN CANADA.

[To a recent number of the "Internationales Archiv für Photogrammetrie" Captain Arthur O. Wheeler, of the Department of the Interior, Canada, contributes a useful review of the important application of photography in the surveys which have at present been made in the Dominion. In the following abridged version of his article we do not include the passages dealing with exposure and development, the details of which may be assumed to be fairly familiar to photographic readers.—Eds., "B.J."]

COLONEL A. LAUSSEDAT, member of the Institute of France and director of the Conservatoire National des Arts et Métiers, is the originator of the method as far back as 1859. He still continues his investigations, and watches its development with interest; for not long ago the writer received from him a very valuable and scientific paper, entitled "La Métrophotographie," presented to the French Society of Photography, in which he did the writer the great honour of recognising his first attempts in this direction.

The application to Canadian topographical surveys is due to Dr. E. Deville, Surveyor-General of Dominion Lands. His efforts have been attended by much success, and his valuable and complete work, entitled "Photographic Surveying," published in 1895, not only treats fully of the theory of the subject and the methods employed upon Canadian surveys, but briefly reviews its conception, progress, and the methods employed elsewhere.

In Canada the principal surveys upon which the method has been employed are:—(1) Survey of a portion of the Rocky Mountains, by Messrs. J. J. McArthur, D.L.S., and W. S. Drewry, D.L.S.; (2) survey of a portion of Alaska and the Yukon district in connection with the establishment of the boundary line between Alaska and the said district, under the superintendence of Dr. W. F. King, D.T.S., Boundary Commissioner; (3) survey of a portion of the Alberta Watershed for irrigation purposes, by the writer; (4) a number of minor surveys in the Yukon district, on the Columbia River, and in the Kootenay mining district, by Messrs. J. J. McArthur, W. S. Drewry, and A. St. Cyr; (5) a survey of the Crow's Nest coal area during the summer of 1900 by the writer. Since the summer of 1900 the writer has been engaged upon photo-topographical surveys of the Main and Selkirk ranges of the Rocky Mountains along the line of the Canadian Pacific Railway.

It is not the writer's intention to enter into the theory of the science, as space would not permit, and Dr. Deville's valuable work leaves little to be said on the subject by a beginner; but in order to understand the following notes it is necessary to say that the photographs taken are perspectives from which, by the rules of geometry and the inverse problem of perspective, contour-lines for any visible part may be reduced to a ground-plan. The elevation above a given datum and the position of the camera-station being known, any point in a view can be projected on the ground-plan. It is, however, essential that points so projected should be recognisable in two views taken at different stations, and that the two stations and the point form the apices of a fairly well-conditioned triangle. In other words, the imaginary line between the stations is a base subtending an angle of which the point to be projected is at the apex, the accuracy with which it is projected depending relatively upon the closeness of the angle to 90 degrees.

On the plan, the points are placed in position by projecting thereon the traces of the horizon and principal lines of the two views, and the lines of sight from each camera station to the said points. The intersection of the projection of the lines of sight fixes the position of the point. The traces of the horizon and principal lines are required for plotting these lines of direction.

A sufficient number of points along the ridges and dividing water-courses of the area embraced by the two views are identified and projected on the plan, care being taken to select those that will give the best definition of the ground. In order to draw the contour lines in proper position, it is necessary to have the relative elevation above datum-level of the points laid down. These elevations are based upon the elevations of the stations from which the views are taken, and are obtained directly from the photographs. The horizon-line corresponds to the altitude of the station. The elevation of any point in a photograph is proportional to its height above or below the horizon-line and the distance that its projection falls within or beyond the trace of that horizon-line. By means of the scale referred to in Mr. Deville's book, elevations are readily obtained, and subsequently contours are drawn in the proper position. Eleva-

tions should be taken out from both photographs, and thus made check one another.

The above is the fundamental principle of the method; there are however, numerous constructions that assist in obtaining elevation and definition of figures in planes parallel or inclined to the ground plane. For the most part these require the use of perspective instruments, such as the perspectograph, perspectometer, centrolinead, a photograph-board.

One of the most useful and interesting constructions is the method of squares: The perspective of a series of squares is placed upon the photograph, either by drawing or by using the perspectometer. The squares are then projected upon the plan, or such portion of the series as may be required, and the figure which it is desired to trace is drawn at sight. By this means, large streams, flowing through wide, heavily timbered valleys, can be accurately delineated from a rapidly made camera survey, where ordinary survey methods would require a party of axe-men and the expenditure of much labour and time, with results not nearly so accurate in detail. The same applies in many other cases, such as lakes, irrigation systems, towns, villages, parks, etc., provided that suitable camera stations can be obtained at a sufficient elevation to disclose the details of the area to be mapped, and that the plane of the area is near enough to the horizontal to be within the accuracy of the scale employed.

Certain figures in inclined planes can be referred to the horizontal by using the proper constructions.

Field Work.

From the foregoing, it will be seen that the results obtained depend upon the accuracy with which the camera stations are fixed in position and elevation. A triangulation carried to a greater or less degree of refinement is generally employed for this purpose. In the survey of the Alberta Watershed, a primary triangulation was projected over the area in advance of the photographing. It was carried to a fair degree of accuracy, the work being done by a 7-inch transit-theodolite reading to ten seconds and checked at intervals by carefully measured base lines. The sides of the triangles average about 15 miles. A secondary triangulation rested upon the primary and fixed the position of the principal summits. For this purpose a 4-inch transit-theodolite was used, reading to 0.01 degree. Camera stations were located by readings to or from them as found suitable.

At primary points, the signal sighted upon consisted of diamond-shaped drums of white cotton stretched upon a frame attached to a pole, 12 to 15 feet long, surmounted by a white cotton flag. The drum is raised about six feet from the ground, and measures four feet from the upper to the lower apex with the sun in the right direction; no difficulty is experienced in sighting upon either apex at a distance of 25 miles.

For secondary and camera-stations two white cotton targets, set at right angles on a centre pole with a flag, were found all that could be desired.

In timbered areas, material for the foregoing can generally be found at or near the station, and only wire for guys, cotton, and nails need be carried up. The assistant can make the signal while the surveyor does the photographing. In mountainous regions, where the stations are above timber-line, other signals must be employed chiefly rock-cairns.

It is not necessary that the views be taken at the signal; generally, more advantageous and commanding points are found at some distance.

Camera-stations may be located by one of four methods:—

(1) If close, by taking at the signal the azimuth from a convenient primary or secondary point, and measuring the distance with a tape; this is the easiest and most accurate method.

(2) If distant from the signal or an independent summit, by erecting a signal and reading upon it with the transit from outside fixed points.

(3) By taking one reading upon it from an outside fixed point, and the station two readings on other fixed points.

(4) By taking four or more readings at the station on outside fixed points.

To utilise the third and fourth methods when constructing the map the readings are plotted on tracing paper, and lines drawn in the directions obtained. The paper is shifted round until each line passes through the station to which it belongs. The point from which the lines radiate is then the location of the station on the map, and can be pricked through.

The last method may be advantageously used in the absence of an organised system of triangulation, when the survey is of an exploratory nature and is not carried to a high degree of accuracy.

Most topographical maps are referred to sea-level as a datum; it is therefore necessary that the elevation be carried from some point of known altitude and applied to all the stations of the survey. The relative elevations are obtained from vertical angular readings with the transit instrument, carried to a greater or less degree of refinement.

It will be readily conceived that a difficulty is experienced in finding camera-stations sufficiently commanding to overlook deep valleys and the streams, roadways, etc., passing through them; also, that projecting spurs will frequently obstruct the view. To obviate this difficulty and ascertain the points where contour-lines cross, traverses have been conducted up the main waterways, road-beds, and pack-trails.

The lines of direction for such traverses are obtained by angular transit-readings at each station, commencing at a point of known position, and are referred to the astronomical meridian. The elevation is carried through by vertical angular readings at each station, back and forward. For distance some pattern of stadia or micrometer is used. The ordinary chain would be impossible or too slow, requiring a large gang of axe-men and chain-bearers.

In the Alberta Watershed and Crow's Nest surveys, a modified form of the Lugeol micrometer has been employed. It is manufactured by Mr. A. Hurlimann, of Paris, and has been found to give adequate results. Sights can be taken up to one mile in length, from side to side, or point to point, of the valley at sufficient elevation to overlook the heavy timber generally found in the bottoms. It consists simply of a telescope, having a bisected object-glass, one of the halves being movable along the line of section by a screw. Two images are formed in the field by the bisected lens. Distances are determined by the number of screw-revolutions necessary to bring into optical coincidence the upper and lower targets of the reflected images. The targets are best made of white opal glass set in wooden frames, and are fastened to a rod a known distance apart: say, 15 to 20 links (10 to 13 ft.). This is called the base; it is generally furnished with an iron shoe and is stuck into the ground in a vertical position, the targets extending sideways at right angles. Attached to the screw of the movable half of the object-glass is a graduated head which measures in revolutions and hundredths the section of the screw passed over in making the coincidence of the targets. It is merely necessary to find the value of a revolution, in order to enable the distance to be determined for each reading. Tables can readily be constructed so that distances can be taken out by inspection.

The instrument is subject to error from three principal sources: (1) Error due to uneven refraction; (2) error due to wear and tear of the screw in the most used parts; and (3) error due to the base not being held perpendicular to the line of sight and the station being at a different altitude. The third error may be corrected by using the vertical angles read at each station with the transit. The first and second errors can only be reduced to a minimum by multiplying the readings.

The distance error of a traverse of this description varies from 1 in 50 to 1 in 400. By checking frequently upon the triangulation and camera work, it is all that can be desired for the purpose.

From 4 to 6 miles a day can be accomplished over very rough ground by a party of three men.

The surveyor's compass is sometimes substituted for the transit-theodolite, but is not so satisfactory, although more rapid.

The depth of the bottom of the valley below the traverse-section is measured by an aneroid barometer with sufficiently close results.

The country passed over is rapidly sketched in the field-notes of the traverse, and these notes are found very useful to show where the affluent watercourses between the ridges join a main stream, also minor details that cannot be covered by a camera.

Photographing.

The camera and mountain transit used in connection therewith are fully explained in Dr. Deville's book. It is first necessary to adjust the camera carefully, so that the true focal length may be marked by notches on the metal frame against which the plate presses. These notches are reproduced on every view taken, and give the focal length of the bromide enlargements used to plot the survey. (Figs. 1, 2, 3, and 4.) It is further necessary to obtain the readings of the spirit-levels attached to the camera when the plate to be exposed is in a true vertical position. As it is essential that the plate be vertical when the view is taken, the adjustment must be very carefully made and requires some skill.

Upon Canadian surveys a slow isochromatic plate has been used. It is manufactured by Mr. B. J. Edwards, of London, England, or by Mr. G. Cramer, of St. Louis, Missouri, U.S.A.; as the latter firm has, the writer understands, bought out the American patent of the former, both are practically the same plate. All views are photographed through an orange or lemon coloured screen, to equalise, as nearly as possible, the time of exposure required for the various coloured rays and to admit of a sufficiently long exposure to obtain detail in the shadows.

Before commencing work it is necessary to find the unit of exposure for the batch of plates about to be used. This should be done as near as possible to the field of operations, as the altitude and character of the country are factors of considerable importance.

Considerable difficulty is experienced in reaching many stations with the instruments, and the best part of the day is frequently taken up in doing so and returning; so that, when at the station, the views must be taken whether the conditions are favourable or not.

It may be laid down as a general principle "give plenty of exposure," and the writer might almost add as a general rule, "give the right exposure, and half as much more." From an under-exposed plate but little can be obtained that will be serviceable to plot from. The shadows in the negative are clear glass, giving black blotches without detail in the enlargement. What is not there cannot be brought out. On the other hand, an over-exposed plate may, by skilful treatment, be made to yield a fairly good enlarging negative. In fact, a plate exposed twice or even three times too much will still give useful results.

The Canadian cameras are oblong in shape and can be used in what is designated as either the horizontal or vertical position. In the former, the field covers about 57 degrees of arc, and it requires seven views to complete a circuit, making due allowance for overlap. In the latter, about 38 degrees of arc are covered and eleven views required. The vertical position is used to photograph deep valleys immediately below the station, which would otherwise be cut out of the field.

It is the exception that a full circuit is completed from one station, nor are stations often found where this can be done with advantage. As the writer has already stated, views cannot always be taken under the best conditions for photographing; when, therefore, a circuit has to be made from one or more stations on a hill, it is wise to commence as near as possible on the right of the sun, without allowing it to shine on the lens. By the time the last view is reached, the sun will have moved sufficiently to admit of its being taken. Photographs near the direction of the sun require longer exposure. If absolutely necessary, a view can be taken directly under the sun by cutting off the rays from the lens. In such a case, at least four times the exposure authorised by the state of light is required.

The orientation point of a view is the point selected from which to obtain the direction of the distance and horizon lines and enable their traces to be laid down on the map for plotting purposes. The azimuth of this point is obtained by an angular reading, from some convenient primary or secondary signal of the triangulation. If the position of some such signal-point can be identified in the photograph, and there is no doubt as to its recognition, it serves the purpose of an orientation point, and no other need be located. For the above purpose, a three-inch transit-theodolite, specially built by Messrs. Troughton and Simms, London, is used. It is set on the same tripod as the camera, and is conveniently arranged for carrying. (See "Photographic Surveying," by Dr. E. Deville, pp. 138 and 139.)

It is advisable to have at least two orientation points in each view, in case of one failing to come out clearly in the development of and

enlarging from the negative. Failure to identify an orientation point renders an enlargement useless for plotting.

Difficulty is frequently experienced in finding suitable points. It is of first importance that those selected should be certain of recognition. Great care should be taken that the points chosen are suitable for identification; a point may be visible in the negative and yet not appear in the enlargement. It is not wise to accept objects at a great distance, unless clear and very sharply defined. Distance, as a rule, requires less exposure than the nearer parts of the landscape, and consequently the points, if too distant, may be lost in exposing for the portion of the view required for the plot. The top of an isolated, or comparatively isolated, tree, a sharp-pointed hill, a nose or peak of rock, the gable of a house or corral, a snow-spot, and sometimes the corner of a pond are good objects. Sticks, stones, trees in the mass, rounded hills, and distant mountain points, although enticing, are very uncertain. Seen through the telescope, an object looks large, but on the plotting-photographs the same object can be obscured by the point of a needle. A rough pencil sketch added to the camera and transit-notes will materially assist identification. In the notes, the hour of the day, stage of light, time of exposure, limits, and general character of the view are entered; also, a few remarks as to the kind and relative quantities of timber in each view, thus enabling an efficient timber-map to be made.

A small dark tent is used for changing and marking plates. It is not advisable to use it until after dark or in deep twilight. If used in bright sunshine, plates may be fogged. A ruby lamp renders changing at night easy, although doing so in the dark is preferable, and merely a matter of practice. By a simple contrivance of snaps and ring, the dark tent can be hung within another tent in a very short time, and so avoid the disturbing element of wind.

It must not be supposed that a simple collection of photographic views and transit-readings, as described above, is all that is necessary to furnish the data of a topographical map. On the contrary, it is only the mechanical portion of the work. To succeed, the operator must be by nature and training a good topographer, with a cast-iron constitution. He must have the knack of finding his way like the Indian; nothing should escape his observation that will tend to an accurate delineation of the country. He must impress upon his memory and be able to recall the panorama seen from every photographic station; doubtful parts must be explored, and stations selected to give the best possible view. He must bear in mind that every part has to be seen from at least two points, sufficiently far apart and so placed that they will give a good base for plotting. It has been said that the mapping can only be done by the surveyor who does the field work; while the writer does not hold with this view entirely, there is no doubt that a better, more artistic, and more accurate map can be turned out, provided the surveyor has the necessary attainments as a draughtsman. Unfortunately men who are equally adapted to field and office work are few and far between. By taking certain precautions with the field work (such as indicating

the triangulation and orientation points upon the photographs and furnishing a plan of the triangulation points and camera-stations together with the direction of the limiting lines of each view), the writer believes that the work may be handed over to a good topographical draughtsman, who, provided he has had some experience of the field work, can turn out a fair representation of the area surveyed; but, at the same time, it will probably lack much of the vim and accuracy of detail that can only be obtained from an intimate personal knowledge.

Office Work.

The developing and enlarging of the photographs and plotting of the map do not fall within the scope of this paper, but a few words may not be amiss. Any professional photographer can develop the plates and enlarge from the negatives, more or less successfully. To obtain the needful results, however, it is desirable that the surveyor should be trained to do the work himself. He then knows what portion of the view to develop and, when enlarging, what parts to bring out most clearly.

Dr. E. Deville in his book goes carefully into the subject of developing and enlarging, and the writer can say from experiment that his instructions, based upon the best scientific observations, if carefully followed, will give good results.

On Canadian surveys most of the enlarging is done during the winter months, when daylight is short and uncertain. To obviate the difficulty, a 50 candle-power electric lamp is used with the enlarging camera described in Dr. Deville's "Photographic Surveying," and gives a steady, uniform light. The highest density of the negative may be measured by the photometer, and the time of exposure deduced from such measurement. A little practice soon enables the operator to judge the necessary exposure the moment the view is thrown upon the screen. By skilful shading of the thin portions of the negative, the denser parts are given sufficient exposure without blotting out the weaker ones and a uniform print is obtained.

Plotting the contours and drawing the map generally is the most tedious stage of the method. The time required depends to a large extent upon the scale employed and the character of the country. Mountain regions, where the features—ridges and valleys—are massive, can be more rapidly delineated than foot-hill country, which is more broken in character, and not so well defined in contour.

The scale upon which the Canadian surveys have been mapped is as follows:—Rocky Mountains' survey, $\frac{1}{20,000}$; Alberta Watershed

and Crow's Nest survey $\frac{1}{30,000}$; Alaska surveys, $\frac{1}{80,000}$. The

larger the scale the greater is the detail required for the drawing. The office work occupies at least twice the time of the field work. To offset this the field work can be accomplished in half the time required for any other method.

ARTHUR O. WHEELER.

EXPERIMENTS IN COLOUR-SENSITISING CHLORIDE EMULSIONS.

IV.

Results with Emulsions Sensitised before Coating.

EOSIN EMULSION CHLORIDE PLATES.—The best result of the emulsions above mentioned was obtained with that containing 6 ccs. dye solution 1-500 per litre, the negative of which corresponded fairly closely with the bathed plate obtained in a dye bath of 1-50,000, although on account of its relatively high content of dye it did not equal the best eosin-bathed plate as regards density. Its sensitiveness extended according to the time of exposure up to wave length 560 to 590. Like the bathed plate, it gave a maximum at about 545. (Fig. 12.)

ERYTHROSIN EMULSION CHLORIDE PLATES.—The best results were obtained with a plate containing 6 ccs. of 1:500 solution per litre of emulsion, and came near those obtained with a 1-50,000 bathed plate. The band of sensitiveness extended from 570 to 610, obtaining a maximum of action at 505 to 585, that for the bathed plate lying between 480 and 600. (Fig. 13.)

ROSE-BENGAL EMULSION CHLORIDE PLATES.—As with the two previous dyes the best results were obtained with the largest portion of dye and were, in the case of rose-bengal, superior to the result by bathing. The band of sensitiveness extended from

550 to 600, the average minimum was again about 435, and the maximum at 550, the latter having suffered a distinct shift towards the blue. (Fig. 14.)

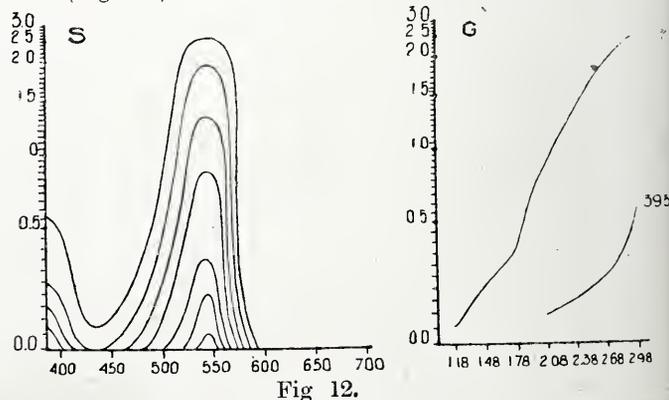


Fig 12.

ETHYL-RED EMULSION CHLORIDE PLATES.—In comparison with the bathed plates the result of all three emulsions was inferior, as

the best case with 6 ccs. 1-1,000 dye solution per litre the result is comparable with the bathed plate 1-200,000. A test was made of the commercial ethyl-red plate sold by the firm of Perutz as the "Perchromo," and it was found that its maximum lay at 530 and 580. These differed quite inappreciably from the results on the chloride emulsion, the band of sensitiveness in the yellow and orange being distinctly more uniform. (Fig. 15.)

PINAVERDOL EMULSION CHLORIDE PLATES.—These gave the best result with the largest proportion of dye. The second exposure of 30 seconds gave a maximum between 560 and 590. There was therefore no shift of the maxima compared with the bathed plate in the case of the longer exposure. (Fig. 16.)

these plates were somewhat fogged, a defect which was allowed for by measuring the fog and making necessary allowance in the density measurements of the different parts of the spectrum. The best action was given by the largest proportion of dye, and a notable distinction in comparison with the bathed plate was that the general depression of sensitiveness was not observed. The action in the green is very slight, and, as with the bathed plate, the maxima of sensitiveness lie in the same place, whilst the colour effect extends far into the red. (Fig. 20.)

DIAZO-BLACK EMULSION CHLORIDE PLATES—As these plates showed such weak action no measurements could be made. The sensitiveness appears to fall off towards the red end of the

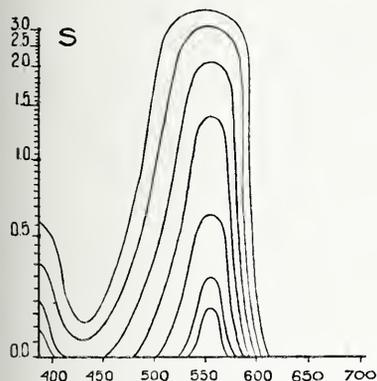


Fig. 13.

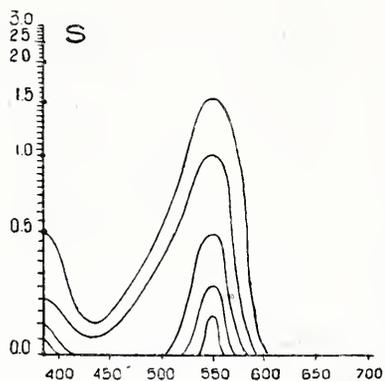
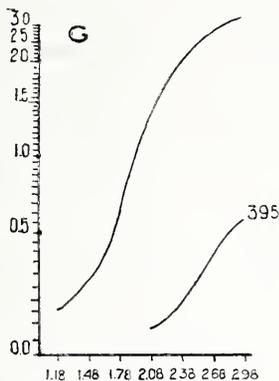


Fig. 14.

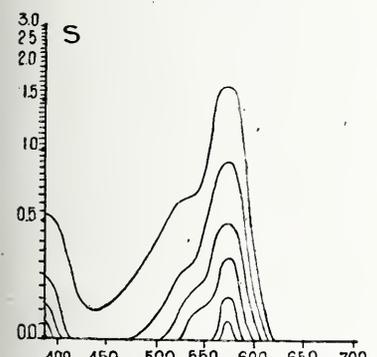
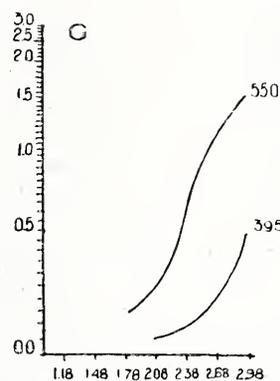


Fig. 15.

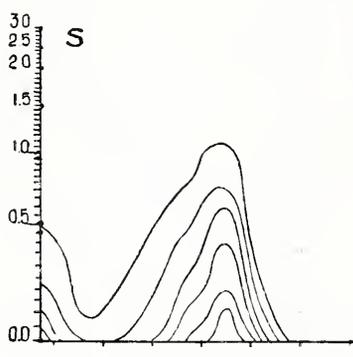
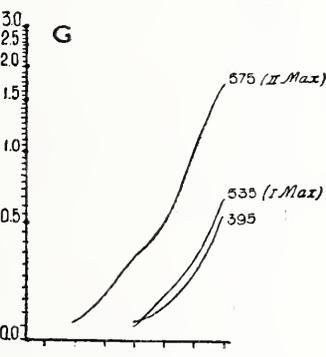


Fig. 16.

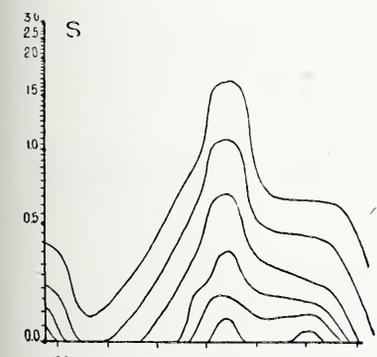
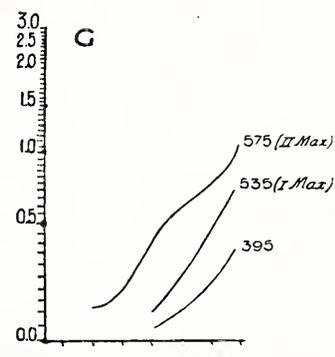


Fig. 17.

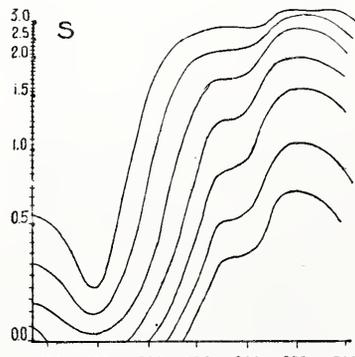
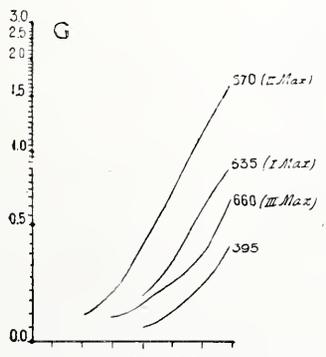
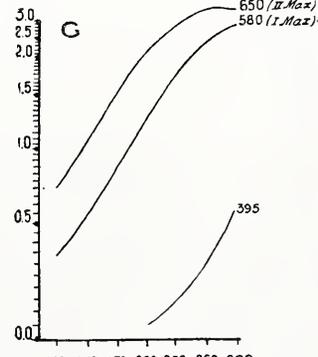


Fig. 18.



ISOCOL EMULSION CHLORIDE PLATES.—The 6 ccs. of dye gave the best result. (Fig. 17.)

PINACYANOL EMULSION CHLORIDE PLATES.—Here again the best result was given by the highest proportion of dye, the general properties of the plate being closely similar to those of the bathed plate, so that what was said in regard to it applies to the emulsion plate. (Fig. 18.)

CYANIN EMULSION CHLORIDE PLATES.—The higher proportion of dye gave the best result. The gradation of the emulsion plate is distinctly harder than that of the bathed plate, and this modified property appears to account for the densities of the general sensitiveness of the plate. (Fig. 19.)

DICYANIN EMULSION CHLORIDE PLATES.—As already mentioned,

spectrum, as no maximum of colour action could be noticed. Compared with the mother emulsion the general sensitiveness was depressed. (No figure.)

Ripened Bathed Chloride Plates.

IN order to ascertain whether, and to what extent, the state of ripening of the chloride emulsion affects the sensitising, an ammonia emulsion was prepared and digested for half an hour at 50 deg. C. The ammonia thus added to the silver nitrate solution was so adjusted that the precipitate formed was again dissolved, otherwise the conditions were the same as regards preparation, etc., as already described in the case of the unripened emulsion. A sample of the emulsion taken immediately after digestion appeared bluish-grey by transmitted light, resembling ripened silver bromide, and it

showed in the microscope a characteristic grain which was considerably coarser than the fine grain of the unripened chloride emulsion, without, however, being as coarse as that of an ordinary dry-plate. The prepared plates worked cleanly and were of practicable use, they showed, however, compared with those unripened, a dirty surface in the form of matt spots.

But exposed in the spectrograph and developed with ferrous citrate under the conditions already mentioned, the emulsion which had been treated with ammonia and digested gave much greater unevenness of sensitiveness, and at the same time greater flatness than in the case of the neutral unripened emulsion, a difference which was noticed not only in the case of the plain chloride plates, but

ing of the grain on ripening. In making comparison as regard sensitising of ripened and unripened plates the experiments were confined to the bathing method and to the two dyes, eosin and isocol. These are used in the concentrations of 1:15,000 and 1:50,000 respectively, which had been previously found best, the plates being treated as previously described.

Unripened eosin-bathed chloride plates.—Considerable sensitising took place giving maxima at 545 and 395 $\mu\mu$, with an exposure of 960 seconds. In the case of lesser degrees of exposure the sensitiveness curves ran almost parallel. (Fig. 21.)

Ripened eosin-bathed chloride plates.—The action was extremely small, the densities obtainable not being as great as with the

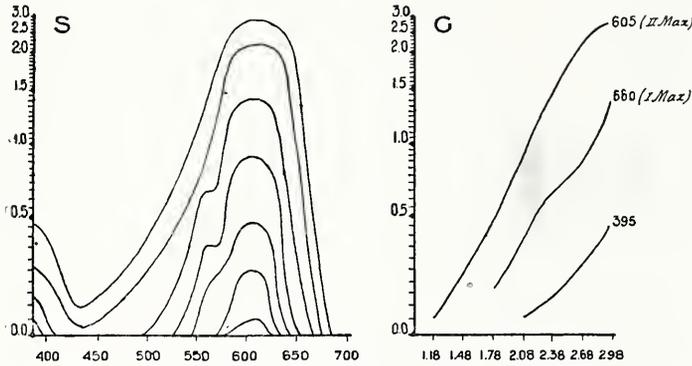


Fig. 19.

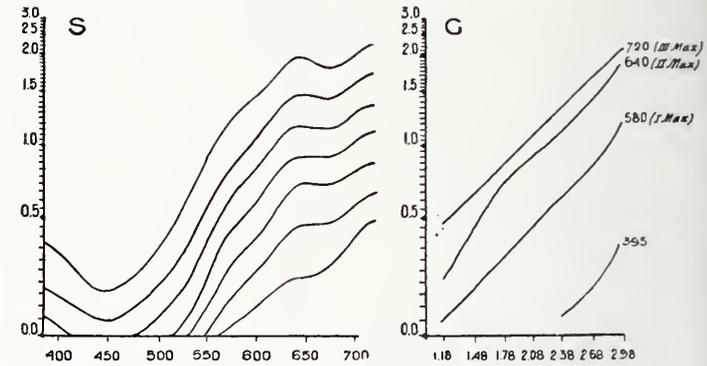


Fig. 20.

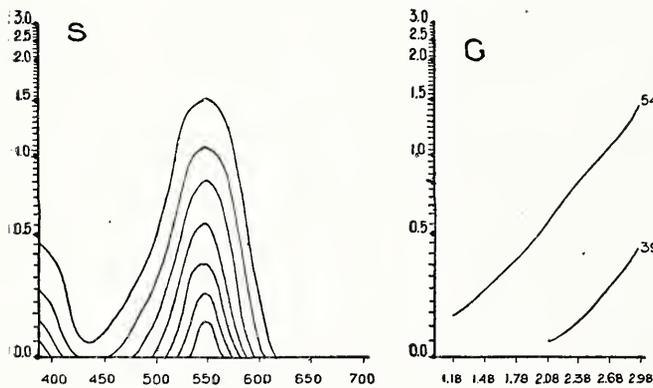


Fig. 21.

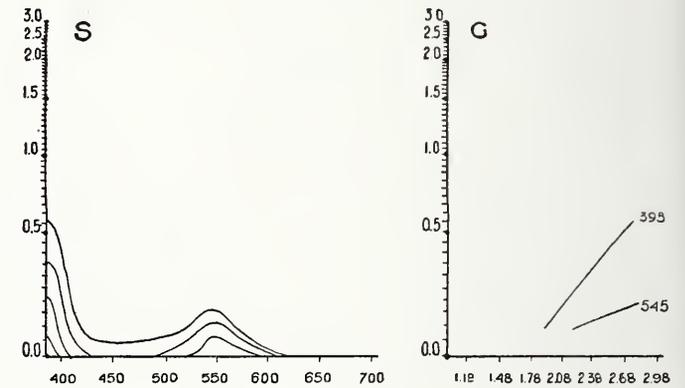


Fig. 22.

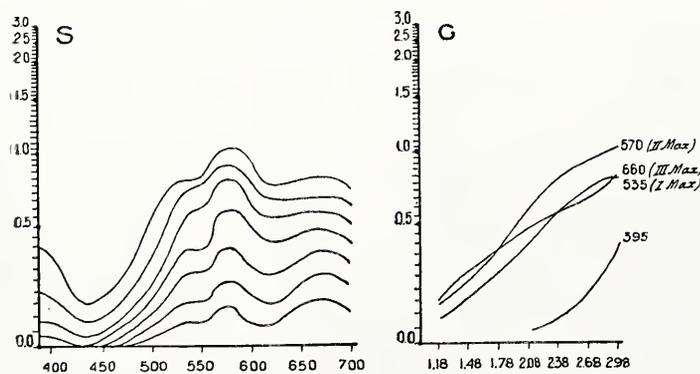


Fig. 23.

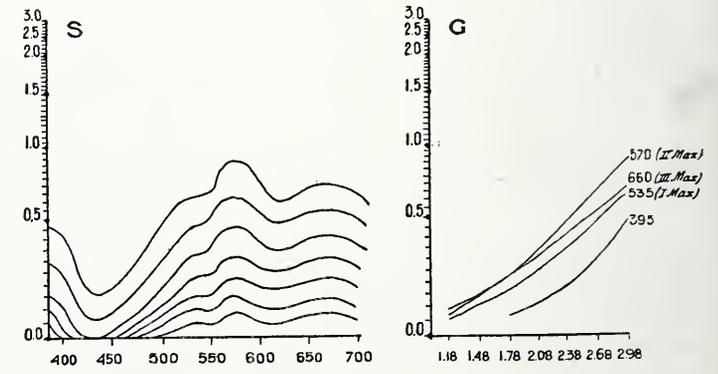


Fig. 24.

also in the subsequent bathed plates. In order to make a fairer comparison between unripened and ripened emulsions parallel experiments were made and two emulsions, one ripened and one not, were prepared in the way already described, and one put away to prevent any action of ammonia. Coating, sensitising, bathing, exposure and development were done on the same days, and as a result it was found that a stronger development of the spectral bands was noticed in the case of the ripened emulsion. In daylight the difference was equally plain, the more sensitive emulsion quickly assuming a dark blue-grey colour with a tinge of violet, whilst the other darkened more slowly and with a more reddish colour, and at the same time a more distinct odour of chlorine was noticed. The structure of the reduced silver showed the characteristic coarsen-

mother emulsion. The sensitiveness curve for an exposure of 960 seconds rose to 395 $\mu\mu$, falling then without a distinct minimum to a small maximum at about 545 $\mu\mu$ and finishing at 620 $\mu\mu$. The scale of gradation was similarly very small. (Fig. 22.)

Unripened isocol-bathed chloride plates.—The three maxima already mentioned were obtained and the sensitiveness curve quickly rose extending into the red beyond the limits of the spectrum. The gradation curve followed an almost parallel course under C. 50, whilst that of the first was somewhat flatter. (Fig. 23.)

Ripened isocol-bathed chloride plates.—The three maxima were the same as in the unripened plates, but showed a somewhat flatter curve as the colour sensitising altogether is slighter. (Fig. 24.)

F. WENTZEL.

THE BLACKPOOL PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION AND TRAVELLING PORTRAIT PHOTOGRAPHERS.

reference to the unfair competition by non-resident photographers photographic canvassers who flock into Blackpool during the summer season, the Blackpool Professional Photographers' Association has addressed the following petition to the municipal authorities. The petition is signed by twenty-five professional photographers resident in Blackpool:—

We, the undersigned, being burgesses and ratepayers of this borough, wish to draw your attention to a very serious grievance which we are at present suffering from, and we humbly beseech you to help in this (to us) very pressing evil. We are all of us professional photographers residing in this borough, with studios, shops, and premises, for which we are paying rates and taxes, with rents especially large dues levied on us for water. We are also large consumers of artificial light, both gas and electricity. In the aggregate, we estimate that we pay several thousand pounds yearly, and we think we are justified in asking your help to overcome the special difficulties we are suffering from.

One of the most serious of these difficulties at the present time is the unfair competition we are having from a large number of transient photographers who make a happy hunting-ground of Blackpool in the summer months, who do not help in any way towards the welfare of the town, who merely come here for a few months to get what profit they can (much of it through misrepresentation) without paying anything in the shape of rents or rates for the privilege of doing so. They are, as a rule, a class of men who would not be employed in any respectable studio, and the amount of our losses through such men in business and prestige is incalculable.

It has been variously estimated that the number of such street photographers staying in Blackpool last year, was somewhere between 70 and 100. Now, as there are only about thirty studios in Blackpool, paying high rents and under heavy expenses—all doing their best to cater in a fair way for the needs of the public—it can be seen how badly handicapped are the professional photographers as opposed to these outsiders who pay absolutely nothing at all in the shape of rates and taxes.

There is also another very serious side to this question, and this is the grievance of the public.

The public is bluffed into paying high prices for very inferior work. Owing to these men having no reputations at stake, they care no pains in making their work permanent, and the visitors suffer the consequence.

Their modus operandi is briefly as follows:—They walk uninvited into boarding-houses, and under the pretence of coming from the nearest studios, bluff the visitors into being photographed; and as many of these men are questionable in character, it is very undesirable that they should be allowed to do so.

With due respect to the governing authorities, we would like to suggest the following remedies:—

1. A special "local licence" should be granted to outdoor photographers.

2. Applicants for such "licence" should be ratepayers for several years previous to such "licence" being granted.

3. This "licence" should not be transferable.

With regard to the local licence, it seems to us on a par with the restriction of the foreshore, which was so excellently solved by the local authorities some few years ago.

As to the second suggestion, we think it would be desirable to ward against itinerants taking a cottage or basement for a few months in the season, and so passing for bona-fide ratepayers. We think it only fair that this licence should not be transferable, in order to guard against the possibility of these men persuading a householder to procure a licence in his name for their special use.

In conclusion, we have stated our case in a moderate way, but we would like to refer to the numerous complaints that have been made to boarding-house keepers and hotel proprietors as to the annoyances caused to their patrons through the loss sustained in not getting their orders completed after previous payment for photographs, and being unable to find the men who have received their money, and complaints which the Chief of Police could largely supplement. We are confident of the sympathy and support of the public of Blackpool, and they, as well as ourselves, would like to see this kind of business under the effectual control of the local authorities.

Photo-Mechanical Notes.

An Old and a New Colour Printing Process.

Messrs. Kronheim and Co. have issued as an almanack a Baxter print produced in exactly the same way as thirty years ago. The print itself is scarcely improved by the garish design that surrounds it, but apart from that we do not think that photo-engravers need be afraid of the revival of this process, which must be both difficult and costly. The new process is the "Mezzochrome" process of the Fine Art Publishing Company, Limited, who announce the first view of the new production this week at 29A, Charing Cross Road. This is an application of the Rembrandt photogravure process to colour work, and if the colour work proves to be anything like so good as the black and white done by this process, there should be a good market for such prints, especially as they are to be sold at moderate prices.

The Commercial Side of Photo-Engraving.

Mr. Arthur Cox in his recent lecture at the Bolt Court School indulged in some plain speaking regarding costs and prices. He said it was essential to know the actual cost of work going through, and to know it accurately. He thought most engravers could not know this; if they did, he did not fear cut prices, because it was not in human nature to sell at 3d. what cost you more than 4d. He said it was foolish to try to economise by reducing wages. Men should be paid well, but must earn their money. He condemned the "scale" advocated by some American engravers, and said that a square inch rate of charging was not so insane as many people seemed to think it was; only if you sold per square inch it was necessary to know average costs per square inch. In fact, so convinced was he that a square inch rate was a reasonable proposition, that his firm were actually quoting some of their artists' work to Continental customers by the square inch, and they had found it quite satisfactory. Many questions were asked and answered, and as the cream of the photo-engraving trade was present some good should come from the lecture.

Penrose Pocket-Book and Diary for 1909.

This handy little book is to hand, and is replete with everything the photo-engraver needs in the way of formulæ and tables for his daily work; in fact, the amount of information contained in such a slim volume as well as the diary and cash columns, etc., is simply remarkable. This year there is included a free accident insurance policy, and we can only suggest that a page for personal memoranda, which most diaries now contain, would make the book a complete model of what such a pocket-book ought to be, and an example to those who think that people wish to carry about with them pages of large type advertisement mixed up with useful matter.

Two Good Books.

Messrs. Marion and Co. are offering "A Handbook to Photography in Colour" (published at 5s.) and "Practical Guide to Photo-printing and Photo-mechanical Processes" (published at 4s.) for 1s. 6d. each. To the photo-engraver both these books are most valuable, and if he does not already possess them he should take this opportunity to acquire them. It is true that Burton's book on printing is dated 1892, but it contains the clearest exposition of the processes dealt with that has ever been written, and most of the processes have not changed since the time the book was published.

MR. RICHARD SPEAIGHT left London last week for Madrid, in response to a cable received from the Private Secretary to H.M. the Queen of Spain, who has graciously consented to give a sitting from herself and children, in order to enable Messrs. Speaight to include the portraits in their exhibition entitled "Fair Children and their Mothers," which they purpose holding in their Bond Street Galleries during the coming season. It will be remembered that recently the German Crown Princess and her children gave sittings at the Royal Palace, Potsdam, to Mr. Speaight for the same purpose. The exhibition will also include portraits of the children of the Princess of Wales, the Crown Princess of Sweden and her children, and a large number of the aristocracy, for which special sittings have already been given.

Exhibitions.

AYR AMATEUR PHOTOGRAPHIC SOCIETY.

THE Ayr Amateur Photographic Society is only fifteen months old, but its members include some enthusiasts of irrepressible energy, for it has just held its first exhibition. In the Lesser Volunteer Hall, two hundred exhibits were tastefully displayed, half of these being by members of the club. In the open class Dan Dunlop came out on top in a strong class with his celebrated "Edinburgh Castle from Grayfriars." The second prize goes to James McKissack for his delightful "The Fairies' Harbour," which our Scottish readers will remember was reproduced in the catalogue of last year's Scottish Salon. "With Tottering Step," in the members' section, by John McClure, was adjudged the best picture of the show, and also gained first prize in Class II.; second prize in that class being gained by Dr. Lauder Thomson with "The Man at the Wheel." Other awards in the members' classes were:—Landscape or seascape—1, "The Mists of Early Morn," A. T. Hart; 2, "After the Rain," John McClure; h.c., A. T. Hart. Contact print—1, "Path Through the Field," R. F. Hutchison; 2, "Silence," John McClure. Outings—1, "The Hillside," John McClure; 2, "Stoney Ways," A. J. Ferguson. Mr. G. L. A. Blair, Mr. A. W. Hill (S.P.F. judges), and Mr. R. Smeaton Douglas, F.S.A., were the judges. A notable feature of the exhibition is a special loan selection by the Glasgow Photographic Art Circle direct from The Salon. A series of entertainments were run during the week.

FORTHCOMING EXHIBITIONS.

- January 6 to 27.—Northern Photographic (Manchester). Sec., S. L. Coulthurst, Broad Oak Road, Worsley, Manchester.
- January 19 to 30.—Glasgow Southern Photographic Association. Sec., Robert Lindsay, 189, Allison Street, Glasgow, S.S.
- January 27 to 28.—Bedford Camera Club. Sec., K. Gammell, 21, St. Peter's, Bedford.
- February 1 to 13.—Glasgow and West of Scotland Amateur Photographic Association. Sec., James McKissack, 68, West Regent Street, Glasgow.
- February 3 to 6.—Borough of Tynemouth Photographic Society. Entries close January 23. Sec., J. R. Johnston, 29, Drummond Terrace, North Shields.
- February 8 to 13.—St. Helen's Camera Club. Entries close January 27. Sec., A. G. Else, Duke Street, St. Helen's, Lancs.
- February 10 and 11.—Cowes Camera Club. Entries close February 1. Sec., E. E. Vincent, 4, High Street, Cowes.
- February 10 to 13.—Cleveland Camera Club. Entries close February 1. Secs., F. W. Pearson and R. Walton, 39, Granville Road, Middlesbrough.
- February 11 to 20.—Leicester and Leicestershire Photographic Society. Sec., Harry Cross, 80, Harrow Road, Leicester.
- February 16 to 20.—Norwich and District Photographic Society. Entries close February 2. Sec., J. T. Tanner, The Lodge, Bowthorpe Road, Norwich.
- February 20 to March 6.—Edinburgh Photographic Society. Entries close February 6. Exhibition Secs., Edinburgh Photographic Society, 38, Castle Street, Edinburgh.
- February 20 to March 20.—South London Photographic Society. Sec., H. Creighton Beckett, 44, Edith Road, Peckham, S.E.
- February 22 to March 6.—Birmingham Photographic Society. Entries close February 12. Sec., Lewis Lloyd, Church Road, Moseley, Birmingham.
- February 26 and 27.—Ilford Photographic Society. Entries close February 18. Sec., H. Eales, 53, Coventry Road, Ilford, Essex.
- March 11 to 13.—Coventry Photographic Club. Entries close March 5. Sec., W. R. Harris, 17, Allesley Old Road, Coventry.
- March 17 to 20.—Nottingham Camera Club. Sec., E. L. Kent, 5, Radcliffe Mount, West Bridgford, Notts.
- March 31 and April 1.—Shropshire Camera Club. Entries close March 20. Sec., Harry W. Hughes, Kingsland, Shrewsbury.
- April 10 to 17.—Midlothian Photographic Association. Entries close March 31. Sec., B. Sherratt, 8, Castle Terrace, Edinburgh.

Patent News.

Process patents—applications and specifications—are treated in "Photo Mechanical Notes."

The following applications for patents were received between January 1 and 9:—

- COLOUR PHOTOGRAPHY.—No. 50. Improvement in the preparation of plates and films for the production of coloured pictures by means of photography. Francis Martin Duncan, 39, Bradley Gardens, West Ealing, London.
- COLOUR PHOTOGRAPHY.—No. 51. Improvement relating to sensitise paper and other material capable of being sensitised for a process of colour photography. Francis Martin Duncan, 39, Bradley Gardens, West Ealing, London.
- CAMERAS.—No. 159. Improvements in photographic cameras. George Sylvester Grimston, 4, Glenluce Road, Blackheath, London.
- CINEMATOGRAPHS.—No. 161. Improvements in cinematograph film spool. James Holgate and Thomas Fox, Knottingley, Yorks.
- REFLEX CAMERAS.—No. 338. Improvements in and relating to photographic cameras of the reflex type. Herbert George Chessher, 31 Basinghall Street, London.
- CELLULOID.—No. 376. Improvements in the manufacture of non-flammable celluloid. Walter Cottrell Parkin and Alfred Williams, 71, Crescent Road, Sheffield.
- DAYLIGHT DEVELOPMENT.—No. 381. Tank for the development, fixing, and washing of photographic plates or flat films in daylight entirely without the use of a dark-room. David Russell, 6, Charles Street West, Lincoln.
- CINEMATOGRAPHS.—No. 453. Improvements in and connected with moving picture-taking viewing or projecting apparatus, and in the production of reduced image picture therefor. Rotary Photographic Co., Ltd., and Ferdinand von Madaler, 55, Chancery Lane, London.
- DARK-ROOM LAMPS.—No. 505. Improvements in photographic dark room lamps. William Wallace Beasley, professionally known as Wallace Bellasie, 63, Onslow Road, Richmond, Surrey.
- CAMERAS.—No. 513. Improvements in photographic cameras. Joseph Gant, 8, Lensden Place, Golden Lane, London.
- CAMERAS.—No. 514. Improvements in photographic cameras. Joseph Gant, 8, Lensden Place, Golden Lane, London.
- CAMERAS.—No. 515. Improvements in photographic cameras. Joseph Gant, 8, Lensden Place, Golden Lane, London.

New Trade Names.

AKLA.—No. 307,143. Cameras, plate changing boxes, developing boxes, dark-slides, and other photographic apparatus, all being goods included in Class 8. Arthur Augustus Brooks, "Cratleigh," Park Avenue, Ashton-on-Mersey, Cheshire, engineer and manufacturer. October 20, 1908.

Analecta.

Extracts from our weekly and monthly contemporaries.

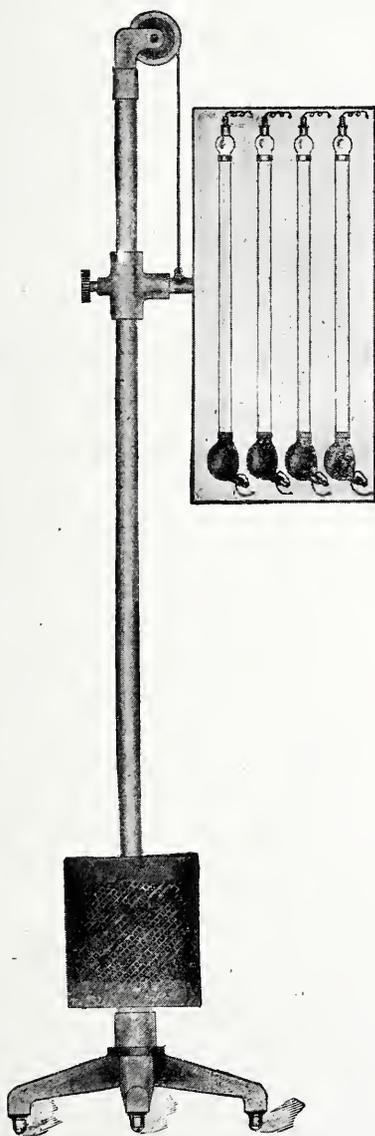
Changing "Ensyna" Prints from Purple to Brown.

An "Ensyna" print (writes Mr. Frederick Airey, in "Photography and Focus," for January 19) of a purple tone can be converted into one of a fine brown or sepia very simply. A kettle is arranged so as to send out a good jet of steam, and the finished print, which must be perfectly dry, is held in this jet an inch or two from the spout for about thirty seconds. The print must be kept moving the whole time, and if the kettle is on a fire the print should be protected from the dry heat as much as possible. The process is effective, even after the prints have been mounted. Brown tone prints do not give such satisfactory results when steamed as do those of a purple tone. The process succeeds best with the matt surface paper, the steam leaving it with a satin or carbon surface.

New Apparatus, &c.

Cooper-Hewitt Mercury-vapour Lamp for Studio and Printing. Sold by O. Sichel and Co., 52, Bunhill Row, London, E.C.

It must now be four or five years since the mercury-vapour light was first shown by the Westinghouse Company in London on behalf of the Cooper-Hewitt Company in America, since when a good many photographers, and at least as many trade printers and enlargers, have taken the light into use and have employed it with success. It need not be denied, however, that complaints of the mercury-vapour installation have been more frequent than is desirable—the chief defect being the breakdown of the tubes after a little while, or at the time of installation—yet, in common fairness, we have not known of a single instance where Cooper-Hewitt tubes, properly installed, have failed to prove satisfactory. The Westinghouse Company, owing, no doubt, to the much larger interests concerned in the business, cannot be accused of forcing the advantages of the lamps



under photographers' noses, and the adoption of the system has frequently come about from a studio proving for itself the efficiency and economy of the light. Those who visited the exhibition of portraiture by artificial light, held at the house of the "British Journal" in November, 1907, will perhaps remember the fine portraiture work done with the mercury-vapour lamp by Mr. Adolph Langfier and Mr. R. Henderson. However, the Cooper-Hewitt lamps in an improved and more convenient mounting, are now being marketed by Messrs. O. Sichel and Co., of 52, Bunhill Row, London, E.C. As sold by Messrs. Sichel, the lamps are mounted on a frame, which is detachable from the arm of the supporting standard, and thus allows of the outfit being readily transportable in a cab, the lamps themselves inside under the photographer's care, and the

standard outside. This facility is doubly useful in the case of the mercury-vapour lamp, since the small amount of current required may be taken from an ordinary connection, even from the plug of an incandescent lamp, and therefore the light may readily be used in ballrooms, private houses, and other premises where the electric supply would not be sufficient to run an arc. This particular facility of the mercury-vapour system is one not to be disregarded. In common with other methods of artificial lighting, it allows of the best portraiture being done in an ordinary room, in a basement, or anywhere, whether daylight is available or not. The importance of this fact to the professional photographer has been emphasised over and over again, but is appropriately repeated once again in connection with the present lamp, the cost of which (complete) is £20 19s. to £22 18s., (according to the voltage), from which sums Messrs. Sichel offer professional photographers a substantial discount.

The lamp, it should be mentioned, is so fitted that the lamps cannot be connected wrongly to the terminals. It is made so that it can be conveniently employed for printing, and the frame of tubes can readily be adapted for enlarging purposes, no condenser being necessary. Those interested should write Messrs. Sichel for an appointment to try the installation. It may be said, in conclusion, that the photographer, before complaining of the colour of the mercury light, should try the simple experiment of putting in one or two red incandescent lamps to supply the red rays which are lacking in the light. He need not fear, as did a recent naïve correspondent, that these red rays will "slow the light."

"The Wratten Tricolour Ink-tester." Made by Wratten and Wainwright, Croydon.

In a booklet just issued, Messrs. Wratten and Wainwright explain their motive in supplying this piece of apparatus to be the very natural one of giving three-colour block-makers the opportunity of testing for themselves the complementary inks used for the printing of the blocks. Not that Messrs. Wratten have any axe to grind in the matter, except that, with good reason, they object to their filters being blamed for shortcomings of inks. Incidentally they have something to say on the principles which must guide the choice of filters, and on the difficulties in which the neglect of those principles is liable to land the three-colour photo-engraver. Hence the "ink-tester," which consists of six squares of coloured gelatine mounted between glass to protect them from damage. The six squares are (1) the standard Wratten tricolour filters, and (2) the complementaries of these colours, or the printing colours.

The tester is intended to enable block makers and printers to examine any tricolour inks with a view to finding how nearly they resemble the theoretical colours. The inks can most conveniently be examined by proving them in solid patches superposed in pairs.

When examined through the red filter (No. 1):—

The blue ink should appear quite black.

The red ink as very light.

The yellow ink will be almost always invisible against white paper.

The defect to look for here is that the blue ink tends usually to be not black enough; any brownish appearance in the blue ink will produce brownish blacks in the finished print.

When looked at through the green filter (No. 2):—

The magenta ink should appear black.

The yellow ink almost invisible.

But the blue ink examined through this green filter is always wrong more or less. It should be theoretically almost invisible, practically it is certain to be dark. The lighter it is, assuming that it really cuts out the red when examined through the first patch, the better.

When examined through the blue filter (No. 3):—

The yellow ink should be dark.

The blue ink should be light.

These are usually satisfactory, but the magenta ink should always be quite light, and it is always dark. The lighter it is the better, provided that it looks right when examined through the yellow patch, as will be described later.

When examined through the light blue filter (No. 4):—

The scarlet patch made by proving the red on the top of the yellow should be black.

The blue ink should be quite light.

The magenta ink should be clear blue-violet.

The defects to be expected are, that the blue ink will be too dark, and the magenta ink also too dark, showing too little blue in its composition.

Through the magenta filter (No. 5):—

The blue ink should appear clear blue.

The yellow ink should be a strong scarlet.

Through the yellow filter (minus blue)—

The red ink should appear a good scarlet.

The blue ink should be a bright green.

The commonest defect to be watched for here, indeed the commonest defect of all tricolour inks, is that the blue ink, when examined through this filter, will be too dark.

To summarise the main defects to be looked for:—

It is to be expected that the blue ink will not completely absorb red. This will be shown

1. (a) By a rusty black when the three are proved one on another.

(b) By the blue ink appearing brown when examined through the No. 1 filter.

2. That the blue will not contain enough green, viz., will be too violet. To show this

(a) When examined through No. 2 filter the blue will appear too dark.

(b) When examined through No. 6 filter it will not appear a bright green.

3. That the red ink will not contain enough blue. This will be shown

(a) When examined through the No. 3 filter it will appear much too dark, appearing black.

(b) When examined through the No. 4 filter it will not appear blue, but black.

4. That the red will not absorb the green sufficiently. This will be shown

(a) By the fact that it will not appear sufficiently black through No. 2 filter.

(b) By the fact that when examined through No. 6 filter it will appear too orange and not a bright enough scarlet. Also when proved on the top of the yellow, it will give an orange not a scarlet.

These simple tests are by no means exhaustive, nor do they claim to be in any way final, but they will enable a practical worker to form a better judgment as to the value of his inks than he can expect to do when examining them only by his unaided eyesight.

The blue square also is of service to the fine etcher, who is etching from a yellow proof and not from a black proof of the yellow plate. On looking at the yellow through the blue filter it will appear black, and detail that is invisible without any filter will be easily seen. In the same way the tester is of still greater service to the prover, because he can instantly detect any variation in weight of colour in the yellow proofs by looking at them through the blue square in the tester. Differences quite imperceptible will be detected instantly if the yellow is absorbed by the blue filter, because the proof will then look black. In the same way, if it is ever necessary to prove the colours in very light weight so that they appear very pale to the eye, the appropriate square can be used to view them, when any small differences will at once be detected.

We would add, in reference to Messrs. Wratten's booklet, which, like other Wratten literature, is obtainable free, that though not specifically so described, the set of inks there proved are actually those commercial products which Messrs. Wratten have approved as being the best in hue that they know, of sufficient permanence for ordinary work and satisfactory in working on the press.

ARBUS AND BERNARDI.—Notice is given of the dissolution of the partnership between Menu Arbus and Bernard Bernardi, carrying on business as photographers, at 16, Hill Rise, Richmond, and 1, Station Buildings, Fife Road, Kingston-on-Thames. The business at Richmond will be carried on by Menu Arbus, and the business at Kingston aforesaid will be carried on by Bernard Bernardi.

New Materials, &c.

MEZZOCHROME PROOFS IN COLOUR.—There is now to be seen, at the offices of the Fine Arts Publishing Company, 29A, Charing Cross Road, London, W.C., a small exhibition of the intaglio prints in colour, issued as "Mezzochrome." They are produced by a modification of the process by which the "Burlington" Proofs are made, but in colours, and their characteristic is a new one in colour printing for, unlike half-tone and lithographic printing, the results are obtained from intaglio plates, and as a consequence obtain a rich deep deposit of ink in the shadows, at the same time as purity and brilliancy in the high-lights. Moreover, the surface of the proof is matt, and the proof can thus be issued with a plate-mark like an engraving, and produce an effect which is restful to the eye. At present the proofs issued are not numerous, but they are choice and varied. There are four of "Modern London," "The Tower and London Pool," "Night in Trafalgar Square," "Westminster Bridge, and "The Gaiety Corner." There are two of MacWhirter's landscapes, four scenes of "Point-to-Point Races," from paintings by Major G. C. Roller, the "Allegory" of Solomon J. Solomon, and the "Home of the Seabird," by Reginald Smith. These subjects are issued at the uniform and moderate price of 15s. nett per copy and have the standard outside dimensions of 34 x 26 inches. They are worthy of a visit from professional photographers and other who would obtain really artistic colour reproductions for a small sum. A booklet issued by the company contains small reproduction of all the subjects at present issued.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, JANUARY 22.

Fakenham Literary and Camera Club. French Lantern Pictures. A. E. Staley & Co.
Sutton Photographic Club. "Velox Papers." Demonstrated. Kodak, Ltd.
Aberdeen Photographic Association. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Mill Camera Club. "Eyes and Ears" Competition.

SUNDAY, JANUARY 24.

South London Photographic Society. Excursion to Northfleet.

MONDAY, JANUARY 25.

Walsall Photographic Society. Exhibition of Thornton-Pickard Prize Slides and Apparatus. R. Hesketh.
Carnoustie Photographic Association. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Stafford Photographic Society. "Elementary Photographic Chemistry." W. Bennison.
Scarborough and District Photographic Society. Lecture. Frank Foster. Lecture. T. F. Brogden.
Leek Photographic Society. Annual General Meeting.
Southampton Camera Club. *Photographo* Slides.
Bradford Photographic Society. Members' Prints.
Cripplegate Photographic Society. "The Romance of the London Streets." A. H. Blake, M.A.

TUESDAY, JANUARY 26.

Royal Photographic Society. "On the Determination of Spectrum Maxima and Minima," and "On Uniformity in Spectroscopy for Photographic Purposes and a Proposed Form of Instrument." Chapman Jones.
West Bromwich Photographic Society. "Exhibition of Thornton-Pickard Prize Slides and Apparatus." R. Hesketh.
Leith Amateur Photographic Association. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Rodley, Farsley, Calverley, and Bramley Photographic Society. Conversation.
Hackney Photographic Society. "Bromide Enlarging and Cloud Printing." G. H. Capper.
Worthing Camera Club. "A Trip to Arundel." Lecture Competition.
Hanley Photographic Society, Y.M.C.A. Members' Competition.
Blackburn and District Camera Club. "At Home and Abroad with the Camera." Alfred Taylor.
Wimbledon and District Camera Club. Annual General Meeting.
Leeds Photographic Society. "Some Avon Villages." Harold Baker.
Faversham Institute Photographic Society. French Lantern Pictures. A. E. Staley & Co.

WEDNESDAY, JANUARY 27.

Sale Photographic Society. "On Enlarging." Mr. Redfern.
Borough Polytechnic Photographic Society. Members' Night.
Portsmouth Camera Club. Dutch Lantern Pictures. A. E. Staley & Co.
Croydon Camera Club. "Models I Have Photographed." P. R. Salmon.
Leeds Camera Club. "Figure and Genre Studies." A. Cohen.
Cowes Camera Club. "Carbon Printing." W. T. Mahy.
Motherwell Y.M. Inst. Camera Club. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.

Bristol Photographic Club. Exhibition of Thornton-Pickard Prize Slides and Apparatus. R. Hesketh.
 Edinburgh Photographic Society. "Platinotype and Carbon." R. Forbes.
 North Middlesex Photographic Society. "Trimming, Mounting, and the Making of Passe-Partouts." M. Fraser Black.

THURSDAY, JANUARY 23.

London and Provincial Photographic Association. Demonstration of "Agfa" Specialties. F. C. Hart.
 C.C. School of Photo-Engraving, Bolt Court. "The Process Man—A Character Study." R. Vincent.
 Landsworth Photographic Society. "The Manipulation of Autochromes." F. E. B. Hall.
 Chelsea Photographic Society. "Cristoid Films (Development, etc.)." F. Humpherson.
 Rugby Photographic Society. "Some Picturesque Midland and Cotswold Villages." W. A. Clark.
 Liverpool Amateur Photographic Association. "Carbon Printing." Demonstrated. Ernest Scott.
 Cardiff Windsor Photographic Society. Exhibition of Thornton-Pickard Prize Slides and Apparatus. R. Hesketh.
 Greenock Camera Club. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
 North-West London Photographic Society. "The Choice of a Developer for Bromide Work." H. S. Date.
 Melbourne (Dulwich) Camera Club. "Photographs taken in the Emerald Isle." S. Savage.

PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

A MEETING of the General Committee was held at the Royal Photographic Society, 66, Russell Square, W.C., on January 8. Present: Messrs. H. A. Chapman, J.P., H. E. Hull, A. Mackie, D. Prodger, E. Scamell, Lang Sims, S. H. Fry, and C. H. Skillman.

Mr. H. A. Chapman, J.P., President, in the chair. The Hon. Secretary said he had had inquiries for a suitable form of indentures of apprenticeship for the photographic business, and it was found that there were certain modifications it was desirable to introduce in the usual forms to make them apply to the conditions of business. He had now a very useful form, which was at the service of members.

A number of applications for advice from members were read and discussed.

Certain accounts were passed for payment.

At the members' meeting which followed a discussion took place upon the general question of covenants in agreements with assistants not to open in business within a certain distance of the employer's place of business. The Hon. Secretary said the Association was constantly having correspondence with members upon this matter. What was a reasonable distance to fix it was impossible to determine without a knowledge of the locality, but generally it was found that the member suggested a radius that was clearly open to the liability of being decided to be inoperative as being unreasonable. The President spoke at some length on the subject of alleged photographs of spirits, and suggested that an expression of opinion should come from the Association as to the character of the results that had been shown. After considerable discussion it was agreed that the matter was of such a nature that it would be of no benefit to the Association or its members to enter into the controversy.

CROYDON CAMERA CLUB.—A variegated programme of ten-minute lecturettes was given last week. The President, Mr. T. M. Sellors, first touched upon the question of employing filters when enlarging or altering contrast. It had been stated, green and yellow hardened, whilst blue softened gradation. Although he did not attach much value to the statement, he had thought it worth while to test its truth, and had accordingly made a series of exposures through green and blue gelatine filters respectively, the results of which were slightly in favour of the proposition advanced. The multiplying factor of each screen was previously found by trial and error, that of the blue being $\times 2$, the green $\times 16$. Some members, in commenting upon this, pointed out that merely increasing the duration of exposure *per se*, by the interposition of the green filter, would produce added contrasts. On the other hand, it did not necessarily follow that blue light would soften gradation; the filter used did not appreciably alter the spectrum to which bromide paper was sensitive, and it was difficult to see how it could influence results.

Mr. W. A. Long, who said he was quite a novice in the art, next showed a series of slides on the screen, of excellent quality, and possessing a wonderful range of colour, from blue, cold black, warm black, to delightful browns, the colours being obtained by modifications of the developer only. The lantern-plates are not yet on the market, and it was stated that a powerful magnification was required

to resolve their "grain," and it was only with extreme difficulty that the plates could be chemically fogged, even with hypo in the developer, and ammonia in excess.

Mr. S. J. Taylor next passed round a series of portraits taken by ordinary artificial lighting in a room. As examples of happiness of pose, good modelling, and technique they were all that could be wished for. He employed ultra-fast ortho' plates of ordinary type, and with three 60 c.p. incandescent burners in a pendant the average exposure at $f/8$ was about one minute. Several members thought Mr. Taylor was needlessly handicapping himself by not using panchromatic plates. Under the conditions stated, an exposure of a few seconds only would have sufficed. Several contributions by other members brought an interesting evening to a close.

CATALOGUES AND TRADE NOTICES.

"FRISIAN, LONDON."—The telegraphic address and telephone number of Mr. S. H. Fry are the useful inscriptions on a calendar for 1909, which further bears a representation of the premises at 5, Highbury Grove, London, N., in which that home of enlarging and trade photographic work is depicted against a sky of such Mediterranean blueness that one would ask Mr. Fry if the installations of arc lamps which we have seen in his printing and enlarging rooms are merely signs of a connoisseur's love of such things. More probably, the decorative presentment of the "Frisian establishment" is merely an example of unconscious "working-up and colouring" which Mr. Fry's staff are constantly employing for the improvement of their customers' prints and enlargements. We are glad to draw attention once again to the consistently good work of printing and enlarging in all processes turned out at 5, Highbury Grove.

AN ILFORD CALENDAR OF SPORT.—A useful and pleasant little book, containing a series of quite interesting photographs, together with no little humour, has just been issued by Ilford Ltd. under the title, "Ilford Sports and Pastimes Calendar, 1909." It provides a monthly calendar, and gives for each month in the year the reproduction of an appropriate photograph of sport as played by a couple of most versatile youngsters, who are here shown motoring, golfing, photographing, to say nothing of other exploits in the way of shooting and mountaineering. The humour is provided by the quotations under each picture drawn from literary sources as wide apart as Ovid and Charles Wesley. The photographs are in every case from negatives on the Ilford Rapid Chromatic plate. One useful table is that giving the Watkins, Wynne, and H. & D. numbers of the Ilford plates. We can advise our readers to write for single copies to the Ilford Company, whilst dealers should see they do not miss placing the booklet upon their counters.

BAYER PRODUCTS.—The Bayer Co., Ltd., have just issued a manual or booklet of their many photographic products. Obtainable free from the company at 18 to 20, Booth Street, Mosley Street, Manchester.

Commercial & Legal Intelligence.

TECHNICALITIES OF COPYRIGHT.—Some interesting particulars about the law of copyright were explained in the Manchester County Court last week. Charles Allen Clarke, author, journalist, and wholesale picture postcard dealer, of Brighton Avenue, South Shore, Blackpool, claimed £50 damages from the Continental Postcard Company, publishers, of Oxford Road, Manchester, for an alleged infringement of copyright. He also sought an account of certain postcards issued by the defendants, with an order for their delivery up to him, and an injunction restraining the defendants from repeating the infringement. Mr. H. P. Glover was counsel for the plaintiff, and Mr. Lustgarten was solicitor for the defendants.

Mr. Glover said the plaintiff claimed the artistic and literary copyright in a certain humorous postcard. This card depicted, in colours, a chemist's shop containing a display of bottles, notices about photographic materials, and in particular one containing the words "A Dark Room." Looking into the shop were a couple of "innocents." They were gazing in amazement at the notice of the dark room. The man was saying, "Dark room! That'll be for courtiers"; and the woman's reply was, "Shall we ax how much they charge?" The

plaintiff had the registered copyright of this, and between its publication in July and the end of August about 30,000 copies were sold.

Judge Parry: Thirty thousand! That's a very good sale.

Mr. Glover added that the plaintiff was asked by publishers for the rights to publish 50,000 more, but instead of consenting he entered into an agreement with a Mr. Green, under which the latter had the right of publishing the card for three years, the plaintiffs retaining the copyright and a royalty. In October the defendants published the card. This, it was now claimed, was an infringement of the copyright. The couple were there, the chemists's shop, and the "dark room" notice; and the dialogue, though slightly altered, was to the same effect. These were issued at a lower price, with the result that the sale of the plaintiff's cards practically came to an end. As the law of copyright stood a reproduction of a picture or its design, or any part thereof, was an infringement, and any person who sold, published, distributed, or even exposed such for sale, committed an infringement.

The plaintiff stated that the large sale of the card was unquestionably due largely to the fact that it was published under the name of "Teddy Ashton," the title he used in writing his Lancashire dialect sketches, in some of which reference was made to the particular couple in question, who went by the names of "Sammy" and "Sally."

Cross-examined, he admitted that, although he indicated the design of the card, he had no actual part in the sketching or painting of it. That was done by a lithographic artist named McKinnon.

A witness named Whittle said he was a partner with Mr. Clarke in the postcard business, and that this particular postcard was published by the firm which traded under the name of "Teddy Ashton."

Mr. Lustgarten contended that the registration of both the artistic and the literary copyrights in this case was bad, and that consequently the plaintiff could not succeed. It was bad in respect of the drawing, because of a mis-statement as to the author. The plaintiff ought to have registered the name of McKinnon as the author of the sketch, and in like manner he ought to have included Whittle's name with his own as publishers in registering the literary rights.

After discussing a number of High Court decisions on both sides, the Judge said there was no doubt the owner of the original design would have succeeded if he had gone about this matter in the right way, but he had made some fatal mistakes. The case was an important one to authors, artists, publishers, and others, because it showed that it was almost necessary for all laymen to have some special advice in registering copyrights. If they had no society or union to give it them they should go to a legal adviser. If they did not do that, they had only themselves to blame if things went wrong. The plaintiff had not done right in calling himself the author of the picture. Clearly, the real author must have been the actual painter. If he collaborated with the painter by providing ideas to be painted, the two must be entered as joint authors. Mr. Clarke and Mr. McKinnon should have been so entered. And it was important to artists that this should be the law, for otherwise it might be an easy thing to deprive the artist of his copyright and commercial power of living. The reading on the card raised a curious point. This, within the meaning of the Act of Parliament, constituted a book, and, in respect of this also, Mr. Lustgarten was right in arguing that the name of Mr. Whittle should have been entered in the registration, as the card was published by the firm and not by Mr. Clarke alone. He agreed that it was a technical matter, and he regretted that a technical matter of this kind should rob a man of his copyright; but there the law was, and it had to be administered. There must be judgment for the defendants, with costs.

EASTMAN KODAK COMPANY, OF NEW JERSEY.—The directors have declared an extra dividend of 2½ per cent. upon the Common Stock of the company, payable February 1, 1909, to stockholders of record at the close of business on January 13.

BANKRUPTCY AND BREACH OF PROMISE.—At the Birkenhead Bankruptcy Court last week, Samuel Thomas, photographer's assistant, came up for public examination with a statement showing £130 of liabilities and 6s. 1d. of assets. Mr. O'Hare appeared for a creditor. In reply to the Assistant Official Receiver, the debtor said he was an assistant with his brother, who carried on business in Church Street, Liverpool. He had no interest in the business beyond his salary of two guineas a week. The principal claim now against him, amounting to £109 5s. 2d., was in connection with an action for

breach of promise of marriage, in which a Miss Roberts got judgment against him at Liverpool Assizes last year. The judgment was £50 and costs. Asked whether, in defending the action, he was advised he had a good defence, the debtor replied that he had defend it to prove that he did not fall out with the young lady. He made an offer of £25 to settle the claim, but it was refused. He was not prepared to set aside any portion of his earnings to pay his creditors, as it took him all his time to keep himself. He had no prospect of further or better employment when he entered into the engagement with Miss Roberts. After the Assize trial the case was removed to the County Court, to enforce the judgment, and then filed his petition in bankruptcy. Asked as to his reason for doing so, he said the matter had been worrying him all the time and he thought the best course was to file his petition. Mr. O'Hare briefly examined the debtor, and stated that he had only offered £10 to settle the action, and not £25. The examination was closed.

PORTRAIT ENLARGEMENTS.—At the Alton (Hants) Petty Sessions last week, Robert Percy Green and Sidney Studholme, respectable individuals, were charged with obtaining by false pretences from Alice Wiltshire the sum of £1 8s. in money, with intent to defraud, at Holybourne, on October 16.

Mrs. Alice Wiltshire, the wife of the landlord of the White Horse Hotel, Holybourne, said on or about October 8, the prisoner Studholme came into the hotel and handed her his card, stating he came from the International Art School, 8, City Garden Row, City Road, London, and was employed in enlarging photographs. He asked she had a photograph that she would like to have enlarged, and she gave him one. He said it would not cost her anything to have enlarged because he wanted to do work for the principal people in the villages in order that their work should get known. On October 16 he called again at her house along with the defendant Green, who he introduced as his artist. They brought the enlargement of the photograph with them, and asked witness if she would let them frame it, the charge for which would be 25s., and 3s. for the carriage and insurance. They said the photograph would be sent to her without further trouble about a week from that date. She handed him the picture because she thought it was a genuine firm and everything was all right. She paid him the money, and Studholme gave her a receipt, which was signed in the name of Green. Witness waited a fortnight for the picture, and then sent a postcard, to which she got no reply. On November 9 she wrote a letter, which was returned "not known," and as she heard nothing further she communicated with the police, and ultimately applied for a warrant.

Frederick Charles Cunningham, of 32, Hermitage Road, Finsbury Park, said he carried on business as the British Framing Co. at City Garden Row, City Road, London. He had known the prisoners for some considerable time as traders, but had no business dealing with them until August, 1908. They were then canvassing for enlargements of photographs, and since September or October they were travelling together. They gave witness orders for the frames, but not since the beginning of November. He got his money from them. They were not connected with him in business. He gave them authority to use his address for letters, but not for any other purposes. He knew of no place called the International Art School in his neighbourhood, and the address on the card of the prisoners was the address of his business premises. He received several letters addressed to Green, and returned them because he had complained from Aldershot.

Other charges were laid against prisoners, who were committed for trial to the Assizes in March on each of the charges. Bail was fixed, the prisoners in £50 and two sureties of £50 each. Bail was not forthcoming.

NEW COMPANIES.

NATURAL PHOTOGRAPHIC STUDIOS, LTD.—Registered December 1 Capital £6,000, in £1 shares. Objects: To take over the business of a photographer, etc., carried on by W. Friese-Greene, at 203 Western Road, and 20, Middle Street, Brighton. Private company. Registered office, 203A, Western Road, Brighton.

SANGER-SHEPHERD AND Co.—£4,000 (£1). To take over the business of scientific instrument, photographic requisite, and most accessory makers and dealers carried on by E. Sanger-Shepherd, R. L. Cocks, A. F. Hills, and E. D. Doncaster, at 5-6, Gray's Inn Passage, Red Lion Street, Holborn, as Sanger-Shepherd and Co. Private: 5-7, Gray's Inn Passage, Red Lion Street, Holborn, W.C.

News and Notes.

THE UPPER BROOK STREET FINE ART ASSOCIATION, 79, Upper Brook Street, C-on-M., Manchester, advise us that in consequence of increase of business they have been compelled to extend and enlarge their premises, and have built further workshops in order to deal with the increased orders. The plans for the new workshops were passed by the Manchester Corporation prior to the operations being executed.

"ENSIGN" COMPETITION.—Lieut.-Col. H. E. Drake-Brockman, Thos. Cook and Sons, 15, Esplanade Road, Bombay, is the manager of the January "Ensign" roll film competition in which Messrs. Houghtons Ltd. offer a three-guinea camera for the best negative on "Ensign" film. The entries close on the 3rd of the month. Entrance is free, and a competition form is enclosed with every spool of "Ensign" film.

A JUDGE'S VIEW OF CANVASSERS.—Judge Hans Hamilton found fault at the Blackburn County Court last week with the practice of canvassing from door-to-door of working-men's houses for orders for articles that are more or less luxuries. The comments were made on a case in which a photographic firm sued a man for £6d., the value of an enlargement. The defence was that if there was an order it was given by the wife, and the wife, in evidence, said the agent told her the enlargement would be free. The agent, she added, was in the house an hour. In giving judgment for the defendant with costs, the Judge said the practice of trading from house-to-house among the working classes ought not to be put a stop to by Act of Parliament. The amount of money which the working classes parted with for insurance and other things—all done by canvassing from door to door—was remarkable. The people seemed to be preyed on to such an extent that the money they parted with would amply provide them all with old-age pensions at the age of 65. This class of trading ought to be put down. A man's house was his castle, and when someone came in and talked for an hour and worried a woman, when the man was absent, it seemed to him that that was not the kind of trade that was wanted in this country. Mr. Carter (representing the plaintiffs) asked whether it was the judge's view that agents should be allowed to canvass at all at people's houses. The Judge said he was referring to luxuries, such as jewellery and expensive pictures, which people should go out and buy if they required them.

A PROFESSIONAL EXHIBITION.—During the first two weeks of the New Year, Messrs. Gold, Smith, and Co., of 44, Chapel Street, Liverpool, Manchester, held an exhibition in their extensive showrooms. It would be impossible here to describe in detail the excellent goods which were to be seen and tested, this firm's motto being, "everything photographic." Several striking novelties were to be seen. About the best was a farmyard scene, the background, which extension painted in soft naturalistic colours, a small fence, a large "stone" suitable for a child to sit upon, a sparrow, a white hen and two hens, a duck and drake. A child could hardly help being happy amid such surroundings. The price of the whole "farm" is £7. Among other novel accessories for the entertainment of children were pigeons, canaries, rabbits, guinea-pigs, etc., and a fine selection of backgrounds and studio accessories manufactured for the most part on the premises, among them a fireside heater. A studio stand of very strong pattern was shown, which could be lowered to a height of 27in. for child portraiture; the full height being 44in. and the price £2 11s. Demonstrations were given of dry-mounting with the "Rito" paste, which requires no fixing solution, and sells at 3s. per pot, sufficient for 500 cabinets. An oval number to cut two sizes with one shape, and a neat press for letter-marking postcards were also shown. A "postcard while you wait" studio was to be seen in full working order with an operator in attendance, and the time from exposing the plate to delivery of the finished postcard was 13 min., but four different photographs could be done in that time. The price of the complete outfit, comprising printing machine, developing and fixing tank, dark room lamp and drying apparatus, is £5 5s. The "Jandus" arc was shown with a variety of ideas in reflectors, and exposures of 1-5 sec. on Warwick Special

Rapid plates gave fully exposed negatives. Mr. Jobson, of the Warwick Dry-plate Company, was in attendance during the whole fortnight giving practical demonstrations in the electric-light studio. As evidence of the great interest taken in the exhibition, visitors came from the Scottish Midlands, Ireland, Wales, South of England, East Coast, and Isle of Man.

DAMAGES FOR POSTCARD PUBLICATION.—Fascinatingly clothed as a clown, in white satin doublet and hose, a lady, who has since become Madame K., the wife of a Parisian business man, went to a fancy dress ball three years ago, with her sister, also then a spinster (relates the "Daily Telegraph.") At the ball a well-known photographer, who has a shop on the boulevards, thought the two graceful pierrots would make a charming picture, and took one, with their permission. They agreed to buy from him a certain number of copies. Some time afterwards they discovered that their picture was being sold on postcards, and the lady, who had by then married M. K., sued the photographer for £800 damages. Defendant replied that he had taken the picture at a ball, which was not exactly a private one, and that, having sold copies to the ladies at a specially low rate, he was entitled to make money out of the negatives. The Courts, with nice discrimination, have decided, on the whole, in favour of Madame K., but without entirely condemning the photographer. The latter was undoubtedly wrong, say the judges, in selling picture postcards of the lady, attired as a clown, without her leave. But, on the other hand, "it must be borne in mind that defendant was to a certain extent justified in imagining that he had to do with persons desiring advertisement, and that such an impression was the more plausible because, besides sitting for one picture alone with her sister, Madame K. had also sat for another in the company of a number of clowns. The attitudes of some of whom may be described at the least as singular." On these choicely expressed grounds, the Court allowed Madame K. only £8 damages, instead of the £800 for which she had asked.

Correspondence.

* * We do not undertake responsibility for the opinions expressed by our correspondents.

* * Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

FIRST EXHIBITION OF HERR DÜHRKOOP'S PICTURES IN ENGLAND.

To the Editors.

Gentlemen,—In your report of Mr. Hoppé's interesting account of Herr Dührkoop's work he states:—

"It was not until 1905 that he first exhibited at an English photographic exhibition—namely, that of Leeds." I do not think this is correct. I am of opinion that it was in April-May, 1906, that Herr Dührkoop exhibited his work at the "British Journal of Photography" office, and at the same time he also exhibited at the "The Northern," held in Manchester, and where he was awarded two plaques for "Twilight" (reproduced in the catalogue) and "Hermelin." In the "British Journal of Photography," of May 4, 1906, attention is drawn to this fact.

I do not know if I am correct in stating that Herr Dührkoop's first appearance at a photographic exhibition in England was at the 1906 Northern held in Manchester, but I do not find any mention in the Leeds catalogue of 1905, nor is his name mentioned in any of the Press notices that appeared on that exhibition. I am pleased to say that Herr Dührkoop has again sent to the Manchester Northern of 1909, and is awarded one of the fine plaques.—Yours faithfully,

S. L. COULTHURST.

[We have not the means of confirming the reference to the Leeds Exhibition, but, so far as we know, the first notable exhibit of Herr Dührkoop's work was at the exhibition of the Birmingham Photographic Society, which opened on February 24, 1906. We were so

impressed with the eighteen prints there shown that we paid a personal visit to Herr Dührkoop in Hamburg a fortnight later, and brought back the seventy prints which were shown at Wellington Street in April-May, and had further attention drawn to them by the award at the Manchester "Northern" of that year, to which Mr. Coulthurst alludes. It will be remembered that in an article, entitled "The Ordinary Room as the Professional Studio," in the "B.J." for November 16, 1906, we described and illustrated the now famous "Portraiture Rooms" at Hamburg.—Eds. "B.J."]

MEGILP AS A DILUENT FOR "LUSTRALENE."

To the Editors.

Gentlemen,—Our attention has been directed to a suggestion made by Mr. Woodhouse, at a recent meeting of the Hackney Photographic Society, that megilp was a suitable medium for "thinning out" Lustralene. We should like to point out that lead acetate (sugar of lead) forms an important constituent of megilp. This, although admirable as a drier for oil colours, is hardly suitable for use on photographic prints.

May we also mention that, in order to meet the wishes of many regular users of the paste, we have now in preparation a liquid form of "Lustralene," which will be packed in bottles similar to our well-known Glissolene. This will be a very economical form, and will probably displace the paste in boxes and tubes.—Yours faithfully,

W. ETHELBERT HENRY,
For the Vanguard Manufacturing Co.

Maidenhead (England).
January 15, 1909.

AGREEMENTS WITH ASSISTANTS.

To the Editors.

Gentlemen,—A case that I have met with shows the necessity of the agreement to protect masters and assistants alike. A learner left me after one year, being dismissed for general unsuitability. His father, like a fond, foolish parent, started him on his own, and now he turns out stuff that would disgrace any Australian aborigine with a hand camera and advertises "Late with Messrs. A. and Z." Very pleasant, and greatly to our credit. We cannot complain of monetary loss, but it being thought that we had employed such incompetents is not adding to our prestige. It may be said that such a one might start in any town; certainly, but in that case no one will suffer but himself. As it is, the public may be deluded, against the evidence of his specimens, whilst "A. and Z." suffer, most undeservedly.

Taking it all round, I think employers should protect themselves by having a fair and equitable agreement drawn up, and so long as the assistants are paid their stipulated wage I cannot see that they have a right to expect to lay the foundation of their own business into the bargain. The restricted areas, however, should be as small as is compatible with justice, whilst small, niggling stipulations, inasmuch as to confuse the main issue, should, as far as possible, be avoided. In this respect, however, I certainly think that a clause referring to loyalty to the firm should be included.

Whilst one can generally rely on the *esprit de corps* of one's assistants, this is a most important matter. If your competitor has definite information upon the volume of your business, successful styles, good customers, etc., he can frame his policy to surer advantage. In such a comparatively small thing as forwarding advertising matter, it is inadvisable for your errand boy to mention it to his chum, who occupies a similar exalted position in the photographic world, since it might give the latter's employer the hint to swamp you with something much more elaborate. In a business such as photography, or, indeed, any business, there are doubtless thousands of dodges profitably employed by their inventors that certainly would not be worth while publishing and going to the great expense of patenting; at the same time they are sufficiently valuable to warrant one's taking steps to prevent a rival filching one's brains. As has been frequently pointed out, however, in the "Journal," the agreement that strives to take unfair advantage of an assistant desirous of a job, over-reaches it by being too inclusive. At the same time photographers are not the only people that suffer from this. I have

seen the agreement between a certain world-famous firm of sellers and their provincial managers that has, amongst its clauses dealing with business secrets, commissions, etc., one that forbids the said manager to engage, either for himself or another party, in any business that they are interested in for a radius of fifty miles. Since this includes bookselling, newsagency, fancy gotyping, typewriting requisites, printing, and various agencies, there is much chance for the poor managers, unless they go to the expense of fighting the agreement. Certainly we think that this is as good an example as we have heard of undue restriction of trade; but that it is, and the law is "an ass," and beastly expensive.

A. AND

To the Editors.

Gentlemen,—As I commenced this topic, December 18, to show the fallacy of the article in the "Daily News" against "Radius Agreements," kindly allow me a little space for same purpose in reply to "Onlooker," January 8. The temperate letter in your last issue, "Provincial Pro." should prove to any candid mind that any manager opening in competition near the studio where he has worked for years cannot be otherwise than harmful to a business however old established. In that case, however, it seems the proprietors lived on the spot and so were able promptly and personally to deal with the new situation, and thus saved themselves. My letter, however, had mainly in view the matter of branch managers where the principals lived at a distance; there was not a word in my letter against fair competition by strangers, but only against the competition caused by those of "your own house." "Onlooker" does not touch this except to say that if the business eventually becomes transferred it will more than likely be due to the faults of the manager. That is practically justifying the division of the house: I do not care whether there is only a verbal agreement or a written one: if there was a definite arrangement that the manager should work in competition in the same place, to break through it is a manifest infringement. The probability is that such a one would not think of competing until he had been there some time and become known and there appeared some probability of success; but who had to pay for this but the proprietors who first took the risk? "P. P.'s" letter in last singularly but conclusively showed how sooner or later, those who act inconsiderately with their employees suffer—albeit the employers suffer too in the process. It was refreshing to read that "P. P." was still on good terms with his old faithful manager-competitor. One wonders how he would have fared if he had been obliged to shut up and go abroad for a living. It opens up the question I referred to in my letter—i.e., co-operation versus competition. How much better for all it would have been supposing this manager thought he would like to start on his own account, if he had conferred with his employer and seen if it were practicable to start elsewhere. They might then have been mutually helpful. I cannot but think, from the tone of "P. P.'s" letter, that it would have been fairly and justly considered. This co-operation is referred to in Mr. Ward's letter in your last issue on American matters. One cannot but see in our daily papers this is the truth. Our fierce competition throughout this and other countries in nearly every department of trade is causing much of the stagnation which means death. My main object in writing at all was to enforce as far as possible the almost imperative need on both sides of being guided by arrangements made in good faith in order to maintain that good feeling without which employer and employee cannot work together.—Yours, etc.

OBSERVE

SHROPSHIRE CAMERA CLUB.—The Club's third annual exhibition will be held in the Working Men's Hall, Shrewsbury, on March 1 and April 1. There are no entrance fees, and the latest day for receiving entry forms is March 20. The open section includes a class for foreign exhibits, one for colour work by any process, and one open to members of the Midland Federation only, as well as a class open to all British photographers. A silver plaque, to be awarded by a ballot of the visitors, will be given for the best picture in the exhibition. Entry forms and further particulars may be obtained from the secretary, Mr. Harry W. Hughes, Kingsland, Shrewsbury.

Answers to Correspondents.

All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay. Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given. Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C. For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street Strand, W.C., undertake the registration of copyright photographs at a charge of 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the original.

PHOTOGRAPHS REGISTERED:—

Wright & Sons, King Street, Thetford, Norfolk. *Photograph of Eveden Hill, Suffolk, Residence of Viscount Iveagh, K.P.*
 Ireland, 86, High Road, Wood Green. *Photograph of Mrs. Clark, Wood Green Crutonian, age 105 years.*
 stairs, 101, Compton Road, Dyke Road, Brighton, Sussex. *Photograph titled "John Bull at Market."*
 Taylor, Paternoster Buildings, Carnarvon, North Wales. *Two Photographs of the Rev. Evan Jones of Carnarvon.*
 Ley, 23, Northcote Road, Croydon. *Photograph of the Croydon Common Football Team.*

(Dunedin, N.Z.).—(1) The R.R. would be almost useless, because depth of focus would be totally different. You would have to stop down the anastigmat to the smaller aperture. (2) We would place them in your order—viz., A, B, C; but all are first-class lenses. A and C will cover a much larger plate better than B. On manufacture there are not many. We may name "Lens for Amateurs," by H. Orford (3s.). On general photographic optics you should get "The Optics of Photography and Photographic Lenses," by J. Traill Taylor (3s. 6d.). You can get both these from Hampton and Co., 12 and 13, Cursitor Street, London. (4) "Colour Photography," by Bolas Tallent and Senior, is good for general principles (Marion, 1s. 6d.), but there is no comprehensive book which is recent. The best is "Natural Colour Photography," by Dr. E. Koenig (price 2s.), through any London bookseller. (5) Yes, to any photographer, sending full address. It will appear end of March.

C.—The firm has an excellent reputation, but has not been the same of late, having apparently withdrawn to a large extent from the purely photographic trade. If you turn to an "Almanac" of a few years ago you will see its announcements. We believe it still at the same address.

—Nos. 1, 2, and 3 are all good and about equal. We should not use No. 4.

ALLER.—No powder is absolutely free from smoke. We advise you to use the "Agfa" with the apparatus you now have.

HOWARD.—Conditions in New Zealand are very much as here, we gather in a general way. Re Canada, see the article in the present "Almanac."

—We do not know of one. Better apply to Messrs. Geo. F. Sney and Co., 64, Oxford Street, W., who, we believe, publish the "Almanac."

THOMAS.—We are sorry to have overlooked your query last week. The highly refractive liquid to which you refer is probably carbon disulphide (index, 1.63). Phosphorus oxychloride (liquid) has a refractive index of 1.48.

TING LINEN.—I am in doubt as to whether any linen would be chemically pure enough for backing P.O.P. prints with. Would you kindly advise me if there is any special make suitable for photographic purposes?—JOHN W. MINNITT.
 We do not know of a special make, as it is not usual to mount P.O.P. prints on linen. A good linen scalded and ironed before use would be quite safe, we think.

ST.—It is within our province only to advise you in a general way. If you have already shown any journalistic aptitude you would do well to continue such work, with a view to engaging in it altogether; but if you have done nothing in it as yet we cannot encourage you to give up your present berth. You had better get the advice of some friend who is a newspaper man in your town.

INTENSIFIER.—Can you favour me with a formula for intensifying, one more reliable than the ammonia mercury process?—INTENSIFIER.

Yes, the chromium intensifier, on page 784 of the "Almanac."

FOREIGN JOURNALS.—(1) Can you supply me with any names and addresses of the principal photographic journals published in the following cities in Australia: Sydney, Melbourne, and Perth? (2) Also the principal journals in the following cities in South Africa: Cape Town and Durban?—PYRO.

(1) "Australian Photographic Journal," published by Harrington and Co., Ltd., 386, George Street, Sydney; and the "Australian Photographic Review," published by Baker and Rouse Proprietary, Ltd., 375, George Street, Sydney. (2) "South African Photographic Journal," published by E. H. Oakley and Co., Camera House, Adderley Street, Cape Town.

CONDENSER.—(1) What will be the advantage of a 4in. Herschell condenser (double convex for meniscus lenses) over a 4in. compound plano convex one, using a 4in. and 5in. cinematograph objective? Will the light from the Herschell be more powerful? (2) Would the distance between the condenser and film remain the same in both cases, or would it require to be altered to obtain the best results?—CINEMATOGRAFHER.

(1) The Herschell condenser shows less aberration than the more usual compound form, and therefore it is easier to obtain good illumination with it; also the light is nearer the condenser, and so the illumination is brighter. (2) We cannot answer this definitely. A little alteration might be required to utilise the maximum amount of light, but the amount of adjustment would probably be very small.

LANTERN LENS.—I should be grateful if you could let me know the chief differences between an ordinary photographic lens and a lantern objective.—Q. S.

An uncorrected lens of the Petzval portrait type is usually used for projection with lanterns of the less expensive kind. With others a large aperture anastigmat lens is frequently used.

SWING BACK, ETC.—(2) Would you recommend a swing back to the camera, vertical and horizontal swing? (3) State briefly the use of the swing with a modern lens, such as the above. I may state that the camera front has only a limited rise.—EXCELSIOR.

(1) The focal length is very suitable for portrait work, if you have the space, but the aperture is small. You should have $f/6$ for portraiture; better $f/4.5$. For landscape on the 10 x 8 the focal length is just about right. (2) Certainly, it is frequently of service in both portrait and landscape work, and particularly if there is also a swing front. The two in conjunction are equivalent to a considerable rise of front. (3) If the back is swung through a fairly large angle, the lens requires to be stopped down a good deal; often more so in the case of a modern flat field anastigmat than in that of an old R.R. or single lens.

RESIDUES.—We have a large tub of silver washing which we have tried to throw down with salt, and then alum, which we have often found successful when salt alone has failed, and then with hydrochloric acid, and finally suspecting that some hypo had been thrown in we tried sulphide of potass, but with all we have failed to get the silver down. Can you help us in the matter?—PERPLEXED.

We are afraid the bath is in a rather complex state after the various additions, but one thing we can tell you is that it will be well to destroy the free acid in it which is decomposing the sulphide as fast as you put it in, and we should imagine creating no little odour of sulphuretted hydrogen. We advise you to add some caustic potash or caustic soda solution until the bath (after well stirring) turns red litmus paper distinctly blue. Then add some more potass sulphide. Stir well and leave in a warm place if you can for an hour or two. If this will not precipitate the silver we fear nothing will.

W. R.—We advise you to write to Dr. E. Koenig, Meister Lucius and Brünig, Hoeschst a/M., Germany, stating your requirements.

COPYRIGHT.—Some time ago I asked for and received permission to photograph for my own use a little girl. The person giving the permission was, I think, the godmother. I have taken no money from them, but she, and also the mother of the child, have accepted gratis copies. I took it that the copyright was mine, and recently sold the copyright of one negative to an art dealer. The god-

mother is now saying I had no right to do his, and is quite sure the mother will strongly object. Should be glad of your opinion.

—COPYRIGHT.

The copyright is yours, the relatives, not having paid for the work, have no proprietary rights in it whatever. We advise you to explain the matter to them.

PUZZLED.—We cannot see that there is any objection to your naming both firms in your note-heading or in other ways, nor in your referring to the distinction of the second firm.

SPOTS ON AUTOCHROMES.—After using the permanganate solution I am much bothered with green spots of different sizes, but in the centre of each spot is a small black grain. I have tried filtering all solutions and washing water, but with no success. Can you kindly tell me the cause and cure?—E. Y. E. N.

This may be due to the use of a permanganate and acid bath kept in one solution. These ingredients should be kept in separate solutions, and only mixed just before use. If the permanganate is kept in a stoppered bottle there should be no trouble, but it will decompose and produce spots very readily if any organic matter comes into contact with it. The only other possible cause of your trouble that we can think of is dust on the plate, but we assume you guard against this.

GLAZING P.O.P., ETC.—1. Why do P.O.P. prints, glazed on plate glass in the ordinary way, lose all gloss when mounted, and have a mottled appearance on surface? 2. Please give the name of a firm which enamels prints? 3. How can prints be backed with paper to prevent them losing gloss after removal from plate glass? Should they be backed before being glazed and before being trimmed, or after?—J. KAY.

1. The disappearance of the gloss is due to the penetration of the moist mountant; it would not take place with a dry-mounting method; and should not be pronounced when using a stiff non-penetrating mountant, such as "Tixit," of the Vanguard Company. 2. Almost any of the good trade workers will do this. See our advertising pages or the section "Enlargements, Printing, and Trade Work" in the "Almanac," p. 1331. 3. The backing paper is pasted on with a stiff mountant—hot gelatine or glue is much used, before the print has become dry, and while it is still on the glass. 4. We should prefer something a little more rapid if you are thinking of studio work, say the same firm's portrait lens, Series I., No. 5, which is, however, double the price. For outdoor work you could not do better than the one you name.

A. W. W. B.—Fordhams Ltd., Walthamstow, E.

THREE-COLOUR CARBON.—Will you kindly advise me the best work on three-colour work (carbon)?—COLOUR.

There is no book on the subject. The information on the working of the process, apart from that in the instructions of the Rotary Photographic Company and the Autotype Company, is to be found in the "Colour Photography" supplement to the "B.J."

COPYRIGHT.—1. In taking orders for cards I have a request for a special subject, and reply that for a minimum order I will get it and supply. Whose is the copyright? 2. I take an order, allowing the customer to name the subjects. I get negatives and supply cards. Whose is the copyright? 3. In the above cases, does a verbal statement, such as "of course other people will have them as well," make any difference? 4. I have a request for a new negative of a stock subject, so that some slight alteration may be made, and charge a small sum for getting the negative. I take it that copyright rests in the customer. Whose property is the negative? I presume mine, although I cannot make prints, except to the customer's order.—A. E. J.

1. If the view is taken to the special order of the customer, the copyright will belong to him, but the negative to you. 2. It seems to us that the copyright in this case belongs to the customer, as he is also the author of the work. 3. All agreements with regard to copyright should be in writing. 4. If you supply a duplicate negative from a stock one, the copyright in which is yours, you still retain the copyright in that.

VARNISHING PAPER.—I have an order in hand to mount some photographs on large mounts, along with several columns of newspaper matter, and a request to varnish the newspaper to prevent it from fading, etc. Will you kindly tell me, through the "B.J.," the best way of accomplishing this, and the varnish to use?—YORKSHIRE.

After mounting both prints and newspaper cuttings in the

ordinary way, the latter must be given a coat of gelatine solution 1 or 2 per cent. strength. When this is dry the cuttings must be given a coat of "Zaponlac," from the Leto Co., which will protect them to some extent, though not from fading and yellowing entirely.

A. A.—The failure of the intensity law noted by Abney is of importance only with lights of very small intensity. It can be disregarded in conditions such as those you have been working under.

STUDIO.—My first idea of putting up a studio in the yard has been stopped by the action of the District Council surveyor, and I am endeavouring to make other arrangements. I am aware that the intention is contrary to all the usual methods, but think that proper arrangements for diffusion of the light could be controlled almost that of a north light obtained.—EVERT.

The sketch shows about the best that can be done in the circumstances. We do not know if you want the studio for general professional work, but if so, we may tell you that one only 19 x 10 ft. in the situation this will be is too small for groups, etc. It will, however, do very well for busts and three-quarter length portraits. It would also be more convenient to work if it were glazed with ground glass, as that will aid in the diffusion of the light.

DRYING NEGATIVES.—I want a formula for quick-drying negatives. I require, if possible, one which leaves no markings on the negative but which acts uniformly and dries the negative quickly. 2. Do you consider the glaze obtained on an "enameller" is equivalent to that obtained upon glass by squeegeeing, and is it necessary to harden the prints more than that for squeegeeing, using alum in water 20oz.? 3. You might also kindly say if formalin would be more suitable than alum, and if any great amount of time is gained by using an enameller than by usual squeegeeing.—A. B. BASHAM.

1. Soak the negative in two changes of methylated spirit. Then wipe off with a soft rag. The negative can then be dried quickly at some little distance from the fire. 2. The gloss obtained in the two methods is somewhat different. That by the first is the more glossy. Prints need not be specially hardened before they are passed through an enameller, but they must be perfectly dry at the time. 3. Formalin is perhaps the better of the two. In practice there is not much difference in the time, but what there is will be in favour of the enameller.

INVENTORY.—What does the inventory of a photographic business consist of? In an ordinary business I take it that it would include the plant, etc. Therefore, I think that cameras, accessories, etc., would come under that heading. But what I feel doubtful about is whether mounts, papers, frames, etc., come under that heading also. And another thing is, does the "inventory" come as an extra item when purchasing a business which is advertised at a certain figure, as some advertise "all at so much," and other things? I think to a certain extent this is left to individual circumstances, but I thought you would be able to tell me what is generally done in such matters.—CONSTANT READER.

An inventory is simply a list or catalogue of all that is included in the sale as mutually arranged. "All at" means an inclusive sum of the thing as it stands as per inventory usually supplied. **PAPER-PAINTS AND OTHERS.**—In our next.

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SUMMARY.

We deal in an editorial article with difficulties in sulphide toning, chiefly the failure which is not infrequently experienced to get a vigorous brown tone in the sulphide bath. (P. 78.)

Dr. D'Arcy Power has recently described the method of making enlarged negatives which he has found preferable to others. He obtains better "quality" in an enlarged paper negative by aid of the ozobrome process. (P. 78.)

Mr. R. E. Blake Smith contributes an account of the result of experiments which have led to a method of silver intensification of dry-plate negatives. Before actual intensification he bleaches the negative and treats it with acid sodium sulphite solution. (P. 82.)

Picric acid combined with magnesia or soda has been patented as the constituent of a solution for simultaneous development and fixing in daylight. (P. 88.)

Mechanically engraved half-tones on wood are said to be coming in for newspaper illustration. This and other process matters are dealt with in "Photo-mechanical Notes." (P. 86.)

Some further notes on the use of the card index system in keeping the accounts of a photographic studio are quoted on page 84.

An American professional has confessed to finding portrait post-cards at four shillings a dozen prove remunerative in his business and not to injure the prices of better class work. (P. 85.)

Mr. Chapman Jones, in a paper before the R.P.S. on Tuesday evening last, aimed at the popularisation of spectrography by describing and showing a form of instrument suitable for general use. (P. 92.)

The recent decision of the High Court in the case where a publisher of cinematograph films was proceeded against for alleged infringement of dramatic copyright, has been heard in the Court of Appeal, where, however, the previous decision of Mr. Justice Jelf was upheld. (P. 77.)

Herr E. Valenta has given in "Photographische Korrespondenz" a series of factory tests for bromide paper. (P. 83.)

A writer in a recent issue of "Knowledge" has described an apparatus for measuring the time which elapses in the case of different persons between hearing or seeing any event and performing some action as quickly as possible after it. A modification of the apparatus might prove of interest in connection with the "latent period" of photographers dealing with very rapidly moving objects. (P. 80.)

EX CATHEDRA.

The R.A. Winter Exhibition.

The present exhibition at Burlington House, though it cannot be said to rank with its forerunners, includes, nevertheless, some pictures of great interest and merit. Photographers who are interested in pictorial matters should certainly make a point of seeing the large and impressive landscapes of the late David Farquharson—a painter who never quite got his due reputation. There are also some earlier works by David Murray that are educative as well as charming. The collector of all these works, the late Geo. McCulloch, was oftentimes more enthusiastic than discriminative, and out of 360 here displayed, 150 or so might well be spared; but here and there he showed great foresight in purchasing works which mark epochs in painting. Such are Bastien-Lepage's "Potato Gatherers" and Dagnan-Bouveret's "Dans la Forêt," and, more recently, Chas. Sims's masterly little work, "The Kite." To those who have studied the progress of painting through latter years, such a gathering as this is doubly interesting, as it affords an opportunity for seeing forgotten favourites and of marking the changes in one's own ideals. In the case of Burne-Jones time has not been merciful. The affected and laboured achievements of this popular painter appear now as a late Victorian boom that has slumped for ever.

* * *

Infringement of Copyright by Cinematography.

The case of Karno v. Pathé Frères, in which the question at issue was whether the representing of a play by means of a cinematograph film infringed the right of the representation of a play vested in the owner of the copyright, was taken before the Court of Appeal last week. It will be remembered from the comments made upon the case in our issue of May 8, 1908, that the action was brought by Mr. Fred Karno against the defendants for infringement of the plaintiff's copyright in a piece called the "Mumming Birds," by selling, or offering to sell, a representation of the piece in the form of a film called "At the Music Hall." Mr. Justice Jelf held that the sketch was not a dramatic piece according to the Dramatic Copyright Act, 1833; that, had it been one, a cinematographic reproduction of it would be a "representation" of it within the meaning of the Act, but that the manufacturer, by selling the film, did not "represent or cause to be represented" such a dramatic piece. Lords Justices Vaughan Williams, Farwell, and Kennedy, in dismissing the appeal, said that the point really was whether the defendants were responsible for those who put the sketch on the stage. It might, indeed, be plausibly argued that the defendants who make and sell the infringing instrument, without which the infringement could not take place, and do so with the knowledge and intention

that it will and shall be used for that purpose, do take an important part in the infringement itself, but, on the whole, the inference would be held to be too remote and too far-reaching in its consequences to be accepted. If this view is correct, then, even if the action were otherwise maintainable, it ought to have been brought, not against the defendants, but against the actual proprietors of the piratical performances impugned. It will be observed that, so far as the decision affects the position of cinematograph films claiming copyright as dramatic representations, the decision of Mr. Justice Jelf is not affected. The learned Judge held that a cinematographic film in action was a "representation" of a "dramatic piece," whence it may be perhaps assumed that original cinematograph films are entitled to protection under that same Act.

* * *

Avoiding Frozen Pipes. A very old suggestion for the prevention of frozen pipes has again found its way into the Press. It has often been pointed out that pipes of circular section are more liable to burst than those of any other section, while it has been claimed that oval and square pipes cannot. We believe that experience is against this claim. An oval pipe will soon become circular if submitted to expansion from within, and then the next frost will settle the matter. The precaution is only a temporary one, and not worth its expense or the trouble it involves. The theory of the idea is, however, a useful one to remember, because it may be applied at times. Many water-pipes have small exposed portions that are more liable to freeze than other parts, and these are the weak points at which bursts occur. It is not a difficult business to slightly flatten the pipe with a hammer at these danger points before the frost comes, nor is it a great matter to have to repeat the flattening process after the pipe has been once frozen and thawed. This is an idea that photographers may at times find useful. It often happens that the danger points are well known, from past experience, and if trouble can be obviated by five minutes' exercise with a hammer, it is quite worth while.

* * *

A New Method of Measuring Focal Length. Mr. G. F. C. Searle, F.R.S., has designed a very simple form of goniometer or angle meter, one of the uses of which is the measurement of the focal length of a lens. The principle is a very simple one, as it consists merely of measuring the angle subtended at the lens node by two points situated in the principal focal plane of the lens. The separation of the two points being known, the calculation of the focal length is, of course, an easy matter. The apparatus is scaled in radians, and it will measure up to $\frac{1}{4}$ radian (about 14 deg.), and with an accuracy of 1-4,000th of a radian, which is rather less than one minute. It is said that the apparatus works equally well with microscope objectives and telephoto lenses. A very similar method has been advocated with the theodolite as an accessory, but as theodolites are somewhat out-of-the-way instruments to photographers, the method is not well known. This little goniometer is practically a theodolite, measuring small angles in radians and large angles in tangents, but its price is only two guineas, while its uses are very varied. It could no doubt be adapted to the measurement of aperture as well as focal length, while other lens constants can also be more or less accurately expressed in the form of angles.

* * *

Dry Pigment Printing. Several of the German papers have been publishing descriptions of a so-called "Askau" process in which use is said to be made of caoutchouc and asphalt in order to form a film capable of fixing to itself a dry pigment powder in proportion to

its degree of exposure to light. Caoutchouc alone possesses too little insensitiveness: a small proportion of asphalt remedies this defect. A coating of this mixture is applied to paper, forming a sensitive material which will keep for a month. Printing, as in other dusting-processes, must be done from a positive transparency, and the exposed sheet of paper "developed" with a mixture of sea-sand and a suitable pigment, which latter adheres to the light-affected portions. The only remaining part of the process is to "fix" the print by applying a lac varnish by means of an air-brush, such as the Aerograph. The future of the process is painted in somewhat glowing colours, but apart from the fact that, unless a reverse transparency be made, the results will be reversed, and regards right and left, there is the objection in any case that the original negative cannot be printed from, usually a fatal obstacle to popular favour. In the making of photo-enamels by amateurs, there may be a useful application of the process, all the stages of the process to the point of fixing being easily carried out.

* * *

Quality in Enlarged Negatives.

Dr. D'Arcy Power contributes an interesting article to the current issue of "Camera Craft" on the relative "practicability" of the methods available for the making of enlarged negatives. He decides in favour of making a perfect P.O.P. print from the negative (he uses Soli paper), and without toning or fixing enlarging this latter on to a slow plate or thin bromide paper, which latter is then converted into an ozobrome to the improvement of its gradation. The untuned and unfixed P.O.P. print is, of course, photographed by artificial light, preliminary focusing having been done with a piece of newspaper in the place of the print. A plate of medium rapidity, such as the 26X Seed, or a smooth "platino"-bromide paper is used for the enlarged negative, and a rather weak developer of the metal class employed. In the case of the improvement of the paper negative mentioned above, the negative enlargement is used to give an ozobrome which is developed in contact with it by Mr. Manly's No. 1, or not transfer, process, using a tissue, or "plaster," of engraving black. The result is found to be a negative of full density in the high-lights, good shadow detail, and with very little granularity owing to the filling of the pores of the paper by the gelatine. We may add that Dr. Power's method is probably as cheap as any.

SULPHIDE TONING TROUBLES.

THE old trouble of bromide prints refusing to yield to the sulphide toning process is still with us, as our "Answers to Correspondents" columns show nearly every week. In one of the latest cases sodium sulphide that had liquefied was used. This often happens, as the crystals are very deliquescent; but it does not necessarily follow that the liquid is useless, for we have known excellent results to be produced with it. In the case referred to, the prints submitted to us were a very pale brown tint, and over all the heavy shadows a metallic sheen was apparent. Our correspondent described it as a collection of metallic silver in the shadows, but in this he was wrong, as it proved not to be silver at all. There is little doubt that it is silver sulphide, though not the kind of sulphide that forms the toned image. This is evident, because it is not touched by a strong bath of bichromate and hydrochloric acid, though such a bath will slowly bleach a toned image and rapidly affect a silver one. The sheen can be partially removed from the dry print by the use of hard indiarubber, and also from the wet print by rubbing with cotton-wool after the bleaching bath has been applied. This tends to show that the sheen is due to sulphide deposited on the top of the

ge from the sulphiding bath, and that it is not the result of any direct action upon the image. We took the rest of the prints, bleached it, rubbed with cotton-wool to clean off the sheen, and then redeveloped. The result was a fairly strong print, of a good brown tone, which made it evident that the sulphiding bath had had very little solvent action on the image, though our correspondent described the action of the bath as a reducing one. In some places, where the sheen had been cleaned off, a little reduction was apparent, but otherwise the density was good. The half-tones and high-lights show no apparent loss; therefore it is evident that the sulphide solution had very little solvent action (hypo). Assuming, however, that it contained a small trace of hypo, and also a very small residue of sodium sulphide insufficient to give a proper toning action, then the appearances can be accounted for with a fair amount of probability, for the hypo may be assumed to take up a very little of the silver bromide, which is changed to sulphide, and deposited in the form of a sort of varnish on the deeper parts of the image.

An interesting feature is the fact that the deposited sulphide is evidently not the same as that of the ordinary toned image. All recent work on sulphide toning has tended to show that the brown-toned image is not silver mono-sulphide, but a colloidal variety of sulphide combined with gelatine. The deposited tarnish is not, of course, formed in gelatine. It is most likely that it is actually the substance that we are familiar with on tarnished silver ware. It is similar to the silvery tarnish that often appears on old negatives, and it also has a close resemblance to the sheen that appears on uranium-toned prints, which is probably also a sulphide.

Our correspondent sent us a second print that had been treated in the same bath as the first print, but at a later date. This was in much the same state as the other, but showed much less tarnish. On bleaching and redeveloping considerable loss of density in the shadows was observed. This was only to be expected, seeing that the first print must have nearly exhausted the little sulphide contained in the toning-bath. In the particulars sent us with the prints it was stated that after use the bath was almost colourless, and this is sufficient proof of its stage of exhaustion.

A very knotty point for consideration is the nature of the faint brown, or, as some people call it, "yellow," image that the exhausted sulphide bath leaves behind. It is very slight in colour, is undevelopable, insoluble in hypo, and unaffected by a fresh strong sulphide bath. It can be chlorised, but redevelopment does not restore the black of the original bromide print. It simply gives a brown colour, varying in depth according to the amount of reduction effected by the hypo in the sulphide bath. These facts rather suggest that it is another form of sulphide of a very slight colour. It cannot well be a case of partial sulphiding simply, for then the application of a fresh bath should complete the process.

It appears to us that the facts collected are sufficient to form the foundation of a theory of the action of a stale sulphiding solution. As is well known, hypo is one of the products of decomposition of sodium sulphide, therefore some hypo must be present in most working solutions. We have tried adding hypo to a fresh solution, but a very small addition seems to make no difference whatever. If, however, the addition is beyond a certain small amount, then the colour is affected. It is lighter, and tends towards a yellow brown. When the hypo present is due to decomposition, it is evident that every increase in the quantity of hypo must represent a decrease of sulphide. When all the sulphide has gone, the remaining solution is a feeble fixing-bath that slowly removes the image altogether; but so long as any sulphide is present this action must be delayed.

With a certain excess of sulphide, the dissolved silver is probably redeposited immediately as sulphide in the parts where dissolution takes place, the net result being the formation of a sulphide image by a different method to that we intended using, and of a different colour to the one we anticipated. If the soda sulphide is further reduced, the solution of silver bromide may be more complete, and the deposition slower, the tendency then being for the sulphide to be deposited on the top of the film, and so form a tarnish effect. The tendency to deposit silver sulphide must diminish as the soda sulphide decreases by exhaustion, while the loss of silver must increase, and so the thinness of the image becomes more and more apparent until the solution is turned into a fixing solution alone.

On this theory the yellow image is formed by the action of the sodium sulphide on silver thiosulphide, and it is therefore of the same nature as the yellow stain produced in time in imperfectly fixed prints. The sulphide image that we aim at is, however, one produced by sodium sulphide acting directly on silver bromide in the presence of gelatine, and it is probable that none of this is formed at all in the presence of a sufficient quantity of hypo to encourage the other reaction. Both these sulphides are probably of a colloidal nature, and therefore amenable to treatment that the tarnish deposit resists, therefore both can be chlorised and re-developed. An important characteristic of the reduced prints is that the reduction is only obvious in the shadows. The light tones seem to escape both reduction and tarnish, probably because they are more rapidly converted to the yellow sulphide. No doubt they are attacked first, and therefore get the benefit of the maximum amount of sulphide present. The heavier tones are then more liable to reduction and to the receipt of tarnish.

NEGATIVE VARNISH.

FOR many years past there have figured in the "Almanac" formulæ for negative varnishes, in most of which, it will be noted, shellac figures largely. During the last two or three years a solution of celluloid has been introduced as a varnish for gelatine negatives, and a very good protective it is for the purpose, but it is not suitable for collodion negatives, or for collodion transparencies, as the solvents of the celluloid will also dissolve the collodion film. However, spirit varnishes are still largely used for gelatine negatives, and there is no gainsaying the fact that they form a highly protective medium, both chemically and mechanically, while they have the advantage of being cheap to make and to purchase.

From time to time we have learned from correspondents that they have failed to get the shellac to dissolve in the ordinary methylated spirit of commerce, and we may therefore refer to one or two necessary precautions. It may, in passing, be as well to mention that the ordinary commercial methylated spirit is quite as good for our present purpose as the more costly unmethylated alcohol, provided that it is of the strength of about s.g. .830, which is the strength supplied when the spirit is obtained from any reputable dealer. It will be as well here to explain that there are two kinds of shellac met with in commerce—white lac and brown lac. The former is the brown variety which has been bleached with chlorine. In its brown state it will keep indefinitely without deterioration. But after it has been bleached it undergoes a slow change and becomes more or less insoluble in spirit if kept for any considerable time. This change comes about more quickly if it is kept in a dry condition than when it is kept damp, but in any case, if the white lac be used, it should be obtained newly bleached, and, if possible, direct from the bleachers, as then its freshness is better ensured. More-

over, what is not used up at once should be put into a closed jar with a little water at the bottom to keep the contents moist.

Varnish made with white lac is nearly colourless, having only a pale straw tint. If the unbleached kind be employed the varnish will have a more or less strong reddish-brown colour. The best coloured unbleached lac is what is known in the trade as "pale orange lac," and that is the brand which should be chosen. It has a certain amount of colour, but on a negative the varnish film is so thin that it practically has no retarding effect on printing. Whatever kind of lac be used it should be understood that it will not form a clear solution, as it contains waxy and other matters which are not soluble in spirit, and consequently remain in suspension and render the solution turbid. Filtering the solution is often a tedious means of clearing it: it is better to let it clear by subsidence, decanting the bright portion, and afterwards filtering what remains. As just stated, shellac as a rule is not wholly soluble in spirit, but we have seen some samples that were entirely soluble in spirit and formed a clear and bright solution when dissolved. They were bleached on the Continent, and in the operations the insoluble portions were removed. The price of this lac, we were told, was about double that of the best white lac here, but so far as we know this kind of lac is not to be had commercially in this country—at any rate, we have been unable to obtain it of several lac bleachers to whom we have applied. It has been said by some that brown lac makes a more durable varnish than does that which has been bleached. This is an idea that we cannot confirm. Provided the lac was of good quality in the first instance and it was dissolved within a reasonable time after bleaching, it forms an equally satisfactory varnish.

Having said this much about the lac itself, we will now give a formula for a negative varnish that is hard, tough, and very protective for both gelatine and collodion negatives, and is very inexpensive to make.

White or orange lac	...	...	$\frac{1}{2}$ lb.
Sandarac	...	...	2 ounces.
Methylated spirit	...	...	3 pints.
Oil of lavender	...	...	$1\frac{1}{2}$ ounces.
Coarsely powdered, or broken up, glass	...	...	a handful.

If the bleached lac be used it should be broken up into small pieces and then well dried. The reason for this is that interstices of the pieces contain a considerable quantity of water retained in the washing after the bleaching operation. Unless this is got rid of it will, of course, reduce the strength of the spirit. Shellac by itself gives a very hard and resistant varnish, but with the small proportion of sandarac here given we have found that both its hardness and toughness is increased. It might be thought that the addition of the sandarac, which is a more brittle resin than the shellac, would interfere with the toughness of the varnish, but that is not the case, as the mixture of the two resins gives a really tougher varnish than the lac by itself. The object of the glass is merely to prevent the agglomeration of the resins as they are being got into solution.

The following is the best way of making the varnish. The spirit is first put into a Winchester quart bottle and the glass added. Then the broken up and dried lac is introduced, together with the sandarac. The whole is then well shaken together and the bottle laid on its side. The shaking up is repeated at convenient times—for the complete solution may take some days—according to the solubility of the lac. When the solution of the resins is complete the oil of lavender is added, the bottle stood aside, and the sediment allowed to subside. If after standing three or four days there is no sign of its doing so, the cork

may be loosened, the bottle stood in a vessel of water and kept warm for an hour or two. This treatment will materially aid in the subsidence. Instead of causing the insoluble portions to settle by heat, the varnish may be cleared by filtration. This, however, will be found somewhat tedious business when the lac is in the "non-subsidable" condition. Usually, if the lac is in good condition, the varnish clears itself in the course of a few days and it will be found that when the insoluble portion subsides spontaneously it can be filtered out much more quickly than when the subsidence has been aided by heat. It is quite possible, if the lac is of specially good quality, that the varnish by this formula may prove a little too thick for convenient use. In that case all that has to be done is to add a little more spirit. In making varnish it is more economical to make a fairly large quantity at a time, as there is not much more waste with a large batch than with a small bulk.

THE "LATENT PERIOD" OR PERSONAL EQUATION AS A FACTOR IN RAPID HAND-CAMERA PHOTOGRAPHY.

In a recent lecture on the Photography of Sport, given before the R.P.S., Mr. Adolphe Abrahams drew attention to the fact that to secure an exposure at precisely the right moment it is necessary for the photographer to anticipate the action, or, in other words, to visualise it a small fraction of a second before it occurs. That this must be so is evident, for there must be an interval of time between the seeing of the actual occurrence and pressing the shutter release. If we do not press until we actually see the event then the photograph must be a little late. By practice, the expert gets into the way of thinking that he sees the action exactly the right period of time before it really happens, and so secures a photograph at just the right moment. This right period is called the "latent period," and it varies with different people. Between the appreciation of any event by the agency of sight, sound, or touch, and the making of a responsive movement, there must always be such a period, though the necessity for getting into the habit of involuntarily anticipating it is met with only in certain work. The measurement of this latent period, which, in some individuals, may be as much as one-fifth of a second, has always been a matter of interest, and in "Knowledge," for January, Mr. G. G. Blake describes a simple apparatus for effecting it. In this apparatus the operator and the subject stand on opposite sides of a screen. The former touches a button, which releases a pendulum, and at the same moment throws up a small indicator above the screen, or rings a bell or gives a slight electric shock to the other person. On perceiving the signal, the subject presses a lever, which stops and clips the pendulum. The extent of its swing is then read off on a scale, and so the period is ascertained. The apparatus is clumsy, and it is obvious that the true latent period is not measured. The result is the sum of that period and of the time taken in depressing the lever, which latter time would vary considerably with different people with an apparatus of the kind illustrated. Further than this, the visual test would hardly be a fair one for a photographer, because an element of surprise comes in with the sudden appearance of the indicator. It should, however, be fairly easy to devise an apparatus that would not only measure the latent period, but also test the subject's power of anticipation.

It must not be forgotten that the latent period of practical import to the photographer is not merely his own natural period. In addition to his own personal equation, there is a certain latent period belonging to his apparatus, and this must vary with different types of cameras and shutters. For example, with the focal plane shutter, a

ving object in the centre of the plate is not exposed at moment when the button is pressed, for the slit has to vel over nearly half the plate before exposure com- nces at that point. This period will vary with the ten- l. Again, in the reflex camera, the mirror must be got of the way before the slit commences to move, and this her lengthens the period. Even with a lens shutter re is a certain short period, for the shutter does not n fully till after the pressure has been applied to the ase, and the fact that such an interval exists can be n if we look through the shutter as it is fired off. The od by which a hand-camera worker must anticipate the ical moment is therefore equal to his own latent period s that of his apparatus, and the only way to measure s is with the camera. Again, it must be remembered that problem a photographer has to solve is the catching of e phase of a movement, the whole progress of which is ble. Mr. Blake's apparatus is on the lines of a disap- ring target, and probably a good rifleman, practised in pshooting, would come off better than a photographer. etter object for the latter would be afforded by a disc,

revolving at a known speed, with an index mark upon it, similar to the arrangement often used for shutter speed- testing. The operator would press his shutter release when the index appeared to him to be opposite a fixed datum mark, and the resulting photograph would then show the interval that elapsed (if any) between the coincidence of the marks and the commencement of exposure, as well as the duration of the exposure itself. The interval would be the combined latent period of operator and camera, and by adding a simple contrivance for instantaneously stopping the rotation of the disc on the pressure of a button, the operator could ascertain his own latent period separately. If in the habit of anticipating movements, these measure- ments would probably be incorrect, so, as a check, a dis- appearing signal might be employed for a second pair of tests. A hole through disc and background, with a light behind, would serve this purpose. By these methods the efficiency of the photographer in high-speed shutter work would be very well tested, for, with a practised hand, the datum should appear to coincide with the centre of the blurred image of the index.

DETERIORATION OF PHOTOGRAPHIC LENSES.

QUESTION which, by its frequent appearance in the "Answers" column of the "Journal," is evidently one of frequent interest to readers is that of the value of old photographic lenses. It would appear that the causes which lead to the deterioration in quality—and therefore in value—of objectives are much misunderstood and unrealised by many photographers, even by those familiar with details of types of lenses which have become obsolete.

One may meet at times with an old portrait lens that is good in appearance, so far as the mount is concerned, which when used visually in the camera is found to give a well-defined image, and yet on testing by exposing a plate may be found that it is very much slower in action than its aperture would warrant. Some such lenses, bearing good Continental names, have passed through the writer's hands. On examination by placing the components on a sheet of white paper and looking through them it was seen that the pure white of the paper was degraded. It is clear that the instruments were not in this state when they left their makers' hands; they had changed since. This change may be due to one of two causes, possibly, the two combined: the balsam with which the two pieces were cemented together has become tinted, or the glasses themselves discoloured. Some samples of balsam are prone to colour with age, and some kinds of glass, if long exposed to strong light, are liable to become discoloured to a yellowish-brown tint. Such changes as these, of course, would account for lenses being slower in action than when they were first made. The slowness due to the balsam may be remedied by having the glasses re-cemented. But with regard to arising from the discoloration of the glass nothing can be done.

Another cause of slowness should be mentioned. When a lens is first issued by the maker all the surfaces of the glasses are in the highest possible state of polish, and while in that state there is little or no obstruction to the light. But if this polish becomes destroyed, this condition is altered, and the rapidity of the instrument is reduced, while at the same time the brilliancy of the image it yields is degraded. This deterioration is brought about by lack of care in handling, as, for instance, in cleaning. When dust has settled on a lens, the same care should be exercised in its removal. We have seen this in studios, when out of use, standing on the hoods with the back combination covered with dust. When the instrument

is required for use, the dust is frequently removed by the first thing that comes to hand—perhaps a duster, or maybe the focussing cloth, either of which is probably well charged with dust. Doing this once or twice may not do any very material damage, but when it is repeated continually for many years the result becomes very manifest. Its result may be easily seen if a quite new lens be compared with one of the same make that has been many years in use, or even when the outer or exposed surfaces of the glasses are compared with the inner or protected ones, which seldom require cleaning.

The writer has been more particularly referring to portrait lenses employed in the studio, but the deterioration may be much more rapid and marked in those for outdoor work—hand-cameras, for instance. These are sure to become more or less dusty in use, particularly if they are carried on a bicycle. The dust in this case is mostly road grit, which is very sharp and cutting; and if that be rubbed off, as is too often done, without proper care, the lens will become deteriorated much more quickly than it would with only studio use.

Lenses may be seriously impaired by a very slight accident, though the cause may not at first be suspected. A short time ago the writer had a portrait lens by one of the leading London makers submitted to him that would not yield so sharp a negative as it once did. On examination it was noticed that one of the cells of the back combination was slightly dented, as from a knock or fall, and on close scrutiny with a gas flame it was seen that the glass in that cell was so jammed that its image was quite out of centre; in short, that a sharp negative was an impossibility. As the accident had not cracked or chipped any of the glasses, damage from the fall was not suspected. However, the maker of the lens soon repaired the damage. All lenses, it should be noted, should fit loosely in their cells, so that they can be easily rotated: if they become jammed their performance may be, as in the case quoted, considerably impaired. In the modern anastigmats absolute correct centring of the glasses is of far greater importance than it is with some of the older forms of lenses, and a very slight injury in this direction may quite destroy the original excellence of the instrument.

Long continued exposure to damp has a pernicious action on the surfaces of lenses. A few years back the writer was shown a large portrait lens by one of our leading London makers. It had originally cost between fifty and sixty pounds, and had

been used for some years in India, which is a very trying climate for lenses. The mount was considerably oxidised, and the glasses—or the outer surfaces of them—were oxidised, and had an iridescent and spotty appearance, which is sometimes termed mildew. However, when the brass-work was re-lacquered and the glasses re-polished by the maker, the instrument was practically as good as at first.

Lenses may also suffer in quality from a quite simple cause, while the restoration to the original state is equally simple. A case in point is as follows:—A photographer of our acquaintance had a pair of C.D.V. portrait lenses by a first-class optician that were fitted on a twin-lens camera. When the carte portrait went out of fashion the camera was put aside, but one of the lenses was taken off and put to other uses—mostly enlarging. After some years' use in this way it was restored to its place on the twin-lens camera for stereoscopic work, and it

was then found that there was a marked difference in the performance of the two. The one that had lain out of use yielded a far more brilliant negative than the other, although there was no apparent reason for it in the lenses themselves. The difference, it was found, was due entirely to the inside of the mount. The dead black on the inside of the tube of the one that had been in use had, by cleaning, been rubbed to such an extent that it was, as it were, polished and reflective of light. The interiors of both mounts were re-blackened, when they once more worked in unison as they did at first.

In the foregoing it is pointed out how photographic lenses may, and frequently do, deteriorate with age and use. Although an instrument may be by a first-class optician, it does not follow that it will, after many years' use, have the same excellence that it had when first issued from the factory.

JABEZ MOULL.

THE SILVER INTENSIFICATION OF DRY-PLATE NEGATIVES.

SINCE dry plates have superseded wet plates in photography silver intensification has practically died out. Occasionally one hears of a worker who has been successful with a batch of negatives, but most attempts to add fresh silver to a dry-plate image only end in failure. It is only very rarely that the molecular state of the image on modern plates is suitable for physical development. As a general rule silver cannot be deposited from a solution upon this image. Some years ago I, after repeated failures, came to the conclusion that no physical development method was likely to prove successful, and I turned my attention to trying to discover some quite different method. As some of the readers of this article may be aware, I was quite fortunate in my research. I think it was about three or four years ago that I discovered, and published in "Photography," the method which starts with the copper bromide bleacher, and which I append at the end of this article.

Lately, however, I have returned to the physical-development method, and I am happy to say that I fancy I have solved the problem. I need not dilate on the advantages of the physical-development method; they are so obvious. The growth of the density of the negative can be watched and stopped at any point, and the operation is so simple.

Well, to come to practical details. I advise that the negative that is going to be intensified should be first well soaked in water. It is then bleached in

Potassium bichromate	65 grs.
Conc. sulphuric acid	400 minims.
Common salt	1 oz.
Water	10 oz.

and after bleaching is complete it is washed. The bleaching solution keeps well, and after use it should be poured into a bottle, corked up, and stored for future employment.

The bleached negative, after all the bichromate solution has been washed out of it, is put into a dish containing

Sodium sulphite (cryst.)	15 grs.
Conc. sulphuric acid	25 minims.
Water	5 oz.

and exposed outside the window on the sill to the daylight for about one hour. The light acting on the silver chloride of the image in the presence of sulphurous acid, which is here a "chemical sensitiser," forms one of the well-known purple photo-salts.

After this, the negative is again washed. We can now either proceed to intensification straight off, or we can first reduce

the remaining silver chloride to metallic silver by means of a redeveloper. The latter process is perhaps advisable, as it enables the intensification to be watched with greater certainty. I know of no better redeveloper than

Metol	30 grs.
Sodium sulphite (cryst.)	90 grs.
Sodium carbonate (cryst.)	1 oz.
Water	10 oz.

This solution keeps quite well if stored in a bottle with stopper greased with a little vaseline.

After redevelopment the negative is again washed. In the *middle* of this washing the negative should be put into a bath of about $\frac{1}{2}$ per cent. hydrochloric acid for something like ten minutes, if the washing water be, as it usually is, of the hard variety. The intensification proper can now proceed. As to the intensifying solution I advise:—

Pyro	2 $\frac{3}{4}$ grs.
Silver nitrate	9 grs.
Citric acid	70 grs.
Water (tap)	5 oz.

The negative is kept in this solution until sufficiently dense. Now, if after the light treatment the negative has been redeveloped, it is, after intensification, washed, fixed, and washed again. If it has not been redeveloped after the light treatment it is, after intensification, washed, bleached again, and redeveloped, and then fixed or not, as one likes. In making up the intensifying solution the silver nitrate and citric acid must be added first, and the pyro only after both have dissolved and just before the bath is going to be used. The use of distilled water is certainly not necessary. If redevelopment has not been carried out at the end of intensification, I personally prefer to bleach and redevelop after the final fixing—of course subsequent to a very thorough washing. If the silver intensifying solution is made up according to the formula of Mr. Wellington, or a similar one, then, of course, redevelopment must always follow the light treatment. I lay no stress on the particular silver solution given above, but merely suggest it as being a good one. Now, there is, in my opinion, only one untoward thing which can happen. I do not think it is at all likely, but still a yellow stain may appear on the negative after the silver bath. If this happens it does not really matter, for it is very easy to get rid of the same. The negative is first washed, and then, if redevelopment has not preceded intensification, it is put straight into the redeveloper without being previously bleached, and after the acti-

is complete it is washed. After this treatment, or if development has preceded intensification, without carrying out, the negative is put into

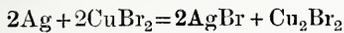
Bichromate-chloride bleacher	1 oz.
Water	5 oz.

about a minute or two, and before any visible action has taken place on the image, the stain will have disappeared. The negative is then washed, fixed, and washed again.

Before concluding this article, I should just like to describe briefly the cuprous bromide method of silver intensification. I have great faith in this method, for I have used it fairly often during the last few years, without it ever having failed me. The negative is first soaked in water, and is then immersed in

Copper sulphate	100 grs.
Potassium bromide	100 grs.
Conct. sulphuric acid	30 minims.
Sodium sulphite (cryst.)	15 grs.
Water	5 oz.

completely bleached. The action in this bath is



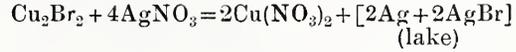
A mixture of silver bromide and cuprous bromide being formed. The negative is next washed in five changes of

Sodium sulphite (cryst.)	50 grs.
Conct. sulphuric acid	100 minims.
Water	20 oz.

The immersion should be for about three minutes in the first change and four in the subsequent ones. After this washing has been carried out the negative is immersed in a dish of water for between five and ten seconds, and is then put into

Silver nitrate	80 grs.
Conct. nitric acid	80 minims.
Water	10 oz.

and left there until all action is at an end. The action taking place in the silver bath is



At least, this is my view of the action. We get thus an image consisting of silver bromide and a silver and silver bromide lake. Some call this latter body silver sub-bromide.

The negative is now thoroughly washed, and after this bleached in the bichromate-chloride bleaching solution given above (concentrated solution). It is next redeveloped. If any yellow stains appear, they are got rid of after the final redevelopment as above described.

I ought to add that the copper bromide solution should after use be corked up in a bottle and kept for a future occasion. When it is used again, about 10 grs. of sodium sulphite (cryst.) must be added to it. The silver nitrate solution should also be kept, and can be used for several negatives without any addition to it. The sulphurous acid solution, of course, will not keep, and must be made up fresh each time, and not more than an hour before use.

R. E. BLAKE SMITH.

TESTS OF BROMIDE PAPERS.

[A paper by Herr E. Valenta in the current issue of "Photographische Korrespondenz" contains a description of the means of applying simple tests to gelatino-bromide papers with a view to forming a judgment as to the perfection or otherwise of their manufacture. The following is a translation.—Eds. "B.J."]

Among the various sensitive photographic papers those of the bromide class have of late appeared upon the market in many varieties, particularly for use in the production of picture posters, for which purpose immense quantities are used. The manufacturers which produce such paper naturally use a great deal of raw stock (baryta paper). This, and the fact that the manufacture of raw paper for the bromide process requires, as a rule, less scrupulous care than that of paper for a printing-out process, are the cause of such paper being prepared by manufacturers who are not in the special business of manufacturing raw papers for photographic purposes. In the case of raw paper which is to be used for the print-out process it is necessary that the sole, or, at any rate, the chief, constituent of it should be the best rag, and that it should contain practically no metallic particles such as those which may get into it from the brass of the Hollander machine or from the calendering rollers. These particles are usually so small that they can scarcely be recognised by the naked eye, but in the case of papers bearing emulsions containing free silver salts they give, by reduction, to black spots in the prints. In the case of bromide emulsion the presence of these particles in the paper is of less importance, since the sensitive emulsion is to some extent protected by the baryta film, and, moreover, contains no soluble silver salts which may be easily reduced.

Thus it comes about that, although the existence of minute metallic particles in the raw paper for bromide work has not the same injurious effect, yet, nevertheless, such metallic impurities should be very small and few in number, and particularly should not occur in the baryta film, since these latter give rise in the prints to white spots containing a black nucleus. The paper which is produced at the present time for bromide work by several makers is prepared from well-purified cellulose, with the addition of rag, frequently also only free cellulose, and

containing only a very small proportion of metallic particles, since these are carefully removed previously in the manufacture by a special process. Thus it frequently happens that the makers of bromide paper, in cases where the prints show spots, ascribe the blame solely and only to the paper, although in many cases defective coating or the improper composition of the emulsion is the cause. For the purpose of carrying out tests of bromide paper which is thus defective the following series of tests is recommended.

The paper is first examined as to its freedom from wood-pulp. This is done by dabbing the back of the bromide paper with a 5 per cent. solution in water of aniline sulphate. In the presence of wood-pulp the portion thus treated turns yellow. If the bromide paper under examination is packed in rolls several sheets should be cut of a size about 20 inches square and further tested as follows:—

I. From each of such sheets taken from different parts of the roll contact prints are made from a good negative, using a suitable developer, such as metol-hydroquinone.

II. On portions of each sheet also a series of exposures are given, say from one to five seconds, at a distance of, say, one metre from a sixteen candle-power incandescent lamp. These exposures are likewise developed and fixed.

III. A portion of each sheet is allowed to remain exposed to daylight.

IV. A portion of each sheet is fixed without previous exposure to light, washed, and dried.

Test I. serves as a criterion of the emulsion, whether the latter works bright and clear or flat and foggy, and, further, will show to what extent any production of spots will affect the practical usefulness of the paper.

Test II. serves for ascertaining the total number of spots by means of microscopic or other examination.

Test III. will show the occurrence of violet spots prior to the whole surface of the paper assuming a uniform tone. Such spots, on fixing the paper, become yellowish-brown. They are caused by substances which produce a sensitising of the silver bromide, and have fallen as dust upon the coated emulsion film, or on the baryta paper before coating.

Test IV. serves for the discovery of the existence of metallic particles in the paper or in the baryta film. For this purpose the fixed and washed bromide paper is flowed over in a dish with 5 to 6 per cent. acetic acid, which is allowed to act for some minutes. The paper is then removed, hung up to dry, and then placed in a 3 to 5 per cent. solution of potassium ferrocyanide, being then again dried. In the paper which has been thus treated the iron particles assume a blue colour (Berlin blue), those of copper a brown colour, due to ferrocyanide of copper. The test also renders it easy to discover whether the particles are in the paper or in the baryta film. If this method of testing has shown the presence of metallic particles in the paper, it is advisable to note the spots in the exposed and developed paper, and to then repeat test No. IV. with this latter, whereby it is possible to distinguish sharply the spots due to metallic particles and those due to other causes.

The adhesive contained in the material of the baryta film may also give rise to spots. In order to judge of the influence of this latter, some pieces of Test No. IV., after fixing, washing and drying, are soaked in 2 per cent. ammonium chloride solution, dried, and sensitised on 10 per cent. silver nitrate solution (by floating gelatine side downwards on this latter). If the paper, on then being allowed to remain in the light after fixing etc., shows no black spots other than those arising from metallic particles, it may be assumed that the sizing of the paper is not defective, and that the spots are due to the emulsion.

In regard to spots which may be due to defective coating, the following should be remarked:—The presence of particles of grease in the gelatine may be recognised by the white round spots on the prints containing no nucleus.* Particles of dust which find their way into the gelatine or baryta film may give rise to spots, just as do metallic particles in the baryta film but they, in contrast with the latter, show a nucleus.

E. VALENTA.

* In contrast with the white spots due to air-bubbles adhering to the paper when the developer is poured on, it may be noted that these latter are round and have sharp edges. That may be avoided by soaking the paper in water before development, and removing all air-bubbles from the surface by continually rocking the dish.

THE CARD SYSTEM FOR KEEPING A PHOTOGRAPHER'S ACCOUNTS.

[In pursuance of the recent notes and articles on the use of the card index system which have appeared in our columns, we reproduce an article from a recent issue of the "St. Louis and Canadian Photographer," describing the system adopted by a number of professional photographers.—Eds., "B.J."]

WHAT does the ordinary photographer use in the way of a system? About all there is to it is a register. This is a bound book in which he records day after day the orders he receives from his customers. Each order is given a number. When the negatives have been developed they are marked with their numbers and stored away. It is not customary for the photographer to keep an alphabetical list by names, so that it is often impossible to locate the negative number of some customer's old order after it has been filed away.

A modern system looks to the photographer like such a revolutionary departure from old methods that he is apt to turn it down without investigation, for no other reason than that it is new.

The system which the writer will describe in this article has already been adopted by quite a number of progressive photographers in various parts of the country. It is not as expensive as it seems at first thought. On the contrary, it will save the photographer a considerable amount of money in the course of the year. We shall have accomplished our purpose if we can only induce the photographer to use a card system in place of his present book register, though the vertical method of filing and indexing negatives and mounts represents exactly the same amount of saved time and work as the indexing of customers' records on cards.

A photographer ought to be able at any time to tell just what proofs are being made, just how many proofs are out and just how much work he has in the printing room. He should be able to find instantly any customer's account, regardless of the condition in which the work for that customer may be, either by the name of the customer or number of negative.

We use a card 5in. wide by 3in. high, which is printed on one side. It has spaces in the upper right-hand corner for the negative number, and the date, the size, description, and price of the order are written in the other spaces below. The customer's name and address occupies the upper right-hand portion of the card.

A package of these blank cards should be kept conveniently at hand in the reception room, so that the moment a customer enters the record of the order can be made directly on one of these cards.

It is a good plan to have these cards printed in two colours—white and salmon—using a white card where a sitting is to be made, and a salmon card if the photographs ordered are to be printed from an old negative.

The reception clerk keeps a memo of the last negative number used and when making out a card, whether white or salmon, the next consecutive number is set down thereon. When this card, known as the "ledger card," is made out, a second card the same size, known as the "gallery card," is made out and passed to the gallery. The "ledger" card must never leave the reception room or office, as it is the only record the office has of the transaction. Some photographers use exactly the same card for both "ledger" and "gallery" form and it is perfectly practicable to do so. Where the customer is received by a clerk or one member of the firm, and, after being passed to the gallery, is taken care of by another member of the firm, the use of the "gallery" card will save an introduction or explanation as it will convey to the gallery operator not only the customer's name and address, but the size, price, and description of the order. The knowledge of these facts on the part of the gallery operator is always a pleasing compliment to the customer, who is quick to infer that he or she is well known to everybody in the studio.

After the exposures have been made and the customer has departed, this "gallery" card accompanies the negative through the processes of developing and printing. The negatives are numbered from the card by scratching the number thereon with a pin. After printing, the proofs are delivered by to the reception room, accompanied by the "gallery" card. The "ledger" card all this time has been kept in the office, filed in a card drawer according to the date upon which proofs should be completed and mailed or delivered to the customer. For example, the customer, when leaving the studio, may have requested that proofs be mailed to her not later than the 20th of the month. The reception clerk, therefore, files the "ledger" card behind the index guide for the 20th, in addition to marking the "gallery" card with this date. On the 20th this "ledger" card will automatically come up for attention, and should the proofs not have been delivered to the reception room, the clerk will call upon the gallery or printing office for the proofs. By this simple method of "follow-up" the photographer can make sure that the requests of his customers as regards the mailing of proofs will all have proper attention.

As before stated, proofs are delivered to the reception-room accompanied by the "gallery" card. After the proofs are mailed to the customer, the "gallery" card is attached to the "ledger" card.

and filed in the card drawer ahead under the date, say the 28th, by which time the proofs should be returned to the studio. In the event of their not being returned by this date, a postal can be sent to the customer, calling his or her attention to the fact that delay in returning the proofs will necessarily mean delay in completing the order. After the mailing of such a postal, the two cards, which are still attached together, can be placed a few days further ahead in the card drawer. By keeping this up, the proofs are finally all brought in. The "gallery" and "ledger" cards are then separated, the former being placed with the proofs and returned to the printing room, the "ledger" card being again filed by date in the card drawer, according to the date upon which the mounted photographs should be ready for delivery.

When the proofs and the "gallery" card are received in the printing room, the negative or negatives which have been selected by the customer are filed away permanently by number in a negative rack. The negatives which have been rejected are destroyed. After the printing has been completed, the prints and the "gallery" card are delivered to the mounting room, after which the finished photographs, accompanied by the "gallery" card, are sent to the reception room.

Arrived there, the mounts are placed in a large envelope about 15in. long by 9½in. wide. The envelope contains a pocket in the face for holding the "gallery" card. The envelope containing the mounts is then filed in a vertical cabinet which generally, for the small photographer, consists of two or four vertical filing drawers bearing alphabetical labels, such as first drawer A-K, second drawer L-Z; or, for four drawers, first drawer A-F, second drawer G-L, third drawer M-R, fourth drawer S-Z. In each of these drawers is arranged a set of alphabetical index guides corresponding to the letters on the front of the drawers. The envelopes are placed behind these guides according to customers' names. The advantage of this method of filing mounts is that it is very economical of space. It keeps the mounts out of the way and free from dust, and yet makes them very accessible when wanted.

To revert to the disposition of the "ledger" card after the completed mounts have been received in the reception-room. This card, which has previously been filed by date, is now removed, and a postal card made out to the customer, informing him or her that the photographs are ready, and asking whether they will be called for or delivered. The "ledger" card is then filed in another card drawer labelled "Orders," indexed alphabetically by names. The card remains here until the photographs have been delivered and paid for, when it is removed and filed in another drawer labelled "Customers, 1908," indexed alphabetically by names.

After the delivery of the photographs the envelope is taken out of the vertical cabinet, the "gallery" card removed, and the envelope laid aside for further use. The "gallery" card is, therefore, filed away in another card drawer labelled "Negatives," and arranged numerically by negative numbers. It will thus be readily seen that any customer's negative can be promptly found by number or name.

Every five or seven years the photographer will want to destroy many of his old negatives, as it is comparatively certain he will never be called upon to reprint photographs from negatives taken so long as that. The filing of the "gallery" cards by number affords him a very convenient method of keeping track of the length of time he is keeping his negatives. Otherwise a photographer has nothing to guide him but the negative number, which is not very reliable if he has made several reprints therefrom without re-numbering the negative.

We have described the use of the system only as it has to do with the execution of original orders. Where a customer calls at the studio and leaves an order for a reprint from a former negative the clerical routine is taken care of in a little different way. The reception clerk makes out a "ledger" card on a salmon-coloured card. As no sitting is necessary, the customer may leave at once, and after her departure the "gallery" card may be written out. Both these cards receive the next consecutive number. Reference is then made to the card drawer labelled "Customers, 1908," or, if last year, "Customers, 1907," where, filed by name, will be found the old "ledger" card of this customer, which will give the negative number. This old number will then be entered on the new "ledger" and "gallery" cards, the former reading something like this—

Negative 8,920. Mr. Arthur Jones. 2 doz. photographs, oval, sepia, style K. From old negative No. 3,420. \$8.00.

The new "ledger" card is filed by date, and the "gallery" card goes to the printing room, where negative No. 3,420 is located and the old number removed and the new number marked thereon. The prints are made, the negative re-filed under this new number, and the "gallery" card and prints delivered to the mounting room, where, after being mounted, they are sent to the reception room and placed on file in the vertical cabinet, awaiting delivery.

So far as I have observed the card system in use by photographers, I believe it a better plan to make out a new ledger card for every duplicate order. In the case of reprints, where negatives will be re-numbered, the gallery cards should also be re-numbered, which would make a smaller quantity of the latter to be filed than of the ledger cards.

ROLAND COLE.

THE PLACE OF PORTRAIT POSTCARDS IN A PROFESSIONAL BUSINESS.

A RECENT article in the "Trade News" (U.S.A.) records the experience of a professional photographer of Salem, Ind., to the effect that the sale of many portrait postcards had not harmed his business in the way of reducing prices of his regular work.

The samples of cards are kept well out of sight, but where they can be reached quickly, and, when a customer comes in, the regular work is shown and talked about, the order taken, the sitting made, and all business completed. If the time is propitious, the postcard question is brought up at that time, but, if not, the matter is not suggested until the proofs are returned and accepted. When the order is given, and the regular business all disposed of, then the samples of postcards are brought out with a suggestion that the sitter might have some friends who live at a distance to whom she might want to send a picture, but does not care to send one of the more expensive set. If so, the postcard, which can be obtained at two for a quarter, four for a half, or a dozen for a dollar (4s.), will be just the thing, as it can be made from the same negative, and will be a very pleasing little picture. The number of times this brings orders is astonishing, and, as the cards are very inexpensive and easy to work, whatever is taken over and above the price of the original order is just so much velvet, and, in these days, if an average of 50 cents can be added to every order taken, it will make a very tidy sum at the end of the month.

But the postcard has been found to be a booster of prices instead of an influence toward lower prices, as so many photographers seem inclined to think it is. It must be worked right to have this effect, but if it is worked right it will get you higher prices for your regular work. You frequently have customers who, when asked how many pictures they want, stand and count on their fingers the number of people to whom they have to give pictures, and if two or more come, they will consult and consume a lot of time trying to determine whom they will honour with a picture and whom they will have to omit. Then when they find that they ought to give more than they had expected they will complain of the cost of the grade of work and say that they want to try to get a cheaper grade.

Right here is the time to stand strong for the high grade of work and to suggest that the customer should get the best possible grade of work for the close friends and then send the postcard pictures to those not so close, but not to think of changing the order to a cheaper picture, which will not prove as acceptable to the close friends and will not make a bit of difference to the others. Use the argument of the satisfaction of being able to distribute to the people whom one wants to please a picture that they will be proud to have go out. That the prettier the picture the more it will be prized by friends and the more it will be displayed. This is a strong argument for better work, and if it can be shown that the postcard is a good way to satisfy the lesser demands of one's friends, then they will get the higher priced pictures, and every one of these that go out is a bid for re-orders, and a demand from the friends of this customer for pictures of the same grade. If the cheap pictures are put out, the recipients, when it comes their turn, will very likely order the same grade as the ones given them.

There is money in a good grade of photographic work, but the cheaper the work the less money there is in it. It does not pay to demand more than the customer can pay, but it does pay to give and to persuade the customer to take the very best grade that he or she can afford. If the postcard is worked shrewdly it is a fine thing. If it is not worked shrewdly it can become a great nuisance. Do it right.

Photo-Mechanical Notes.

Mechanical Half-Tone Wood Engravings.

OUR readers are aware of the "Acrotones," the mechanically engraved half-tone produced by Mr. Amstütz's "Acrograph." These are produced by cutting with a V-shaped tool into celluloid placed over a carbon relief, and the width of the line is accordingly varied with the height of the underlying relief. We are now informed that wood engravings can be produced in a similar manner. In the Acrograph the tool is fixed, and the surface cut is flexible and follows the relief. Wood, however, is not flexible, so it would appear as though the tool must rise and fall according to the relief—that is, if a relief is used at all. Certainly the proof we have seen looked extremely well and as though it had been done from a photograph. We hear the method has secured substantial backing, and, if all that is claimed for it proves to be true, we ought to see much work by this method in the newspapers of the near future, for such blocks should be somewhat easier to stereotype and print than ordinary half-tones.

Pencil Drawings and Charcoal Sketches.

In reproducing these it is sometimes found that the ground photographs very mottled. This is due to the yellow colour of the varnish used by the artist as a "fixative" for pencil and charcoal work. If this trouble is encountered, wet plates should not be used, but a panchromatic plate, which will generally photograph the ground evenly without any filter. If a filter is needed, then only a light yellow one is necessary.

Making Autochromes by Enclosed Arc Light.

It has been found that the colour rendering of Autochromes, illuminated by enclosed arc when using the Lumière filter, is unsatisfactory. This is possibly due to the filter not absorbing all the ultra-violet rays in which these lamps are so rich. A filter that will give good results, however, can be made from a solution of bichromate of potash in water. This must be very dilute, from 1-15th to 1-20th of 1 per cent., according to the width of the filter cell, 1-20th per cent. serving for a cell one centimetre in width.

Reflectors of Arc Lamps

The reflectors of arc lamps are apt to become very discoloured after a time, and so the efficiency of the light is considerably impaired. To whitewash them, however, is not of much use, as the heat soon causes it to crack off, and most white paints are not very good, as they soon yellow badly. The best medium we have discovered up to now is the "Olsina" white water paint sold by Messrs. Mander Bros., which, applied thinly after it has been reduced with water to a suitable consistency, withstands the heat and keeps its colour well.

An Ink for Painting-out.

It is usual to use for painting-out, when fine-etching, either finishing ink, diluted with turpentine, or a varnish such as "Mogul" or bitumen dissolved in benzole or turpentine. The following is a recipe for this material from "Deutscher Buch and Steindruckerk Jahrbuch":—Put in a saucepan four parts of concentrated solution of bitumen in turpentine, two parts news ink, one part pitch, and keep stirring in the open over a stove until thoroughly smoothly mixed. Then allow to cool, and add turpentine until the mass is of the consistency of thick cream. Plates only need be warmed after the painting-out with this ink; it does not need dusting-in with resin.

Newspaper Half-Tones.

In most newspapers producing illustrations there is an eternal quarrel between the blockmaker, the stereotyper, and the printer, each blaming the other for the ultimate bad result. We have recently had the opportunity of examining microscopically sections of the half-tone plate, the stereotypers' matrix, and the stereo itself, and it was immediately obvious that the fault lay in the matrix, for while the block was of good section, being both deep and smooth, the matrix failed lamentably, and, making every allowance for shrinkage, it was quite clear the flong had never been beaten to the bottom of the hollows between the dots in the half-tone plate, and consequently the stereo was equally shallow, and the printer had

therefore no chance to secure a satisfactory result. Whenever there is a complaint about shallowness in blocks prepared for newspaper illustration, the test proposed by the American plate-maker appears to be one that can settle the point. He suggested that the plate should be held face downwards and smoked over a taper until there was a covering of fine black all over the plate. If now the flong, beaten into the plate, and goes properly home, the matrix will be black adhering to the surface of the points. In most cases, however, in which the half-tone plates are complained of, it will be found that the black is absent, thus showing that the flong has been driven to the bottom of the plate.

Half-Tone Blocks from Half-Tone Proofs.

A correspondent, K. Dunn, of Messrs. Penrose and Co.'s most interesting "Process Work," gives the following hint on the prevention of pattern-formation when making half-tones from a half-tone proof. It is given as the result of making hundreds of half-tone prints in the course of a year. "Place copy on the board, either in or out of frame, focus to size, then take out the ground glass and place a piece of clear glass in the dark slide, any size will do; pull a focussing cloth over your head and draw up the screen to the glass. Now if you have your half-tone print upright on the board, looking on the clear glass you will notice the pattern very strongly. If you have a boy to assist you, get him to slowly move the print round to something like an angle of 30deg. to 45deg., watching your clear glass till all pattern disappears. Put back the ground glass and focus sharp. It is very simple, and the quickest way of getting the best results from half-tone prints."

Hunter's Pocket Diary.

This diary is much improved in appearance this year, being now bound in leather, with a gold embossed monogram on the cover. There is a good deal of useful information contained in the book, though the pleasure in looking through it is somewhat discounted by its alternation with advertisements. Probably the best of the articles is "Some Hints on Drawing Up Photographs for Half-Tone Reproduction," which contains information, usually jealously guarded, that we do not remember to have seen published before.

Exhibitions.

PHOTOGRAPHS BY MEMBERS OF THE LYCEUM CLUB.

THOSE of our readers who have not yet paid a visit to the highly interesting exhibition of ladies' work at the Lyceum Club, 1, Piccadilly, will yet be able to do so, as it will remain open until the end of the month. It is well worth inspection, as not all the exhibitors are known to the general photographic world, and those that are show noteworthy work. Particularly is this the case with Miss Agnes G. Warburg, whose oil print of Wareham Bridge looks very distinctive here. The same lady's "A Rainy Day" is in every way first rate. It is a sea-shore scene, with a fine natural effect. "Won't" is the title of a clever print of a child standing partly in the sunshine from a window. It has strong and telling contrasts. Somewhat similar in subject is Mrs. Michael Foster's "Misunderstood," another little girl whose expression is most happily rendered. A good "Study in Red" of a man's head should be noted, as well as the same worker's "At the Fountain," a subject of a group of children in a print of fine quality.

Mrs. Cadby and Mrs. Keene show each seven and four works respectively. They work in diametrically opposite ways, and though it is difficult to make a preference between them, one can readily say that each would do better for a little of the other's manner, for Mrs. Cadby's are usually too feeble and Mrs. Keene's too strong in tone. One or two interesting portraits by Helen Lohman are spoiled by some childish bad lettering scrawled in the corners. A little chubby child called "Kitty" is pretty, but we cannot tell what prompted the choice of "Figures for scenes at Gordon Craig's Theatre." These so-called figures are mere "characters" cut out of thin material. One of the most interesting photographs here is Helen Sidney Woolf's "Magasinum, Ancient

umpets used in Sinhalese Religious Procession." Two natives are shown blowing these immense S-shaped instruments, which much resemble the old Roman tuba. Not the least arresting is the row of grinning natives, whose heads appear above a hedge behind, and who are mightily enjoying the "sitting" their comrades are giving the photographer. E. L. Turner and L. J. Veley show naturalistic studies; and Ella Tomlinson a nice, clean, sharp print of two old rustic characters on a settle, feeding a baby. This, as an illustration to Mrs. Gaskell's "Mary Barton." As for Mrs. Geo. Southnot, who exhibits three works, we think she might with some advantage take her husband in hand in matters photographic.

FORTHCOMING EXHIBITIONS.

- January 19 to 30.—Glasgow Southern Photographic Association. Sec., Robert Lindsay, 189, Allison Street, Glasgow, S.S.
- February 1 to 13.—Glasgow and West of Scotland Amateur Photographic Association. Sec., James McKissack, 68, West Regent Street, Glasgow.
- February 3 to 6.—Borough of Tynemouth Photographic Society. Sec., J. R. Johnston, 29, Drummond Terrace, North Shields.
- February 8 to 13.—St. Helen's Camera Club. Sec., A. G. Else, Duke Street, St. Helen's, Lancs.
- February 10 and 11.—Cowes Camera Club. Entries close February 1. Sec., E. E. Vincent, 4, High Street, Cowes.
- February 10 to 13.—Cleveland Camera Club. Entries close February 1. Secs., F. W. Pearson and R. Walton, 39, Granville Road, Middlesbrough.
- February 11 to 20.—Leicester and Leicestershire Photographic Society. Sec., Harry Cross, 80, Harrow Road, Leicester.
- February 16 to 20.—Norwich and District Photographic Society. Entries close February 2. Sec.; J. T. Tanner, The Lodge, Bowthorpe Road, Norwich.
- February 20 to March 6.—Edinburgh Photographic Society. Entries close February 6. Exhibition Secs., Edinburgh Photographic Society, 38, Castle Street, Edinburgh.
- February 20 to March 20.—South London Photographic Society. Entries close February 10. Sec., H. Crieghton Beckett, 44, Edith Road, Peckham, S.E.
- February 22 to March 6.—Birmingham Photographic Society. Entries close February 12. Sec., Lewis Lloyd, Church Road, Moseley, Birmingham.
- February 26 and 27.—Ilford Photographic Society. Entries close February 18. Sec., H. Eales, 53, Coventry Road, Ilford, Essex.
- March 11 to 13.—Coventry Photographic Club. Entries close March 5. Sec., W. R. Harris, 17, Allesley Old Road, Coventry.
- March 17 to 20.—Nottingham Camera Club. Sec., E. L. Kent, 5, Radcliffe Mount, West Bridgford, Notts.
- March 31 and April 1.—Shropshire Camera Club. Entries close March 20. Sec., Harry W. Hughes, Kingsland, Shrewsbury.
- April 10 to 17.—Midlothian Photographic Association. Entries close March 31. Sec., B. Sherratt, 8, Castle Terrace, Edinburgh.

A PHOTOGRAPHIC LODGE OF FREEMASONS.—A correspondent writes: Some years ago a suggestion was made by one of your correspondents as to the advisability of forming a photographic lodge of Freemasons, but nothing came of it. Perhaps now that so many are connected with photography—professionals, dealers, manufacturers, etc.—the time is ripe for further discussion."

"TRAVEL AND EXPLORATION."—In No. 2 of this excellently produced monthly the first place is given to an article by Colonel Sir C. H. Holdich on Dr. Sven Hedin's explorations in Central Asia, two of the illustrations to which are a full-page portrait of the explorer and a map showing the region of his travels. The volume also contains illustrated articles on "A Winter Cruise in the West Indies," by Algernon E. Aspinall; "Among the Veddas of Ceylon," by Dr. C. G. Seligmann; "Some Aspects of Morocco," by E. Ashmead Bartlett; and an amusing account of a visit to the Carpathian oil fields, entitled "The Back of Europe," by Claud G. Steel. This journal is published monthly by Witherby and Co., 325, High Holborn, London, W.C., price 1s. net.

Patent News.

Process patents—applications and specifications—are treated in "Photo Mechanical Notes."

The following Applications have been received from January 11 to 16:—

SHUTTERS.—No. 616. Improvements in focal-plane shutters. William Albert Edwards and Houghtons Ltd., 88, High Holborn, London.

EMULSION.—No. 651. Improvements in and relating to sensitive emulsion for coating papers, plates, fabrics, films, and the like. Frank William Heard and Fletcher John Mortimer Boden, 53, Waterloo Road, Leyton, London.

PORTABLE DARK-ROOM.—No. 668. Improvements in combined portable photographic apparatus and dark-room. John Bunyan Williard, 52, Chancery Lane, London.

POLISHING LENSES.—No. 698. Improvements in machines for grinding and polishing lenses and other like convex and concave surfaces. John William Pearson, 77, Market Street, Bradford.

PHOTOGRAPHING FROM A HEIGHT.—No. 709. Improvements in or relating to devices for photographing from a height. Alfred Julius Boulton (for Alfred Maul, Saxony), 111, Hatton Garden, London.

PRINTING FRAMES.—No. 773. Improvements in printing frames. Robert Alwyn Arnold Stephen Piercy, 323, High Holborn, London.

SHUTTERS.—No. 833. Improvements in shutters for photographic cameras. William Henry Burgess, 6, Bank Street, Manchester.

PAPER.—No. 883. Improvements relating to sensitised paper. Hermann Caster, 7, Southampton Buildings, London.

STENCILLING MACHINE.—No. 941. Stencilling machine. Charles Laurence Burdick, 4, Eastern Road, Wood Green, London.

COLOUR PHOTOGRAPHY.—No. 964. Improved manufacture of reproductions in colours. Bernard James Cooper, 70, Chancery Lane, London.

CAMERAS.—No. 1,037. Improvements in cameras. Daniel Walter, Grosvenor House, New Church Road, Hove, Brighton.

DIAPHRAGMS.—No. 1,139. Improvements in stops or diaphragms for photographic purposes. William Charles Masser and William Hudson, 18, Southampton Buildings, London.

CINEMATOGRAPHS.—No. 1,140. Improvements in and relating to cinematograph and similar projecting apparatus. Donald Stevenson, 36, Chancery Lane, London.

LENS MOUNTS.—No. 1,141. Improvements in lens mounts. Cyril Frederick Lan-Davis, 83, Denzil Road, Neasden, London.

COLOUR PHOTOGRAPHY.—No. 1,154. Improvements in and connected with colour photography. Louis Weigert-Sterne and Frederick William Moorf, 77, Chancery Lane, London.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 5d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

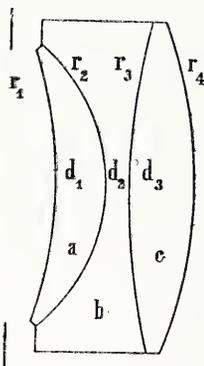
The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention

THREE-LENS ANASTIGMAT.—No. 13,902, 1908 (June 50, 1908). The invention relates to three-lens objectives, comprising a negative lens between, and in contact with, a biconvex lens of low dispersive power on one side and a positive meniscus on the other side, having lower dispersive and refractive power than the biconvex lens. It more particularly consists in a construction of objectives of this class in such a manner that the biconvex lens is formed of a kind of glass which has a higher refractive power than hitherto used, such refractive power resulting in a refractive index, n_D , of at least 1.615.

The effect obtained by such increase of the refractive power of the biconvex lens of the objective is due to the fact that the curvature of the contact surface between the negative lens of the objective and the biconvex lens is reduced in consequence of the

increased difference between the values of the refractive indices of the negative and the biconvex lenses. The advantage of the reduction of the curvature of the contact surface is that the astigmatic aberration, if eliminated for a certain inclination of rays entering the objective, is at the same time eliminated to a higher degree for varying inclinations of rays than in the case of greater curvature of the contact surface of the negative and the biconvex lenses, such as is found in former constructions, for instance, as described in the Specifications of British Patents, 3,041/99 and 29,447/06.

The high refractive power of the biconvex lens of the objective is preferably combined with a low refractive power of the positive meniscus, the refractive power of the last-named lens being reduced below the value hitherto used, so that the refractive index of the positive meniscus does not exceed the value 1.50. Such reduction of the refractive power of the positive meniscus of the objective likewise results in a reduction of the curvature of the contact surface between the negative lens and the positive meniscus in consequence of the increased difference between the values of the refractive indices of the negative lens and the posi-



tive meniscus. In this way it becomes possible to construct the objective so that the spherical aberration is eliminated for a great effective area or opening without introducing objectionable high spherical aberrations for intermediate zones of the objective.

An objective, in accordance with the invention, is represented in the drawing, where the three lenses forming the objective are designated a, b and c respectively. The thicknesses of the three lenses are designated d_1, d_2, d_3 respectively, and the radii of curvature of the four lens surfaces are designated r_1, r_2, r_3, r_4 respectively.

The constructional elements of two embodiments of the new objective for a focal length or distance of $f=100$ are given in the following tables:—

Radii.	Thicknesses.	Kinds of glass.
$r_1 = -12,289$ mm.		
$r_2 = -4,989$ „	$d_1 = 1,343$	$n_D = 1,5102$ $n_{c1} = 1,5202$ $v = 64.1$
$r_3 = +22,111$ „	$d_2 = 0,584$	„ $= 1,5477$ „ $= 1,5609$ $v = 53.3$
$r_4 = -12,174$ „	$d_3 = 1,751$	„ $= 1,6169$ „ $= 1,6316$ $v = 53.8$
$r_1 = -13,889$ „		
$r_2 = -6,250$ „	$d_1 = 2,0$	„ $= 1,4649$ „ $= 1,4738$ $v = 65.6$
$r_3 = -38,911$ „	$d_2 = 0,8$	„ $= 1,5164$ „ $= 1,5286$ $v = 54.1$
$r_4 = -14,117$ „	$d_3 = 2,1$	„ $= 1,6210$ „ $= 1,6349$ $v = 57.1$

The improved objective can be used either as a single objective, or as a double objective. The conditions in this regard are absolutely the same as in connection with the three-lens objective of United States Patent 528,155, on which this invention is an improvement. Optische Anstalt C. P. Goerz A.G., 44-46, Rheinstrasse, Friedenau, Berlin, and W. Zschokke, 1, Belfortstrasse, Steglitz, Berlin.

DAYLIGHT DEVELOPING AND FIXING.—No. 15,657. 1908. (July 23, 1907.) The invention relates to a product by the use of which, in solution and in combination with other solutions which may vary, it is possible to both develop and fix in a single bath, in full daylight, a photographic negative or positive. This product is a picrate, preferably either picrate of magnesia or picrate of soda. In order to obtain a developing and fixing bath with a picrate base, the following compounds may be added to the latter substance: sulphite of soda, hyposulphite of soda and diamidophenol.

In practice, however, a good result is used by employing following proportions:—Picrate of magnesia, 81 gms.; anhyd sulphite of soda, 544 gms.; hyposulphite of soda, 250 g; diamidophenol, 125 gms.

These substances reduced to powder are thoroughly mixed each other and supplied to the trade in any suitable packing instance, in glass tubes containing a quantity measured for or several baths. About 4 gms. of the mixture of powder shall be dissolved in 100 ccs. of water. A negative having plunged into this bath in the dark, the covering can then withdrawn without any risk, and development and fixing carried on quite safely in the light. Felix Jeannot, 46, Rue Rome, Paris, and Maxted Roderick Bremner, 131, Rue Martre, France.

FOUR-COLOUR STEREOSCOPIC PHOTOGRAPHY.—No. 28,764, 1 (Oct. 28, 1907.) The invention relates to an apparatus by means of which stereoscopic negatives can be taken in colours and the negatives made to produce a stereoscopic effect, the colours being obtained by decomposition of the light into four primary colours and by means of black positives.

The apparatus is composed of two exactly similar parts arranged symmetrically in relation to a plane the section of which lies in X Y. One of these parts is separated from the other first by the diaphragm D placed in the plane X Y. This diaphragm is intended to limit the luminous cone of the two lenses O and O¹ so that the plate at P may not be exposed by the lens O¹ and that at P¹ by the lens O.

The cone produced by the lens O comes in contact with the mirror screen M placed at an angle of 45 deg., which reflects a portion of the light and allows the other portion to pass through. The mirror screen M is tinted yellow and throws the light back on to an ultramarine screen E, behind which is placed the sensitive plate (horizontal frame), these two plates giving the negatives or originals of the yellow and of the ultramarine.

In the part that corresponds to the objective O¹ the mirror is tinted green and the corresponding part of the screen E is tinted red.

If the lenses employed for taking the negatives be replaced by lenses suitable for viewing after the apparatus has been turned about, and the negatives have been replaced by their positives, the colour-photograph of the objects will be re-constituted, optical synthesis of the two colours in front of each eye.

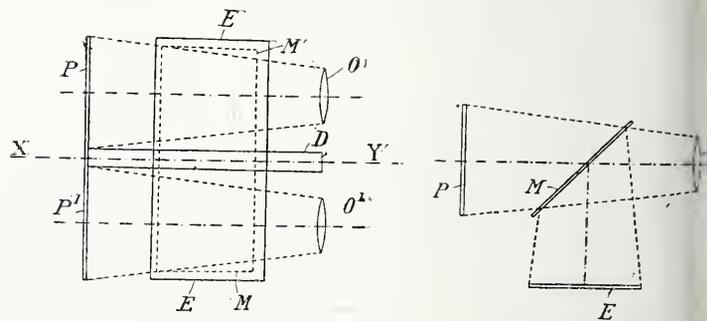


Fig. 1.

Fig. 2.

Four colours have been mentioned, but it is evident that others might be taken, provided that they are complementary of one another and divide the cycle of colours into four equal parts.

Reference is made by the patentee to Specifications, Nos. 9936 4164⁹⁹ and 29,353⁹⁷. Louis Geisler, 22, Rue de la Faisanderie, Paris, France.

HAND-CAMERA SHUTTER AND EXPOSURE METER.—No. 28,185. 19 (December 21, 1907.) The invention relates to means for enabling the exposure given to the plate to be correctly proportioned to the intensity of the light at the time of exposure, and also to the class of view or subject. The manner of carrying out the invention is as follows:—The sensitive material of an actinometer is exposed and the number of seconds noted that it takes to darken it to a standard tint. A speed regulator in connection with the shutter is then turned until the index points to a number of seconds taken

darken the sensitive material of the actinometer. After this an "iris" diaphragm pointer of the lens is turned until it is opposite the class of photographic subject it is required to take, which is indicated on the plate or table adjacent to the diaphragm. The release lever of the camera is then pressed, when it will be found at the photograph has been correctly exposed. It will thus be seen that no calculation is required to obtain accurate exposures for any given subject in accordance with the light prevailing at the time. It should, however, be understood that the sensitive material must be of sufficient degree of sensitiveness to obtain accurate results. William Booth, 160, Church Street, Eccles, Lancs.

CINEMATOGRAPH-PHONOGRAPH.—No. 22,415. 1908 (October 22, 1908). The claim is for the coupling, pneumatically and synchronically, of a cinematograph with a phonograph, by connecting the spindle of the cinematograph with an air pump or bellows, the air outlet of which is regulated by the phonograph through the intermediary of some electric, pneumatic, or mechanical device in such a manner that when the movements of the two apparatuses do not synchronise the bellows acts upon the cinematograph as a brake or as a motor to retard or to accelerate its working. The air outlet valve is in the form of a slide valve, or consists of two rotating members formed with apertures for the passage of the air, one is controlled directly by one of the apparatuses while the other is controlled by the other through the intermediary of some electric, pneumatic, or mechanical device. Casimir de Proszynski, 5, rue des Croisiers, Liège, Belgium.

CINEMATOGRAPH LANTERN.—No. 6,983. 1908 (March 30, 1908). The claim is for a lantern with hinged side and roof, so that both permit of full access to the interior of the lantern. George Robson, 1, Rochdale Road, Leyton, Essex.

WIRELESS TRANSMISSION OF PHOTOGRAPHS.—No. 11,446. 1908 (March 31, 1908). The claims are for a method for the wireless transmission to a distance of pictures, characterised by the fact that a pencil of luminous rays serves as the transmission between the transmitter and the receiver, its intensity varying in correspondence with the permeability to light of the different parts of the picture to be transmitted.

Means for carrying into practice the method comprise a transmitter wherein a pencil of luminous rays passes in succession through the several portions of the picture to be transmitted arranged upon a transparent drum and caused to move helically in front of the luminous pencil, which after traversing the picture falls upon a selenium cell inserted together with a source of electricity in the primary circuit of a transformer, the secondary circuit of which contains an arc lamp, fed with continuous current and arranged in the focus of a parabolic reflector, this lamp transmitting to the receiver a pencil of light corresponding in intensity to the fluctuations in the conductivity of the selenium cell, a receiver being also provided in which the variable pencil of light emitted by the transmitter is concentrated on a selenium cell by means of a parabolic reflector, this cell being arranged, together with a source of electricity, in the circuit of a mirror galvanometer, whose mirror fixed to the needle thereof sends a second pencil of light through a screen of a similarly graded permeability to light, which by its passage through the screen is concentrated upon a point of a sensitised film arranged on a drum which affects the same movement as the drum of the transmitter. Francesco de-Bernochi, 14, Piazza Gran Madre di Dio, Turin.

STEREOSCOPIC LENSES.—No. 10,700. 1908 (May 18, 1908). The invention relates to improvements in the apparatus forming the subject of Patent No. 27,644, of December 14, 1907. The improvements include:—

1st. The combination of two prisms (giving a total reflection), which can be rotated on themselves so as to vary the convergence of the apparatus with two other rotatable or non-rotatable prisms, the latter being carried by the plates, which also carry the objectives or lenses, which plates can be moved apart to displace the prisms and lenses simultaneously, and to permit the dimensions of the image to be varied, and the combination with the apparatus thus provided of a lens placed behind the prisms, uniting the two images and assuring the superposing of the images of points situated at different distances from the apparatus.

2nd. The use of prisms having curved faces, thereby eliminating reflection, and, provided that a suitable curvature is given to these faces, also permitting the lenses to be dispensed with.

3rd. The employment as the lenses of the apparatus of two semi-lenses, so placed that their straight edges are turned outwardly, the prisms then forming with them alone the whole optical arrangement. Luiz Augusto Teixeira de Aragao, 40, rue Peronnet, Neuilly sur Seine (Seine).

PRINTING APPARATUS.—No. 23,717. 1908 (November 5, 1908). The apparatus is for the preparation of negatives or printing surfaces, such as posters, etc., of such size that they have to be printed in sections. In order to produce satisfactory results it is necessary that the different sections should be enlarged in the same proportion, and that they should join without break, and when the design or picture is to be printed in several colours it is also necessary that the several printing surfaces for the separate colours should register exactly.

The apparatus comprises a photographic projecting device provided with suitable lenses and illuminating apparatus; a holder for the transparent negative or positive printing plate; two guiding means for the holder arranged in a plane at right angles to the optical axis and at right angles to each other; mechanisms for adjusting the holder on each of the guiding means and holding the parts in their adjusted position, whereby different portions of the printing plate can be successively placed in predetermined positions opposite the projecting device; and a holder for the sensitised surface, formed upon any suitable material; for instance, lithographic stone, zinc, aluminium, copper, or glass, which holder is mounted in two guiding means arranged in a plane transversely to the optical axis and at right angles to each other, and provided with mechanisms for adjusting the holder on each of the guiding means and holding the parts in their adjusted position, whereby different portions of the sensitised surface can be successively placed in predetermined positions for exposure to the projecting device. W. E. Lake, for William Carl Huebner, 39, Laurel Street; and George Bleistein, 197, Main Street, both of Buffalo, U.S.A.

The following complete specification, etc., is open to public inspection before acceptance under the Patents Act, 1901.

CAMERAS.—No. 28,448, 1908. Folding photographic cameras. Frennet.

New Trade Names:

VENTO.—No. 308,772. Photographic apparatus included in Class 8. Arthur Lewis Adams, trading as Adams and Co., 24, Charing Cross Road, London, W.C., manufacturer of photographic apparatus. December 11, 1908.

Analecta.

Extracts from our weekly and monthly contemporaries.

Comparisons of Colour Screen-Plates.

"R. C. B.," in an article on the "Omnicolore" plate and on a comparison of the various properties of colour plates, in "Photography and Focus" for January 26, proceeds:—"The most important question of all is that of the fidelity with which the different colours are reproduced, and here, for the present at all events, there can be no question whatever of the superiority of the Autochrome. I have exposed all three plates on the same subject under precisely the same conditions. Some colours are reproduced with the greatest fidelity by all three. Particularly does this seem to be the case with bright blue. Green, on the other hand, is very poorly reproduced, both by the Thames and by the Omnicolore. But for all-round truthfulness, the Autochrome, though not perfect, is easily first. Especially is this the case with the more subtle tones, which the Autochrome seems to yield so readily and so beautifully. Some allowances must be made for the fact that the newcomers are newcomers, but after making these and comparing them with the very first commercial Autochrome plates, it is seen that they are not so perfect a product."

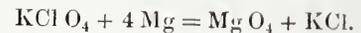
New Books.

"Photographic Optics and Colour Photography." By Dr. G. Lindsay Johnson, M.A., M.D., B.S., F.R.C.S. London: Ward and Co. 7s. 6d. net.

It will be seen from the title that this is a rather ambitious work, while the sub-title, which adds "including the camera, kinematograph, optical lantern, and the theory and practice of image formation," suggests that the author has attempted to make 304 octavo pages contain rather more than can usefully be compressed into such a space. The book is well illustrated, some of the most interesting examples being Professor Dimmer's photograph of the fundus, and a three-colour photograph of an opal. The text portion is, however, too comprehensive and contains very many more or less serious errors. Some of these are doubtless clerical or printer's errors, though we feel that all cannot be thus described. Careless proof reading is no doubt responsible for the statement that Mr. J. H. Dallmeyer revised the section on telephoto lenses and for words such as "ortochrome" and "margin," but when the word "reversion" is consistently used in place of "reversal" we fear that no such excuse will hold good, though obviously the two words have quite different meanings. Some very remarkable statements are made here and there, as for instance, the one that "with few exceptions all the best reflex cameras are made by Kershaw, of Leeds, who holds the patent for the roller-blind shutter used in all of them." It is curious that this book should contain some of the same errors that we previously noted in our review of Lionel Lawrence's "General and Practical Optics." In both books the name "Unifocal" is used for "Unofocal," and both books contain a ridiculously erroneous description of the Adon lens. In Dr. Johnson's book the error is emphasised by an unfortunately detailed description which leaves no room for doubt as to the author's ignorance concerning this particular lens. We quote the paragraph: "If we turn the telephoto lens round so that the negative lens is in front, we have the condition of things found in the Adon lens. The two planes E_1 and E_2 will now be behind the combination." The planes referred to are the principal planes, and the whole arrangement is illustrated in Fig. 49. Further than this, calculations are given to show that E_1 is 10 in. and E_2 30 inches *behind* the lens.

Another very curious verbal error is the use of "astigmat" as descriptive of anastigmatic lenses. This is not a casual but a very consistent error, and apparently the author considers it the correct term. Many errors are no doubt due to careless writing, for the author must know that the method of finding the focal length given on page 83 is inaccurately described. So also is Grubb's method, for it is assumed that the sides of the camera baseboard are parallel, which they need not be. The method most strongly advocated is credited to Lionel Lawrence and involves taking the square root of a distance that cannot be accurately measured; this is a rather unsatisfactory feature. We are told that if the image moves when the lens is rotated about its node the centering is imperfect! Again, that if we reverse a plate in the dark slide halation is prevented! With regard to Autochromes we note that the author is still in doubt as to the effect of using the Lumière filter behind the lens, which subject we have referred to before in this journal, while he credits Mr. McIntosh with the suggestion that varnishing should be effected while the plate is rotating on a whirler! In another part of the book a mistake comparable with the "Adon" one occurs in connection with a comparison of the perspective of a photograph with that of vision. The relative sizes of two retinal images are compared with the measured sizes of two photographic images secured from the same standpoint, which comparison is stated to show "the immense advantage our eyes have over an ordinary camera as regards the distortion of comparatively near objects." This deduction shows little knowledge of the science of perspective. In a very remarkable passage the eye is described as being "at once an autochrome camera, a kinematograph, producing life-sized coloured pictures in motion, a photometer, a stereoscope, a range finder, a microscope, and an opera glass; while the whole apparatus is provided with a compound non-distorting rectilinear lens, working at $f/4$ or in some cases, $f/3$." . . . "Helmholtz could hardly have borne these

facts in mind. . . . But, then, Helmholtz was ever a physicist first, and only a physiologist afterwards." Poor Helmholtz!! In conclusion we must take serious exception to the statement that mixtures of magnesium with chlorate of potash or with perchlorate are "quite safe" or even "simple and harmless," and we must also draw attention to the much less important fact that the equation



does not equate. We feel tempted to apply the old quibble to the book, and to say that it contains good and also original matter, but this criticism might be too severe. Further research might reveal matter that is both good and original, but in any case it is evident that the author has attempted too much, and has been in far too great a hurry over it.

THE CATHEDRALS OF ENGLAND AND WALES.—Under this title Messrs. Gowans and Gray, Ltd., of 5, Robert Street, Adelphi, London, W.C., and 58, Cadogan Street, Glasgow, have issued two little booklets dealing respectively with the cathedrals in the northern and southern sections of England and Wales. These contain reproductions of some 120 photographs together with brief descriptive notes by Nugent M. Clougher, F.R.G.S., and which they are in no sense intended to act as "guides" will doubtless be of assistance to those who are only able to spend a very short time in the buildings to which they refer. They should also serve as a pleasant reminder to those who have been able to devote more time to their inspection.

AGENDA LUMIERE, 1909.—This yearly pocket-book of tables and formulæ, issued by MM. Lumière at Lyons, and by MM. Gautier Villars, Paris, at 1 franc, contains the revised instructions for the Autochrome process together with many useful facts and memoranda relating to the principal photographic processes.

New Apparatus, &c.

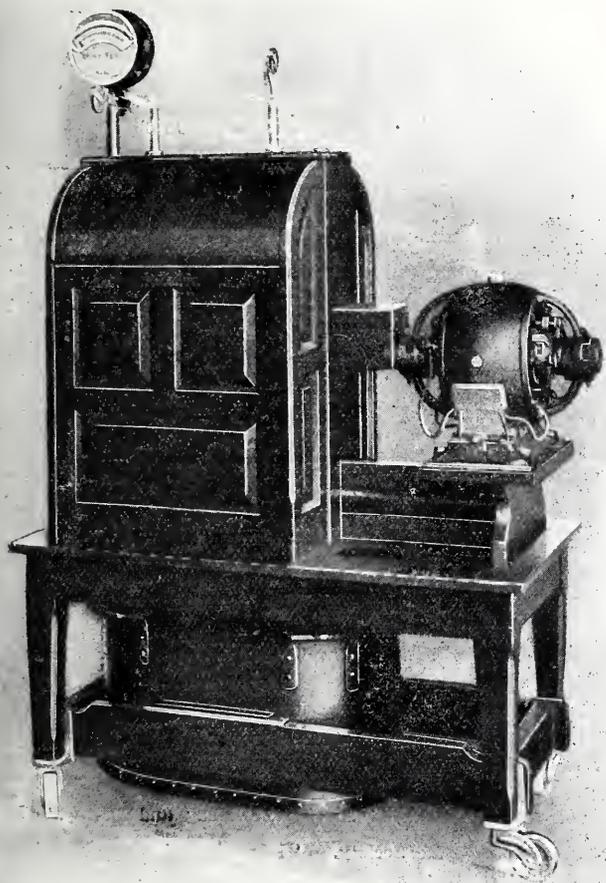
The "Aerograph" Stencilling Table and Outfit. Made by the Aerograph Company, Limited, 43, Holborn Viaduct, London, E.C.

We have recently inspected, at the factory of the Aerograph Company, a new installation, which has just been designed by them for the industrial application of the stencil method of air-brush decoration on a scale which may be as large or small as desired. Aerograph work, as employed in photographic working-up and colouring, is a craft which it would be superfluous for us to explain, but the many ways in which the Aerograph is used for industrial purposes, in conjunction with a stencil pattern or design, are, perhaps, not equally well known to those not immediately interested. The use of a stencil plate allows of a pattern being imprinted on a series of surfaces by means of the air-brush at a maximum of speed and the minimum of cost for labour. The method has been used by the Aerograph Company for such various purposes as wall-paper printing, pattern-colouring of fabrics, and the production of shop cards and window bills. And the stencil method, as we noted some months ago, has even been successfully embodied by them in a rotary machine. The new installation, however, is manufactured to enable the stencil air-brush work to be conveniently done for themselves by such trades as the printing, fancy stationery, and photographic-mount. A table measuring about 4ft. by 2ft. is provided with a glass hood, a fan in which supplies an exhaust draught which carries off quickly the spray from the Aerograph. Beneath the table-top is mounted a vertical framework, which passes through a slit in the table, and supports a pair of clamping bars in which a stencil of any size can be secured. By means of a foot-treadle, the stencil thus mounted can be instantly raised or lowered. The papers, cards, mounts, or what not to receive the design are registered in position by means of two lines of upright pins, which, in conjunction with the latitude in movement of the stencil itself, provide for any degree of adjustment. It is thus the work of a very few seconds to bring down the stencil, apply the colour from the aerograph, and raise the stencil. The coloured sheet is then picked off the pile by means of an exhaust tube, worked by the same pump which supplies the air pressure for the air-brush. By a precisely similar and equally rapid series of operations a set

plate is used in applying aerograph colouring round a disc or one to be left untouched, and the method thus gives the mounter and similar workers the opportunity to introduce two or more colours into a design at a very small cost. The whole installation, small as it is, is capable of dealing with large quantities of comparatively large work, and we should advise those who prefer to use individual methods in the preparation of their own mounts, as well as those who manufacture mounts for photographers, to avail themselves with the means provided by this latest introduction of the Aerograph Company.

"Snook" X-Ray Apparatus. Made by Newton and Co., 3, Fleet Street, London, E.C.

This apparatus, which is being manufactured by Messrs. Newton and Co. at their Hornsey Road works, represents the greatest recent innovation in radiographic practice, since it dispenses entirely with the action coil and allows of exposures which for the thick parts of the body are almost instantaneous, and this at a very much lesser percentage than can be done when a coil is used. The principle employed in the installation is the destruction of the back current in the tube, a better definition in the radiograph being thus obtained, and, at the same time, a longer life of the tube itself. The machine consists of a motor, which is driven from the ordinary continuous



current supply of the mains, and works in conjunction with a transformer supplying current of from 70,000 to 100,000 volts, the voltage being regulated by means of a resistance in the primary circuit. The secondary commutator or rectifier transmits this secondary current and affords a supply to the tube which is steady and free from reverse current. Messrs. Newton contrast the action of the "Snook" apparatus by comparing the current necessary to give, say, 60 milli-amperes through an X-ray tube of 3in. to 4in. spark-gap. In the case of a good coil a current of 60 to 70 amperes is required, working with a three-pole electrolytic brake, whereas the "Snook" installation will use about 25 amperes at 200 volts primary circuit. The installation has attracted a good deal of attention among radiographers, and has already been used in many leading hospitals. The cost of the complete outfit, arranged to work from any continuous current main, is £140.

New Materials, &c.

The Wratten Lantern Plate. Made by Wratten and Wainwright, Ltd., Croydon.

In this new introduction Messrs. Wratten and Wainwright have produced an altogether remarkable lantern plate, and one which we cannot but think marks a notable step forward in emulsion-making, the result, no doubt, of the research which the firm is constantly carrying out in its laboratory. We are naturally not in the firm's secrets as to the nature of the emulsion, but it is stated in the brief directions for the use of the plates that they are prepared without chloride, and it is therefore reasonable to assume that they will be found to possess the excellent keeping qualities of a bromide plate and thus to have at the start a point of advantage over transparency plates prepared partly or solely from silver chloride. However, this feature, advantageous as it may be from the manufacturer's or dealer's standpoint, is not our immediate interest: we are rather concerned with the working properties of the plates as we have received them.

The two distinct features of the new plates are their great clearness (freedom from veiling), and the extreme ease with which a fine series of warm tones may be obtained. It says something for the non-fogging propensities of the plate that all three of the developers recommended by the makers for the production of a black tone contain no added bromide. One of these developers is a 1:10 solution of rodinal, the second metol-hydroquinone, and the third pyrosoda. We give the formulæ below, and the lantern slide-maker will recognise that a plate which gives brilliant slides with such developers undoubtedly possesses exceptional qualities. That this is so is further proved by the fact that for the production of warm tones Messrs. Wratten employ small proportions of hypo in the developer, an addition which, with a plate of the usual type, would immediately lead to fog. The black tone, as we have said, is obtained by normal exposure in the usual way, using one or other of the developers given below. Employing the 1:10 rodinal, we found that development of two to three minutes gave us a slide of full density, of excellent transparency in the shadows, and of a long scale of gradation. The plates, too, fixed very quickly in about two minutes in a four-ounce-per-pint hypo bath. For the production of warmer tones, from warm-black to red, addition is made to the developer of a solution containing both ammonium bromide and ammonium carbonate, or of this solution together with a small proportion of 10 per cent. hypo solution. A greater degree of exposure is, of course, necessary to obtain the warm tones, and in the case of using the ammonium bromide and carbonate only a correspondingly prolonged time of development. The point of advantage, however, which we have found in our use of the plates is that it is very easy to judge the correct depth of the final tone. There is none of the considerable over-development which must usually be given in order to obtain a warm-toned slide of proper vigour. On the other hand, the slide, if anything, gains a little apparently on being fixed, but a still more pronounced advantage of the plates is discovered when using the developer containing bromide, carbonate and hypo, which gives, in a time of development very little in excess of that required for black tones, colours from rich brown to red. Here, again, there is no falling off in vigour when the plates are fixed, and there is no more difficulty in judging of the correct point at which to stop development than there is in making an ordinary black-toned slide. These facts, which our readers may put to the test themselves by taking advantage of the offer at present being made by Messrs. Wratten to send half a dozen of the plates on receipt of 3d. postage, speak for themselves as to the aid which the plates supply in the making of lantern slides which are not only first rate as regards brilliancy, but permit a range of colours which redeem the ordinary lantern-slide exhibition from monotony. It is not infrequently that we hear from readers who find it difficult to get made, in a commercial way, slides which are something better than and different from the ordinary black-toned slide of commerce made in the ordinary way with hydroquinone or pyro-ammonia development, yet the fact is not surprising when the difficulty of turning out warm-toned slides with certainty is considered, for many even of the best amateur slide-makers will confess to using several plates before they get the

desired result. We venture to suggest to those in a position to supply lantern slides in a commercial way that in the new Wratten plate they will find the means of catering for the requirements of the lantern-slide user who knows a good slide when he sees it, but has not always the patience or the leisure to make it for himself.

An idea of the speed of the plates will be obtained when we say that, using a fairly thin negative, but one not unduly so, we found that the makers' direction of 1 in. of magnesium ribbon at 3 ft. proved ample for a black-toned slide. This was equivalent, we found, to about 20 seconds at 1 ft. from a flat flame gas-burner, our ratio differing somewhat from the figure recommended by the makers, whilst we are inclined to think that the magnesium gave us a better result, particularly in the case of the longer exposure necessary for warm tones. The plates may be developed in the brightest yellow light, and, as we have said at the outset, nothing short of almost wicked treatment in development is able to fog them. The formulæ given by the makers for development are as follows:—

For black tones either of the following three developers is used:—

A 1.	Metol	44 grains.
	Hydroquinone	22 grains.
	Sodium sulphite (cryst.)	1 ounce.
	Sodium carbonate (cryst.)	1 ounce.
	Water	20 ounces.
or A 2. I.	Pyro	1 ounce.
	Sodium sulphite (cryst.)	6 ounces.
	Sulphuric acid	1 drachm.
	Water	20 ounces.
	II. Sodium carbonate (cryst.)	6 ounces.
	Water	20 ounces.
	(Equal parts of these solutions are used.)	
or A 3.	Rodinal	1 ounce.
	Water to make	10 ounces.

For the production of warm tones the following two solutions are required:—

B.	Ammonium bromide	1 ounce.
	Ammonium carbonate	1 ounce.
	Water	10 ounces.
C.	Hypo	1 ounce.
	Water	10 ounces.

For black tones use A only (normal exposure).

For warm-black use 1oz. A and $\frac{1}{2}$ dr. B ($1\frac{1}{2}$ normal exposure).

For sepia use 1oz. A and 1dr. B (2 normal exposure).

For brown use 1oz. A and $\frac{1}{2}$ dr. B (3 normal exposure); or 1oz. A, 1dr. B, and $\frac{1}{2}$ dr. C (3 normal exposure).

Further addition of C gives warmer browns. Further addition of B gives purples and reds. Fix and wash as usual.

BACKING PAPERS.—In reference to the query of a recent correspondent as to backing P.O.P. prints when squeegeeing, the Birmingham Photographic Co., Ltd., send us samples of the "Criterion" adhesive backing sheets manufactured by them at 5s. per quire of 20 by 26 sheets, and in packets of cut sizes. The paper is provided with a strong adhesive, and requires only a short soaking in water before being applied to the prints at the time of squeegeeing the latter.

CATALOGUES AND TRADE NOTICES.

SALE OF APPARATUS.—The City Sale and Exchange announce a large sale of second-hand apparatus at its depot in 81, Aldersgate Street, London, E.C. A thirty-two-page list, sent on application, gives particulars of the goods.

"FAULTS IN NEGATIVES."—The Imperial Dry Plate Company, Ltd., Cricklewood, London, N.W., have just issued a new booklet under this title for amateur photographers. It describes the mistakes which the beginner can make, and illustrates many of the defects thereby caused. The booklet runs to thirty pages, and is sent post free by the Imperial Company on application by postcard. The expenditure should save the tyro many an hour spent in puzzling over the (to him) inexplicable behaviour of a dry plate.

CATFORD AND FOREST HILL PHOTOGRAPHIC SOCIETY.—The Fourth Annual Exhibition of this society will be held on the 26th and 27th of March next. Entry forms and further particulars may be obtained from W. T. Browne, 169, Woolstone Road, Forest Hill.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, JANUARY 29.

Dundee Y.M.C.A. Photographic Society. French Lantern Pictures. A. I. Staley & Co.
Sutton Photographic Club. "Orthochromatic Plates and their Uses." A. I. Hoole.
Aberdeen Photo Art Club. "In the Land of Thule." John D. Stephen.
Bonnybridge Amateur Photographic Association. "On the Printing, Developing and Toning of Velox Papers." W. F. Slater.

MONDAY, FEBRUARY 1.

South London Photographic Society. "Composition in Landscape." A. R. Rea
Stafford Photographic Society. "Bromide Toning." A. L. Yapp.
Scarborough and District Photographic Society. Lantern Slides.
Southampton Camera Club. "Working of the Autochrome Plate." Demonstrated. T. K. Grant.
Bradford Photographic Society. "A Trip in the Mediterranean, by Two Ladies." Mrs. A. W. Whiteley and Mrs. A. G. Brierley.
Cleveland Camera Club. Exhibition of Thornton-Pickard Prize Slides and Apparatus. R. Hesketh.
Shettleton and District Camera Club. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Catford and Forest Hill Photographic Society. "Various Novel Lighting Effects." H. Essenhigh Corke.
Folkestone and District Camera Club. "Lantern Slides and How to Make Them." Hamilton Smith.
Kidderminster and District Photographic Society. "Tours in Wales." H. W. West.

TUESDAY, FEBRUARY 2.

Royal Photographic Society. "The Autochrome Process in Many Hands"; Discussion to be Opened by H. T. Malby.
Dumbarton and District Photographic Association. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Leeds Photographic Society. "Some Pigment Printing Processes." F. J. Stedman.
Hackney Photographic Society. "Agfa Flashlight, etc." F. C. Hart.
Hanley Photographic Society, Y.M.C.A. Lecture by E. B. Wain.
Glasgow and West of Scotland Amateur Photographic Association. French Lantern Pictures. A. E. Staley & Co.
Kinross Park Camera Club, Govan. "Pictures: their Function and Appeal." Peter Mitchell.
Chiswick Camera Club. "A Year's Work in Photography." Dr. H. O. Butler.

WEDNESDAY, FEBRUARY 3.

Borough Polytechnic Photographic Society. "Pictorial Photography." Bertram C. Wickison.
Hartlepool's Photographic and Sketching Society. Exhibition of Thornton-Pickard Prize Slides and Apparatus. R. Hesketh.
Leeds Camera Club. "The Building of a Picture." W. Edwin Tindall.
Croydon Camera Club. "Methods of Negative Reduction." Walter Wood.
Dennistoun Amateur Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Sale Photographic Society. *Amateur Photographer* Prize Slides.
Edinburgh Photographic Society. Debate: "Is Time Development a Real Advance in Photography?"
North Middlesex Photographic Society. Slide Competitions.

THURSDAY, FEBRUARY 4.

Rodley, Farsley, Calverley, and Bramley Photographic Society. "Donisthorpe Process." Mr. Gill.
Cowses Camera Club. "Old Cowses, or a Link with the Past." Rev. R. G. Davison.
L.C.C. School of Photo-Engraving, Bolt Court. "Application of Photography to Lithography, including the Bitumen Grain Process." A. G. Symmons.
Liverpool Amateur Photographic Association. "Some Spanish Scenes and People and a Bull-fight." Arthur Marshall.
Queens Park Amateur Photographic Association. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Maidstone and Institute Camera Club. "Yesterday and To-day." Rev. A. Gatehouse.
Southend-on-Sea Photographic Society. "Memories of a Mighty Marshland Minister." Harvey Piper.
Midlothian Photographic Association. "A Tramp through the Lothians." Illustrated. George S. Herschell.
Aberdeen Photo Art Club. Informal Meeting.
Jarrow Mechanics' Institute Camera Club. Exhibition of Thornton-Pickard Prize Slides and Apparatus. R. Hesketh.

ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held Tuesday, January 26, the president, Mr. J. C. S. Mummery, in the chair.

Mr. Chapman Jones read two papers, "On the determination of spectrum maxima and minima" and "On uniformity in spectroscopy for photographic purposes and a proposed form of instrument," in the first of which he dealt somewhat generally with the conditions of spectrographic photography, pointing out that inasmuch as there were many spectra and many variations of them due to the apparatus employed and the plates used, the records were necessarily comparative, and moreover were capable of further variation according to the method adopted for plotting or mapping

The particular final form, therefore, of a spectrum exposure is to be said to be an accident of circumstances. In the second part of his paper Mr. Chapman Jones discussed the form which a spectrographic camera should take in order to fit it most efficiently for the general purposes of the many photographic workers who desire to obtain for themselves, without undue expense, and with reasonable convenience, spectrographic records of filter absorptions, sensitiveness, etc. As far as possible the results of different exposures should be comparable, but the four factors of light-source apparatus, plate-sensitiveness, and method of plotting, gave an opportunity for spectrographic records to exhibit difficulties of comparison. The aim should therefore be to choose these conditions in such a way as to render comparison easy. As regards the light-source the lecturer thought that nothing could be done in the way of adopting a standard light, and that the only way was to describe the light employed as carefully as possible.

Coming to the spectrograph itself the balance of advantage lay, as he thought, with a grating instrument. For one thing the diffraction spectrum gave the red, green, and blue portions of the spectrum in approximately equal sections, and thus afforded an opportunity for comparison with the divisions of the spectrum by the three primary colour filters. The mechanical arrangement of the spectrograph which he had found to combine the maximum of efficiency with the maximum of simplicity consisted in a square of $3\frac{1}{2}$ inches internal width, or rather two tubes of this section at an angle of 18 deg. At one end was fixed the slit and at the other the dark-slide and focussing screen mounted in a sliding frame. At the angle of the two tubes the grating was mounted with a lens on each side of it. These three pieces were each mounted in a separate square frame, completely filling the tube, and at the latter, when the cover was on, might be placed in any position or pointed in any direction without disturbing the alignment of the system. In place of an adjustable slit he preferred a plate of fixed slits in a metal plate which was mounted to slide in the centre of the tube. Mr. Chapman Jones showed the results, as regards definition and length of spectrum, produced with this apparatus. Seven spectra were obtained on a quarter-plate camera running the $3\frac{1}{2}$ inch dimension of the plate and leaving a little space for the emulsion at each end. By means of several notches cut in the back of the camera it was easy to register on each plate exposure one or two prominent lines of the spectrum, and this made easier the reading of the results, and at the same time facilitated the registration of the apparatus. The results obtained with the narrower slits possessed such definition that on magnification of the diameters the division of the D and other lines was rendered very clear. C. E. K. Mees pointed out that although the grating spectrum showed a distribution of the three colours, red, green, and blue, about equal widths, yet the relative intensities which were visible by the dyes at present available for filters were actually very differently shown in the prismatic spectrum. This was due to the fact that while a red filter dye could be obtained which would pass about 80 per cent. of the red of the spectrum, the most available green dyes would pass only about 50 per cent., and the most available blue dyes less still. The prismatic spectrum roughly corresponded with these conditions. Where densities were to be measured Dr. Mees preferred a greater length of spectrum, and also thought that a spectrograph should provide means for measuring out spectra of the second order, the record of which on a quarter-plate occasionally led inexperienced workers to attribute the red-sensitiveness to the plates, the record being actually due to the blue of the second order spectrum.

C. P. Butler thought that no spectrograph which claimed to give standard measurements should contain glass in any part of the optical system, and for that reason the concave grating spectrograph was the perfect system, since the only source of error was the possible absorption of ultra-violet light by the silver film, and the latter source of error he thought was very minute. If cost was a consideration he thought that a concave grating spectrograph could be even cheaper than the instrument shown by Mr. Chapman Jones, and exposures might be made equally short. After some further discussion, in which Dr. S. E. Sheppard and Mr. E. J. Wall took part, Mr. Chapman Jones, in replying to questions, said that he was able to measure half-millimetre portions of the negative for density, and therefore, considered that a spectrum three inches in length was sufficiently long. He did not

consider that the absorption of some ultra-violet by the glass of the lens was of much importance, inasmuch as all photography had to be done with glass lenses. As regards the accuracy with which the fixed slits of his spectrographs could be made, those he showed he had made himself, and they were of the same width at the ends and in the middle when viewed with a one-inch microscopic objective. A vote of thanks to Mr. Chapman Jones brought the proceedings to a close.

CROYDON CAMERA CLUB.—The annual meeting was held on the 20th inst., and from the report and accounts submitted a very satisfactory state of things is apparent. The last exhibition was the most successful on record; the fixture list has been attractive and varied; the number of members is well above the average; and finally, instead of the deficit existing three years ago, a cash balance in hand of nearly £70. was announced. Mr. J. M. Sellors and Mr. H. M. Bennett were respectively and unanimously re-elected president and honorary secretary, with considerable acclamation. The president, on behalf of the members, then handed Mr. Bennett a handsome and weighty gold cigarette case, with a companion matchbox of the same metal. In making the presentation Mr. Sellors said that the present position of the club was almost entirely due to the unwearied work and conspicuous business ability of its honorary secretary, to whom they were under a deep debt of gratitude, a debt they could never hope to repay. It was, however, possible to record their appreciation of his personal qualities in tangible form, and the inscription engraved on the cigarette case, which read that it came "As a mark of affection and esteem," concisely and truly expressed the feeling of every member of the club. Mr. Bennett, in a few sincere words, thanked his fellow members for a memento which would always be greatly valued by him. The many real friendships he had formed more than compensated for the work which his position necessarily involved.

Commercial & Legal Intelligence.

CINEMATOGRAPH THEATRES.—The first ordinary general (statutory) meeting of Electric Theatres (1908), Ltd., was held at the "Theatre de Luxe" on January 19, Mr. Roland G. Hill presiding. The Chairman explained that the company was registered on September 16, 1908, to take over the business established by a smaller company, called "Electric Theatres, Ltd." The object of the company is to open and operate cinematograph theatres in populous districts, giving a continuous entertainment throughout the afternoon and evening, and charging at outlying theatres a uniformly low rate of admission of 3d. for adults and 2d. for children. The series of films which is repeated throughout the day and evening is entirely changed twice every week. Being extremely careful in the selection of sites, the results abundantly show that, besides an established patronage of regular customers at all our houses, the steady "drop in" from each crowded thoroughfare in which they are situated tends to aggregate a very substantial and astonishingly regular gross receipt week by week. When the business was taken over there were only two theatres running—one at Shepherd's Bush and the other at Walworth Road. Three more have been added—namely, at Deptford and Hammersmith, and the "Theatre de Luxe." The company is to open immediately two new theatres, one in Upper Street, Islington, and the other in North End Road, Waltham Green. They have also acquired the lease of the King's Hall, in Commercial Road East, and have settled terms for the lease of important premises at Tufnell Park, both of which houses they expect to have open during February. In addition, they have arranged for premises in Hackney, so that within the next six weeks they will have five new theatres, or ten in all. As they add to the houses, the ratio of net profit should be greater than at present, as the purchase price paid the old company remains the same, and standing expenses are distributed over a larger earning capacity. The company have arranged for the building of new theatres at North End, High Street, Croydon, and in the Broadway, West Ealing, both of which should be open in about three or four

months' time, and have various negotiations pending for other suitable properties.

NEW COMPANIES.

MAYBURY ROBINSON, LTD.—Capital £100, in £1 shares. Objects: To carry on the business of photographers, photographic material and implement dealers, chemical manufacturers, etc. Private company. Registered office, 71, Albany Road, Camberwell, S.E.

News and Notes.

AFFILIATION OF PHOTOGRAPHIC SOCIETIES.—A meeting of secretaries and "consuls" of affiliated societies was held at 66, Russell Square, on January 22, representatives of twenty-nine societies being present. From reports received it seemed that advantage was being taken of the interchange of lectures. A suggestion was made that questions arising out of these lectures should be forwarded to the author, through the acting secretary of the affiliation, and the replies brought forward at the next meeting of the society. The consular scheme has progressed so far that the majority of the consuls have districts allotted to them, and the compiling of suitable information is well in hand. [It would be interesting to hear what the authors of lectures think of the suggestion to convert them into perpetual information bureaux, and it would be equally interesting to know, not how many "consuls" have districts, but how many districts have "consuls," and what the latter are doing. The "consular" scheme of the affiliation, as we understand it, appears a peculiarly effective means of wasting the energy and ability of that body.—Eds. "B.J."]

THE DRESDEN EXHIBITION.—It is announced that there will be shown among the exhibits in the Swedish stand of the division—photography in the service of ethnography—the photographs taken by the explorer, Sven Hedin, on his latest voyage of discovery. In view of the great interest awakened throughout the world by the travels of Sven Hedin in the wilds of Thibet in provinces as yet entirely untouched by European civilisation, these photographs will prove of uncommon attraction in the widest circles. Scarcely inferior in interest will be the photographs taken on the Swedish Polar Expedition in the same division.

NORTH MIDDLESEX PHOTOGRAPHIC SOCIETY.—At the annual meeting of this society Mr. H. W. Fincham consented to continue as president in response to a unanimous vote, while Mr. W. G. Cauldwell retains the office of treasurer. A change of secretary, however, takes place, Mr. S. C. Puddy, who for some years has very efficiently discharged these duties, retires, being succeeded by Mr. Chas. A. Morgan, of 23, Nelson Road, Stroud Green.

TECHNICAL CHEMISTS interested, not in photography only, but in other branches of applied chemistry, will be grateful to us for reminding them of the very comprehensive index which the "Chemiker Zeitung" has just published to its "Repertorium," or abstract of current progress. The index runs to eighty pages, 13 x 12 inches, and supplies an exhaustive source of references to chemical matters of the year 1903. Section 32 is "Photo-chemistry and Photography."

PHOTOGRAPHS OF DEEP BORINGS.—Some years ago (writes a correspondent of the "Morning Post") the Hon. Charles Parsons calculated the cost of making a shaft ten or twelve miles deep in the earth's surface. A twelve-mile shaft would cost five million pounds and would take upwards of eighty years to make. As the probable temperature at this level would be considerably hotter than the boiling point of water and the shaft would have to be provided with air-locks and suitable cooling apparatus, it is not likely that Mr. Parsons exaggerated either the cost or the time to be spent in making it. But he thought it possible that the knowledge gained of the earth's strata by the construction and existence of such a shaft might be sufficient compensation. At present our knowledge is much more circumscribed, and the deepest boring known, which was made by the Austrian Government in Silesia, is only a mile and a quarter in depth. The information to be gained from borings is evidently limited in character; but an ingenious device has been invented in France to supplement it by means of photography.

M. Jean Flarin's instrument, described in the "Revue Scientifique," constructed of a brass box full of water, in which is suspended 1 means of rubber bands a small photographic apparatus of great simplicity. Beneath it is a magnetic needle and a phosphorescent disc. The disc is of calcium sulphide, which can be made to phosphoresce with a considerable degree of illumination for four or five hours by exposing it to a strong light. The box of photographic apparatus is then filled with water at the same temperature as that in the borehole. A final incision is made by the boring drill, as the photographic apparatus, with its luminous screen and its magnetic needle, are then carefully lowered to the correct spot, and a long-exposure photograph is taken, say, of twenty to thirty minutes. Thus both the direction of the compass needle and the marks made by the drill on the strata are photographed on the same plate, and when the photograph is developed the information thus disclosed reveals the exact dip and direction of the strata at the bottom of the borehole.

SOUTH LONDON PHOTOGRAPHIC SOCIETY.—Owing to special facilities which the council of the South London Art Gallery have offered to the above society in connection with their forthcoming exhibition we are asked to state that the latest date for receiving entry forms has been extended from January 30 to February 10, but all exhibitors must be delivered at the Gallery not later than February 12. The exhibition will open on February 20 and remain open for one month, lantern lectures being given on Monday, Thursday, and Saturday evenings. Entry forms may be obtained from the hon. sec., Mr. H. Creighton Beckett, 44, Edith Road, Peckham, S.E., who will be pleased to furnish full particulars on application. Arrangements have also been made whereby pictures entered for both the South London and Cripplegate exhibitions can be transferred to the latter free of cost to the exhibitor if so desired.

Correspondence.

* * We do not undertake responsibility for the opinions expressed by our correspondents.

* * Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

AGREEMENTS WITH ASSISTANTS.

To the Editors.

Gentlemen,—I have read with interest the correspondence of "Agreements" in the last two numbers of the "B.J.," because myself, some years ago, had to sign one on entering my present situation. After arriving from my home some hundreds of miles away, I was informed I must sign an agreement. As I could not, for various reasons, afford to lose the berth, I did so. I now enclose a copy of it, and should be very glad of your advice on it. Would you consider it entails an undue restriction of trade, as the twenty miles radius mentioned includes several towns in which my employer has no business connection whatever. Also, can an employer fix a penalty of such severity as this—i.e., "£10 a week if the agreement is broken," and could he secure payment of such a sum? Also, seeing that I was under age at the time of signing (being only nineteen years of age), I am of opinion that it is not binding and of no use to my employer. Is this so?—Yours truly,
DEVONIAN.

Copy of Agreement.—I, A B, of —, —, hereby agree to engage in any photographic work, either for myself or any other persons, during my employment with C D, photographer, —, —, within a radius of twenty miles of —, and also for a period of five years after the termination of my employment with the said C D, under a penalty of the payment of ten pounds (£10) weekly to the said C D, so long as this agreement may remain broken.

[If our correspondent refers to the leading article on page 978, he will find a case quoted in which an agreement, signed by a minor, was held to be not binding, inasmuch as the defendant at the time was not of full age. This case seems to be very much on all fours with that of our correspondent.—Eds. "B.J."]

Answers to Correspondents.

All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.

For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPH REGISTERED:—

Charles, 56, James Street, Cookstown, County Tyrone. Photograph of the Rev. P. Brennan, C.C.

S. F. S.—The discussion is still open, and it will be well that all sides should be heard. It would be impossible to frame an agreement that would be suitable for all cases, as so much must necessarily depend upon individual circumstances. What might be fair in one case might be just the reverse in another. However, we will keep your suggestion in mind when the controversy is decided.

PHOTOGRAPHING EMBROIDERY.—1. I enclose print of a table cloth which I have photographed. Would you kindly let me know what is wrong with it? It is taken with a — plate backed, in fairly good light. After developing it I find that the embroidery comes out very faint. Would it be due to the exposure or too much top light?—VINCENT CONWAY.

1. You can get greater contrast by using a plate of the "process" or "photo-mechanical" type, and developing fully. This will give greater prominence to the embroidery. It may be well, too, to lay the cloth on a grey or dark background, so as to throw up the pattern. 2. Mr. A. Mackie, 89, Albany Street, London, W.W.

BROMIDE ENLARGEMENTS.—I have a lot of enlargements which are too dark for my purpose. Some are mounted, some are unmounted. Could you kindly inform me how I could reduce them? It does not matter what colour they are when reduced.—A. LEYFORD.

About the best reducer is the (very poisonous) mixture made as follows:—A. Potass cyanide, 1 oz.; water, 10 oz. B. Potass iodide, 100 grs.; iodine, 40 grs.; water, 1 oz. Add 30 minims of B and 5 minims of A to 1 or 2 oz. of water. You can try applying this with a tuft of cotton wool to the mounted but previously moistened prints, but we think you will have to unmount these. In place of the above mixture a very weak (pale yellow) Farmer's reducer can be used, but it is apt to eat out the detail in the high-lights before it reduces the shadows.

INTENSIFYING NEGATIVES.—Some time ago I was at Tarragona, the vessel arrived one evening and left the next, so I had no choice as to days. I drove out to the Roman Aqueduct and took two photographs of it, but unfortunately it was a dull cloudy day so the negatives are flat and somewhat thin. Is there any intensifier that would increase the contrast? A mercuric one would be preferred as I print in platinotype.—J. E. G.

We should advise you to use the A formula of the chromium intensifier given on page 784 of the current "Almanac." It might be advisable first to clear the negative slightly in Farmer's reducer, but that we cannot advise with certainty as we do not know how the negative will stand it. If there is much veil or a high degree of density at present we should think it would be well.

PLATINOTYPE PRINTING.—Would you please recommend me to a book which explains thoroughly the process of platinotype printing? I am a platinotype printer to a firm here, and would like to know some information how first-class businesses work that process. Also,

I would like if you could give me any information about printing platinotypes by artificial light, either by recommending me to some book or through the medium of your paper.—GEO. T.

There is no book which tells more than is generally known of platinotype printing. As good as any of the books is "Platinotype Printing," by the late Horsley Hinton. (Hazell, Watson, Viney, Ltd., 1s.) Both arc light and mercury vapour are used for platinotype printing. You had better write the Platinotype Co. for advice as to these latter.

ACID FIXING BATH.—In fixing gaslight paper I make the following solution:—

Sulphite soda	2 oz.
Alum	1½ oz.
Acetic acid 33 per cent.	3 oz.
Water	20 oz.

This when mixed is perfectly clear. To my 40oz. fixing bath I add 3 oz. or 4 oz. of the acid sulphite solution. Now, this mixture will remain clear indefinitely if not used, but immediately I begin to place the developed prints in (after rinsing with acidulated water) the bath begins to cloud and precipitate sulphur. The cause, of course, is minute quantities of developer being carried into it. I find that a few drops of metol-hydro developer added to a little of the acid fixing bath will immediately precipitate sulphur. I have an idea that fixing in a sulphur-charged bath is not good for the prints, and should be glad if you would suggest a plan that the bath would stay clear till the end.—OTHELLO.

Your bath strikes us as being too acid. If you dissolve half an ounce of potash metabisulphite in every pint of fixing bath you will obtain a more reliable solution that will not precipitate. If only a few prints are to be treated, one-quarter ounce of the metabisulphite will do.

B.—We have written the firm in question, but must draw your attention to the caution frequently published as to sending prints to unknown firms.

E. D. LANE.—Nos. 4 and 5 are the best. Also "Practical Retouching," by Drinkwater, Butt.

TONING BROMIDE POSTCARDS.—Will you kindly let me know in "B.J." a good toning bath for postcard work bromides, as I am doing the P.O.P. cards at present, and they take too long in printing. So, to turn out my work quickly, I would prefer toning bromide postcards if I can get a nice dark tone, the same as P.O.P. cards; not a brown tone, as the sulphide toning bath. I want it for trade work, so as to turn out batches quickly.—J. BURNS.

The best toning bath we can suggest is the hypo-alum, which, with a suitable paper, will give purplish brown tones. Ensyna paper would appear to fulfil your requirements. See the article in our issue of December 11 last, or write to Messrs. Houghtons.

AUTOCHROME.—I would be greatly obliged if you could give me some idea where I am wrong in the enclosed Autochrome. It was a bright, clear transparency, the colours looking all perfect, until it went into the last two baths, H and I fixing. I do not know in which of the two the colours disappeared, as I did not look at it out of H bath, which only worked about 30sec. Is the permanganate a reducer? It was a plain solution, not acid, as per Lumière, the original formulæ.—AUTO.

There are two possible causes of your trouble, either the second development was not complete, or else the washing after the last permanganate bath was imperfect. The second development may be hindered by exposing the plate too much to light before applying the developer. This is a common source of trouble.

DAYLIGHT.—Because you were given special terms by the old firm, that does not necessarily bind the new one, and they have apparently charged their ordinary prices. In ordering the cards you should have stipulated that they should be at the same prices as you had been supplied by the old firm. If the work was bad you were justified in returning it and refusing to pay. If you are summoned in the county court you will have to prove that the work was not sufficiently good for you to accept it. That is a point the court will have to decide.

COPYRIGHT.—Over twelve months ago a certain Mr. — took a photograph of a group of school children and sold copies of same to the parents. One of these children has recently been murdered

and created a sale for cabinet photographs. As soon as the tragedy happened — is supposed to have copyrighted the negative. The parents asked us to do cabinets, and gave us the card they bought to reproduce from. — threatens legal proceedings. Are we safe in selling cabinets to those who require them?—W. C.

Certainly not. Evidently the photographer took the group "on his own," and therefore the copyright is his, even though he sold copies, and even though he has not registered until now. No one else has any right to copy the photograph.

SPECS.—For a general insight into ophthalmic optics we should recommend you to purchase a copy of "The Refraction of the Eye," by Hartridge; "An Optician's Manual," published by the Guttenberg Press; and a copy of "Elementary Optics," by Fergus, published by Blackie. As regards a wholesale house, we think that probably in starting you would obtain the best supplies from Messrs. Newbold and Bulford, of Goswell Road. These people make a specialty of provincial work, and we believe that all orders received in the morning are returned by them the same day.

COPYRIGHT.—Having long been a regular reader of your and other journals occasionally dealing with questions of copyright law as affecting photographers, I have formed the opinion that if a person is photographed in a public place or at a public function by a photographer who was not ordered to take the photograph, but is working for himself with the object of supplying newspapers with, or publishing, illustrations of public interest, the person so photographed cannot prevent or control in any way the publication of the photograph unless it shows him in a ridiculous position or in a way that would put ridicule or discredit upon him. (1) Am I right? To give a concrete instance: At a function a freelance press photographer takes a negative, prints from which he sends to various papers, some of which reproduce it. Subsequently (and in no way connected with the function) public interest is aroused in one person shown in the print, and the photographer, who has not parted with his right, again sends copies to papers, some of which again reproduce the whole, while some reproduce only that part depicting that one person. There is no question of ridicule. (2) Can this person object or make any claim against photographer or newspaper? The photographer then makes an arrangement with a picture-postcard firm, who extract from the print the portrait of the one person and sell as photo-postcards. (3) Can the person object or make any claim against photographer, publisher, or retailer?—NYHAB.

(1) You are perfectly right. (2) None whatever. (3) On copyright grounds none at all; only in common law on the ground of libel or slander. The photograph you send is perfectly inoffensive, and you need fear no action, we should say, as its publication is undoubtedly in the public interest.

REVERSING MIRROR.—I have a reversing mirror that I have repolished several times and made it look as good as when it was first silvered. The other day I attempted to do the same thing, but almost as soon as the polishing pad touched the surface the silver came off. That was not because the silver was worn out by repolishing, as it came off in flakes, showing there was a sufficiently thick film. Can you explain?—MIRROR.

The reason was that the mirror was damp. The silver is but loosely adherent to the glass when damp, and will readily come off if rubbed. Before a mirror is polished at this time of year it should be made thoroughly warm before the fire so as to completely free it from moisture.

COLOUR OF PRINT.—Will you please inform me by what process and on what paper I can get prints of the same colour and texture as the print enclosed herewith? I have tried several of the papers advertised in the "Journal" but can get nothing like it.—T. WILLS.

Prints exactly like the one sent can be obtained by the carbon process. That is the process by which that sent was produced. We know of no other that will yield a like result.

COPYRIGHT.—In the autumn I bought this business, vide the above heading, together with all the portrait and view negatives. Many of the latter my predecessor had registered the copyright in. Last week I found that a stationer in the town is publishing an album of local views, got up as a souvenir or present, and amongst them are a number the copyright in which is registered.

I have written the stationer demanding their immediate drawal and an apology, unless he is prepared to make terms with me. His reply is to the effect that he will do nothing of the kind and that I can have no copyright in my predecessor's work refers me to his solicitor. How shall I proceed?—INJURED.

If the copyright in the views that have been reproduced was duly assigned to you in writing, according to the Copyright Act, you can do nothing, as you have no copyright in the picture.

COLOURING GLASS POSITIVES.—I am taking glass positive and type pictures by the wet collodion process. I am told that at the time they were so much in vogue they were coloured. You tell me how they were done and where I can get the necessary colours for the purpose? I have tried water colour "photo tints," such as are used for paper pictures, but so far has been a miserable failure.—G. V. HUNT.

What was used for tinting glass positives was the same as is employed in the colouring of Daguerreotypes—namely, specially prepared powder colours. We are not sure they are to be had now. Possibly, however, Fallowfields may have them. Nevill Soho Square, at one time made a specialty of them, and they still stock them.

STAINED PRINTS.—Can you tell me the reason why the enclosed prints have gone to this colour in less than two months? They are on the ——— P.O.P., and were toned in a combined bath to a reddish brown tone. They were excellent when first done, and now look at them." Any explanation will be thankfully received.—T. KNOWLES.

It is very evident that the tones were obtained before the prints were completely fixed. This is a very common occurrence in the combined bath when the prints are only slightly toned. We do not advocate the use of the combined bath when the permanency of the pictures is a consideration. When prints are only slightly toned it is a good plan to fix them afterwards in a plain solution of hypo.

OPERATOR.—There is no trade union amongst photographic employers. One or two attempts have been made to form one, but without success.

A 1.—(1) If you can get the current from the main, whatever may be its price per unit, we think it will be more economical to purchase it than go to the cost of the installation of a gas engine and dynamo to generate it yourself. The necessary plant will be somewhat costly, and it will require attention when in use. (2) We should suggest that you do not buy a secondhand dynamo before having it thoroughly overhauled by an expert. Secondhand dynamos are often dear at any price. (3) The mercury-vapour lamp is only suitable for a continuous current.

SENIOR.—Of the two situations we should advise you to choose the one best from a business point of view, although with that you could not build a studio with a direct northern aspect. You do not seem to realise that the aspect of the studio is but of minor importance; it is the man who works it upon whom the quality of the work depends. We should not, for your purpose, recommend the studio to be less than 27ft. to 30ft. long, as it will be required principally for groups of several persons.

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SUMMARY.

For the removal of stains caused by oxidation of developers Mr. E. Blake Smith has recommended a procedure in which the negative is first bleached, the stain then removed by acid permanganate solution, and the negative re-developed. (P. 100.)

Mr. Nevil Maskelyne has patented a method for the telegraphic transmission of photographs, in which the use of two instruments working in synchronism is dispensed with. The ordinary telegraphic process is used. (P. 106.)

Mr. Henry W. Bennett, in the current "Photographic Scraps," gives a formula for a combined bath, the results with which in the case of Ilford P.O.P. have been found by him to stand the test of time. (P. 104.)

Dr. W. Scheffer, in an article in Klimsch's "Jahrbuch," has pointed out the conditions for the maximum rendering of detail (resolving power) in photo-mechanical processes, such as half-tone photogravure. (P. 100.)

Under "Photo-Mechanical Notes" the claims of machine methods of etching are emphasised. Quite a number of machine etchers are in the market. (P. 105.)

The proper care of a mirror used for the making of reversed negatives in the camera is the subject of some notes on page 89.

When McIntosh gangs out Auto-chrome printing. (P. 104.)

"COLOUR PHOTOGRAPHY" SUPPLEMENT.

The properties of the newly-issued "Omnicolore" screen-plate Jouglé, Paris, are described in the results of measurements made by Dr. C. E. K. Mees and Dr. W. Scheffer. We reproduce photographs showing the structure of the plate and spectrum photographs showing the absorptions of the filter elements and the spectrum sensitiveness of the emulsion. (P. 9.)

The makers' instructions for the use of the "Omnicolore" plate are given on page 13.

The first part of the paper by Baron von Hübl on formulæ for the compensating filter to be used with the Autochrome plate particularly by artificial light appears on page 14.

The Royal Photographic Society on Tuesday evening last devoted itself to the discussion of the practical working of the Autochrome process. Most workers preferred to adhere to the Lumière instructions. (P. 16.)

Mr. B. J. Falk, the well-known New York professional photographer, is making a specialty of Autochrome portraits, which he takes by flashlight. (P. 16.)

EX CATHEDRA.

Detail in Reproductions.

The point made by Dr. Scheffer in the article from "Klimsch's Jahrbuch," of which a translation appears on another page, is of great importance to those interested in reproduction processes, and particularly in half-tone work. Dr. Scheffer shows that even in simple line reproduction it is impossible to preserve detail beyond a certain limit of reduction, and that when reproducing with the usual cross-line screen, this limit is very much sooner reached. He shows that, in order to get resolution at all, the size of the detail must be at least twice as large at the image plane as the screen period, i.e., the distance from a point on one screen-line to the same point on the next, and further, if it is desired to distinguish, for example, a circle from a similar-sized square, then the diameter of the circle must be at least ten times the length of the screen period. This information should be of the greatest use to the photo-engraver, because he could measure by the aid of a micrometer eyepiece in a microscope the size of any particular piece of detail in the picture to be reproduced, and say at once the limit of reduction it will bear with any given screen, or, on the other hand, the fineness of screen required for any given reduction. It would also enable one, when the fineness of the screen is known, by measuring the grain of the paper on which it is proposed to print, to say to what extent detail would be preserved or destroyed.

* * *

An Offer to Photographic Societies.

Our contemporary "American Photography," which unfolds between its covers "quite a few" of its former competitors, is a promoter of the interests of the American Lantern Slide Exchange, an organisation which is self-described in its name, and has run an active course for years past under the honorary management of Mr. F. C. Beach. Mr. Beach acquaints us with the desire of the Exchange to send to England a set of a hundred American slides in exchange for a similar set of English slides, each set to tour for a season in the country foreign to it, and to be returned within a year. The opportunity is one which one of the Federations, or several acting in concert, should be ready to embrace. In the North of England particularly they pride themselves on slide-making, and interchange should do good to both parties. The affiliation, federation, or individual secretary to whom this proposal is of interest should communicate direct with Mr. Beach at 361, Broadway, New York.

* * *

After-Treatment of Negative by Vapours.

In the course of some notes in the "Photographische Chronik," Herr Stolze claims several advantages for the use of vapour of ammonia in place of the ordinary weak solution of ammonia, as the darkening

agent in mercuric intensification. This he does on the ground that in the case of fuming the bleached negative the action is first quite superficial, and may be arrested at any point in its progress downward through the film; whereas in the case of a solution of ammonia or other darkening reagent penetration of the liquid right through the film takes place very quickly. It is therefore suggested that by the use of an ammonia fuming-box mercury intensification may be so conducted that a negative weak in the shadow details may have these missing portions brought up in harmony with the rest of the negative. The writer confesses that this practice necessitates leaving part of the mercurous chloride and silver chloride unaltered in the negative; but he sees no objection to this, although it is certain, we think, that the presence of these compounds cannot be conducive to permanency.

* * *

Dry Sulphide Toning.

The above mention of the use of ammonia vapour suggests a "dry" process which it has often occurred to us might be of practical value for the sulphide toning of bromide prints, not on a small scale, but in factories where prints are made by the mile on one or other of the rotary machines now largely used, chiefly for the production of postcards. The bromide image is very rapidly acted upon by all the free halogens, of which bromine vapour would be the most suitable for a dry process of toning. Without having tried the experiment—bromine vapour is not a pleasant body to employ under conditions where it can escape—we may assume that a bromide print will be very rapidly bleached in bromine vapour, and that the bleached image will be rapidly toned to the sulphide colour by exposure to an atmosphere of sulphuretted hydrogen. In solution we know this pair of substances to form a most excellent toning process, the only drawback to which is the irritating bromine fume. There need be no washing between bleaching; the sulphide destroys the bromine remaining in the print without forming any injurious products, and it is therefore conceivable that if suitable apparatus could be devised a bromine-sulphide dry-toning or wet-toning process could be made a workable accessory to the rotary developing and fixing plant. It would save the hand-toning of the separate sheets by the hypo-alum process, which was the original method of producing the commercial toned postcards, and is still, we believe, exclusively used by some firms.

* * *

Exposure and the Microscope.

The "Photographic Journal" for January contains a very interesting and useful paper by Mr. Duncan J. Reid on "Photography and the Microscope," which is devoted more particularly to the matter of calculating the correct exposure for photo-microscopic purposes. Naturally, the method is of limited application, for a general rule applicable in all cases is not possible. The author's method is for the particular conditions of axial illumination with the condenser at its critical focus, and it is one that should be easy to apply, for the only optical data required are the focal length of the objective, which is, of course, known; the magnifying power of the ocular, which is also known; and the diameter of the Ramsden circle, which is easily measured. From these data the numerical aperture is calculated. Knowing this and the total magnification, exposure is readily found with the aid of a table constructed according to information obtained as the result of a few trial exposures with some particular brand of plates, an average subject, and a standard light source. Incidentally, Mr. Reid gives some very useful tips with regard to apparatus and method of adjustment, and also a very clever explanation of numerical aperture, which is always a somewhat obscure matter to beginners with the

microscope. Among his diagrams, however, we see one taken from Sir A. E. Wright's "Principles of the Microscope," which is a striking example of a mistake that for years has been a common one in English text-books. This diagram (Fig. 11 in the paper) illustrates the Ramsden circle formed outside the eyepiece, as situated at the eye pupil of the observer, whereas it should be near the centre of the eyeball, and at the centre of rotation. If the circle is at the pupil only the centre of the field is visible and the margins of the field cannot be brought into view without moving the whole head. This is a very common error in books, and unfortunately it has often been perpetrated in instruments, some of which are so constructed as to prevent the Ramsden circle from reaching the proper place in the observer's eye.

* * *

Binocular Colour Photography.

A patent specification for "four-colour stereoscopic photography," which we printed in our issue of January 29, involves a somewhat curious condition that has been the source of many differences of opinion. The apparatus stereoscopic, one lens producing records of the blue and yellow, and the other the records of green and red. The same apparatus is afterwards used for viewing the result and the final effect, as regards colour, depends on the visual combination of the colours observed by different eyes; for example, purple will be formed by the fusion of a red image seen by one eye with a blue image seen by the other. The possibility of thus fusing two different colours has been often denied. Wheatstone denied it very emphatically, though many others have stated it to be the fact. Wheatstone states that if one eye studies a red disc and the other a blue one, then the object will appear alternately red and blue. In this he is correct, for the alternating effect is easily observed; but we believe he is altogether wrong in saying it will never appear violet. We have often made experiments on these lines, and our experience is that the disc is sometimes red, sometimes blue, and sometimes violet (or purple). It is difficult to fix the violet, and when fixed it is difficult to retain it. It is quite possible to produce it and to retain it, but the uncertainty of the result seems very unfavourable to the use of this stereoscopic method of colour combination in colour photography. Wheatstone's error is probably due to the use of a blue and yellow disc. He expected, of course erroneously, to see a green disc as the result of the combination. Naturally, only a grey one appeared, and it is not clear from his statements that he actually made the experiment at all with blue and red.

* * *

"Art" in the Nude.

It was from Germany that we imported what is called "Living Statuary," a form of music-hall entertainment that gave rise to many heated discussions in London and in the provinces. Since then Germany, which prides itself that in the advancement of its artistic ideas it has broken with all prudish conventions that only hindered its progress, has gone a stage further. In Berlin they now have what is termed "Beauty Performances," at which naked men and women dance on a stage. One wonders if in the course of time managers are to be allowed to also introduce the "Beauty Performances" into England! Be that as it may, the point we want to bring out is, that some photographers in Germany are taking a miserable advantage of this licence of the pornographic. An endless variety of illustrated publications devoted to "Nude Culture" are displayed in the booksellers' shops. They are professed photographic art studies, but our impression of the samples we have seen is that they are a disgrace to the photographers who took them and to photography. T

majority of them are the product of depraved vulgarity, which no one with any self-respect would look at, much less purchase. Of late the subject has gone too far even in advanced Germany, and an influential committee has petitioned the Prussian Parliament to take steps to prohibit such publications. One cannot help feeling keenly the injustice done to photography when it is employed to such base purposes, and in its interest, as well as in the interest of the public at large, the sooner these objectionable publications are made impossible the better.

REVERSING MIRRORS AND THEIR TREATMENT.

THE necessity for laterally reversed negatives—that is, negatives which are reversed as regards right and left—is evidently increasing, owing to the extending use of the different processes in which their employment is imperative. There are several ways of producing them, but in commercial work either a prism or a mirror is usually employed. Between these two, so far as results are concerned, there is not much to choose. The former, when of large size, is somewhat costly in comparison with the latter. A prism, with ordinary care, will last practically for ever, whereas the mirror will from time to time require to be re-silvered, and occasionally polished, as the surface, like all silver surfaces, is liable to tarnish on exposure to the atmosphere, more particularly in large towns, where the air generally contains impurities which act on the silver. However, with care a mirror will last a very long time, though it may frequently require a rub or two with the polishing pad. This is a very simple operation in the hands of those who understand it.

Last week we replied to a correspondent who told us that he had re-polished his mirror many times without mishap, but the other day, when repeating the operation, the silver all came off in flakes as soon as it was touched by the polishing pad. As not a few may now be experimenting with processes in which reversing mirrors are used, our correspondent's query suggests that it will be of service to say something on the subject.

The first thing for consideration is the glass itself. It is a mistake to suppose that, the glass of a reversing mirror being thick, it is merely a piece of ordinary plate glass, silvered on the surface. The glass of a mirror must be an optical plane, and as true as the flat surface of a lens. This condition is not found in ordinary plate glass, and it may here be mentioned that an imperfect mirror will completely upset the excellent quality of the most perfect lens. With a bad mirror a perfect lens at once becomes an inferior instrument. Supposing we have a perfect mirror, its quality may be, and often is, completely upset, though the cause is sometimes not suspected. Glass is not inflexible, and a mirror is easily bent sufficiently to quite destroy its excellence. A few years ago we were shown an expensive one of large size that had been supplied to a firm whose work required reversed negatives of the highest kind. When using this mirror, a sharp negative could not be got with a certain lens which, when used by itself, gave the finest possible definition. The cause, however, was not far to seek. The mirror was fitted in a heavy brass mount, and held in position by three set-screws. These were screwed tightly up, and as a consequence bent the glass so that it was no longer an optical flat. The screws were loosened so that the glass was quite free from pressure, and the image then obtained was as good as could possibly be desired. In an article in our last issue on the deterioration of photographic

lenses it was pointed out that if the cell of a lens became dented so that the glass was jammed, the excellence of the instrument was greatly impaired. The same thing holds good with mirrors, which must always be quite loose in their mounts.

The silver of a mirror, being a very thin coating on the outer surface of the glass, is liable, unless carefully handled, to get scratched. That is not of such serious import as many might surmise. The scratches will not affect the image any more than do scratches on lenses; all they do is to very slightly impair the brightness of the image, and therefore necessitate a corresponding slightly longer exposure of the negative in the camera. When out of actual use, the mirror should be protected from the air, as that quickly causes the silver to tarnish, particularly in such foggy weather as we have recently experienced in the metropolis; or in studios that are heated with gas or coke stoves, as the fumes given off from these latter have a very tarnishing action on silver. Most mirror-boxes, or cases, are fitted with a lid to protect it from the atmosphere and dust, and this should always be kept closed when not focussing or exposing a plate. With care in this direction, it is surprising how long a mirror will last without requiring to be re-polished. When a mirror is tarnished, the effect is that a longer exposure is required, as the image reflected by it is of a more or less yellow colour. Mirrors, when out of use, should be kept in a dry place, for if the silver film becomes damp it is but loosely adherent to the glass.

A few hints now about the polishing of mirrors, which is a more or less delicate work, and unless some little precaution be taken it may result in the destruction of the silvered surface. For the polishing, two, or better, three, polishing pads are required. A pad of this kind is merely a pledget of cotton wool tied up in fine chamois leather so as to form a soft pad. Some fine jeweller's rouge is required. This had best be obtained from such houses as supply watchmakers' and jewellers' requisites. That to be obtained at the oilshops should be avoided for our present purpose, as it usually contains such gritty matters as would quite ruin the silvered surface. The process is as follows: The mirror, and also the pads, must be perfectly dry, and it is a good plan at this time of the year to make the mirror quite warm a few minutes before polishing is commenced. Then, after removing all traces of dust with a flat camel-hair brush, a little of the rouge is dusted on, and one of the pads lightly rubbed over with a circular motion, until the tarnish is removed. The superfluous rouge is then shaken off. A little more rouge is then rubbed on one of the other pads; with this the surface is gone over very lightly, which will further enhance the polish. Finally, the third pad is used merely to remove any traces of the rouge that may remain. The pads had best be numbered Nos. 1, 2, and 3, and the first kept for the first removal of the tarnish, the second for the after-polishing, and the third for the finishing. The pads should be kept in a box, preferably a tin one, to protect them from dust, for it goes without saying that if a particle of grit is on either of the pads it would make scratches on the mirror. If kept in this way the same set of pads will serve for years; indeed, they seem after a time to improve by use as the rouge gets into the leather and so makes it a better polisher.

It was said above that a prism was more durable than a mirror, but the latter is equally so except that it will occasionally require re-silvering as the silver gets worn away with the polishing; but that is a trivial matter as compared with the first cost of a prism, particularly if it is one of large size. The price of large prisms is great; for instance, in a price list now before us one with five-inch surfaces is quoted at eighty pounds.

A NOTE ON THE REMOVAL OF RESINOUS DEVELOPER STAINS FROM NEGATIVES.

STAINS caused by the resinous oxidation products of the developing phenols can be removed, I find, by the following method, whether the stain be in the form of stain image or general stain. The negative is first soaked in water, and afterwards it is bleached completely in

Potassium bichromate	65 grs.
Conct. sulphuric acid	400 minims.
Common salt	1 oz.
Water	10 oz.

Next it is washed till no yellow colour shows, and then it is immersed for between five minutes and a quarter of an hour in

Potassium permanganate	6 grs.
Conct. sulphuric acid	30 minims.
Water	5 oz.

It is then washed in running water for two or three minutes, and then treated with

Sodium sulphite (cryst.)	6 grs.
Conct. sulphuric acid	8 minims.
Water	3 oz.

The potassium permanganate bleaches out the developer stain, but leaves in its place a manganese one, and this is removed by the sulphurous acid.

The negative is now washed for about ten minutes in running water, and then redeveloped. I recommend as a redeveloper:—

Metol	30 grs.
Sodium sulphite	90 grs.
Sodium carbonate	1 oz.
Water	10 oz.

The solution keeps well enough if stored in a bottle with a stopper greased with a little vaseline.

The exposure of the negative to the permanganate solution

should not exceed twenty minutes or so, as otherwise the film may suffer.

I believe this permanganate method is the first really satisfactory method proposed. I take it the permanganate removes the stain by oxidising it. Some years ago I proposed a solution of bleaching powder for the purpose of eliminating phenol-resin stains, but although the stains disappeared in the bleaching powder solution they were partially restored on redevelopment. Acid solutions of thiocarbamide have been proposed as eliminators of developer stains. These solutions do remove certain yellow stains from a negative, but the stains so removed are not developer stains at all. They are silver stains, or, in other words, dichroic fog. Acid thiocarbamide solutions remove these stains because they are (slow) solvents of silver, and will "reduce" away the whole of the silver image of a negative if they are given time enough to act, and will then show their efficiency (?) as developer-stain eliminators by leaving the stain image behind. A far better method than the use of thiocarbamide for removing silver stains was given in my recent article on silver intensification in this journal. Thiocarbamide is, as I have often pointed out, a most useful and hitherto quite inadequately appreciated chemical in the toning of bromide and P.O.P. prints, but it is, in my opinion, quite out of place as a stain-remover. The bichromate-chloride bleaching-bath is, as has been pointed out before, a real destroyer—probably oxidation again—of developer stains, but its action is only feeble in this respect compared with that of potassium permanganate. Mr. Chapman Jones long ago showed the futility of using merely acid solutions as a means of "clearing" away resinous developer stains.

R. E. BLAKE SMITH.

ON RESOLUTION IN THE HALF-TONE PROCESS.

[The following important paper on the possible definition of detail obtainable, not only in half-tone engraving, but by any photo-mechanical process, appears in the recently issued "Klimsch's Jahrbuch," published in this country by Messrs. Hunters, Limited. We have to thank Messrs. Klimsch for the loan of the blocks.—Eds. "B.J."]

THE following series of experiments was undertaken in order to ascertain the relation between the fineness of the ruling of a screen and that of the finest details which a particular screen is capable of "resolving"—that is, reproducing in facsimile. In order that the experiments may be better understood, some preliminary explanation should be given. The screens used had opaque and transparent lines of equal breadth. Designating, as is usual, the fineness of the screen by the number of lines per centimetre, one speaks thus of a 40, 60, or 80 line-screen, the reference being to the number of black lines per centimetre. It is better, however, in connection with the following experiments to employ the idea of the "period" of a screen as the measure of its fineness. Fig. 1 will make this clear without further explanation. As just mentioned, the screen consists of opaque and transparent lines of equal breadth. The smallest period here recurring thus consists of one black and one white line—that is to say, in Fig. 1 the portion marked as P is the period of the screen, and it is, of course, immaterial what point in the period is selected as that from which to reckon the measurement, provided that the same point in the succeeding period is taken as the end of the period. The length of the period is thus ascertained from the usual data. A screen of 80 lines per centimetre has 80 black and 80 transparent lines in this length. Its period is thus 10 mm. : 80 = .125 mm. The half-tone screen produces on the focussing screen or in the screen negative

a number of dots equal to a number of lines or periods. The distance apart of the centres of the dots is thus dependent upon the period of the screen and is equal to it. The size of the dots, on the other hand, depends on the exposure. The

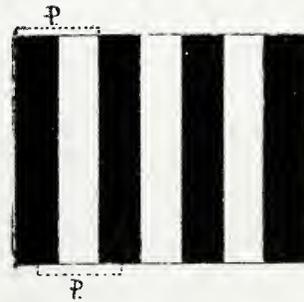


Fig. 1.

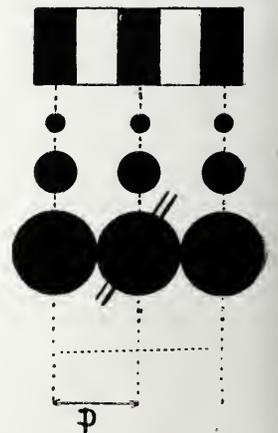


Fig. 2.

degrees of gradation of the image are the result of differences in the size of the dot throughout the image. Fig. 2 shows diagrammatically the relation of the dot to the screen. If we would produce a line system consisting of black and white lines with the screen represented in Fig. 2, or, to

clearer, by means of the maximum dot, we can only do so if we alternatively allow one screen dot to remain and remove the two. The finest detail reproduced with this screen must thus be twice the size of the screen period. Apparently the

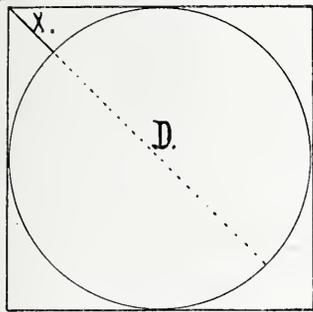


Fig. 3.

medium sized dots are capable of reproducing a line system in facsimile. This, therefore, is the "characteristic image" of the screen, and as such does not concern the question of resolution

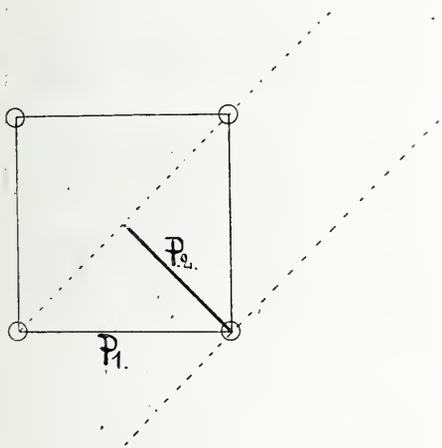


Fig. 4.

of the details. In Fig. 2 the screen period is marked P, the smallest period of image which is resolvable by this screen is marked B. The screen dot, which is dispensed with in

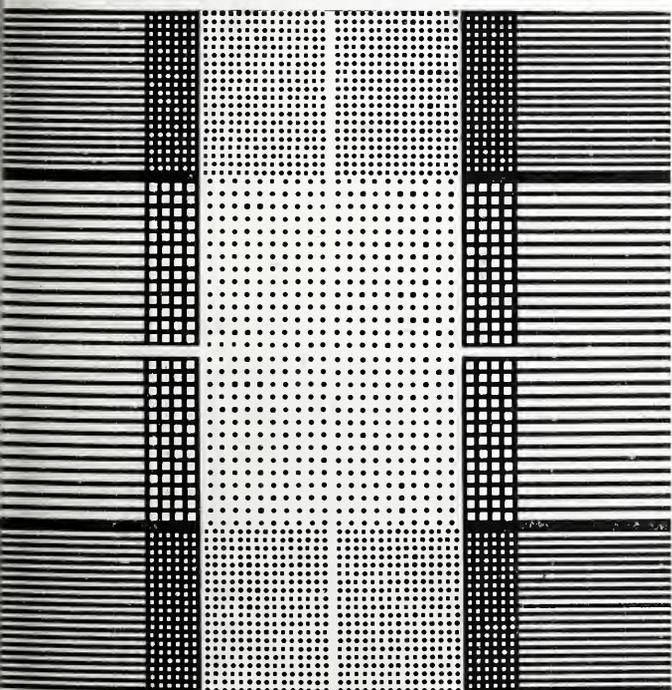


Fig. 5.

reproducing this image period, is shown with the two lines passing through it. In order to understand the following reproduction of the test chart we must further examine the conditions under which the screen is capable of reproducing squares and circles in

facsimile. Fig. 3 shows a circle of diameter D inscribed in a square, the side of which is also D. Obviously the screen must be capable of resolving the distance X (which must be of length 2P) in order that the disc and squares shall be distinguishable and their form separately recognisable.

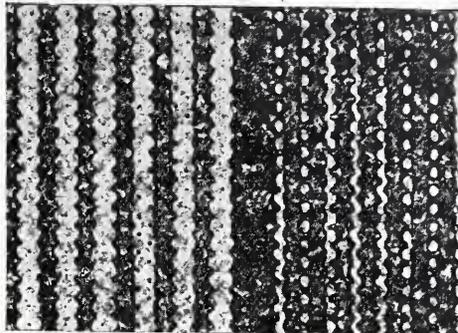


Fig. 6.

The distance X is equal to $\frac{D}{5}$, thus dots and squares must be distinguishable if their diameter and the length of their sides respectively are 10 times as great as the screen period. It is well known that the screen dots are obtained by laying two

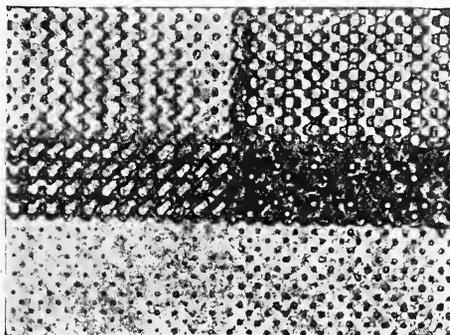


Fig. 7.

line-screens crosswise upon each other. In all the experiments here concerned the screens were crossed so that their lines formed right-angles. Clearly it is not quite immaterial how the line system to be resolved is placed in regard to the screen dots. We may define a screen-square as a square which is so formed that the centres are joined together by four neighbouring screen dots

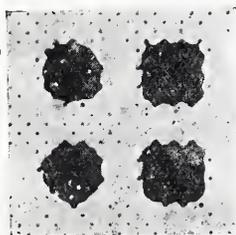


Fig 8

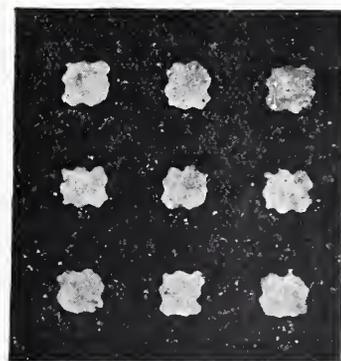


Fig. 9.

through straight lines. If the line system to be resolved runs parallel with the sides of these squares we may have to do with the screen period P_1 of Fig. 4. If however, the line system runs diagonally with the screen-squares the smaller screen period P_2 is the one necessary. The ratio of P_1 to P_2 is very simple—namely, $P_1 = P_2 \sqrt{2}$ P 14. We shall see in the following that this theoretical calculation corresponds completely with the facts. In the experiments a test chart was used as shown in Fig. 5. The breadth of the black lines, the length of side of the black squares, and the diameter of the black discs are equal

throughout the chart, and the different degrees of reduction were chosen to give exact multiples of millimetres. The enlargement of the image was so shown that in all the experiments the follow-

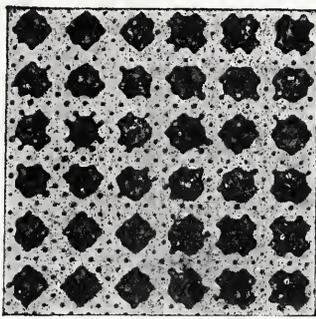


Fig. 10.

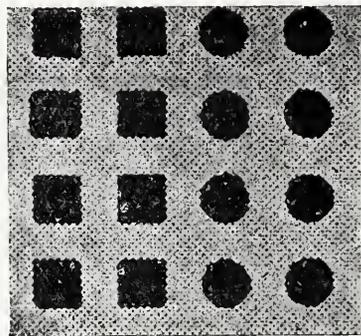


Fig. 11.

ing six enlarged dimensions of the image were employed. The breadth of one black line was—

	1	2	3	8	16	32
Breadth of line mm.	1	0.5	0.25	0.12	0.06	0.03
Length of period	2	1	0.5	0.25	0.12	0.06
	(3)	(1.5)	(0.7)	(0.35)	(0.10)	(0.09)

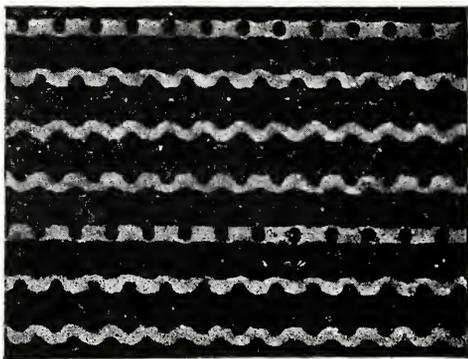


Fig. 12.

Two lengths of period occur in the test chart. In one the black elements and the interspaces are of the same size, the period in this part being thus double the width of the line. In other portions of the chart the interspace is double the breadth of the line, the period being thus three times the breadth of the line (bracketed numbers of the third row).

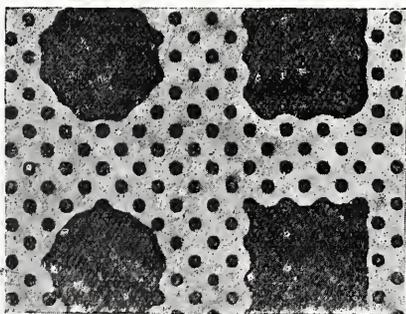


Fig. 13.

The first experiments were made with an 80 line-screen. The length of period of this screen is $P_1 = .125$ mm. $P_2 = .09$ mm. This screen would thus resolve for P_1 image period of .25 mm. : for P_2 image periods of .18 mm. Fig. 6 shows a photo-micrograph of a reproduction of the test chart on the scale of 1 : 8, and with the two periods of .25 and .35 length. According to this the periods of .25 mm. are just resolved. This corresponds completely with the above data, according to which there will be resolution of an image period which is double the size of the screen period—that is to say, an image period of twice .125. On the other half of the photo-micrograph there is the larger period which naturally is completely resolved. In Fig. 7 the scale of

reduction is 1-16th, and here in the left-hand upper portion can be seen the effect of the diagonal position referred to in Fig. 3. The fact that here a period of .18 mm. is resolved agrees with the assumptions made. The period of .12 is, of course,

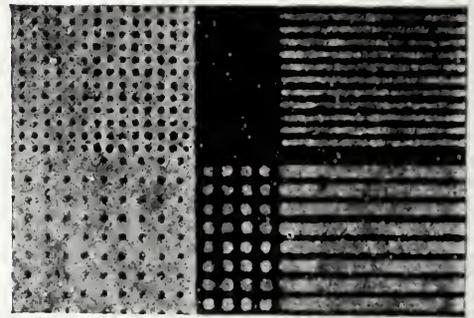


Fig. 14.

resolved. In Fig. 8 we have a position which shows two rows and two square dots. According to calculation (Fig. 3) the limit must lie exactly here, since Fig. 8 is a photo-micrograph

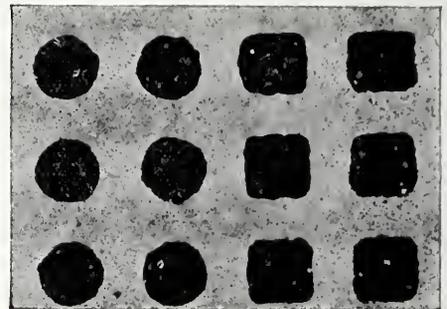


Fig. 15.

of a 1:2 reproduction of the test chart. The squares and dots are hardly to be distinguished, and their resolution is very defective. Fig. 9 shows white squares on a dark ground, the reduction

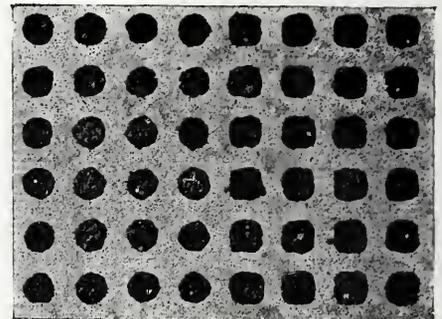


Fig. 16.

being again 1:2. These squares are even worse resolved than the black ones of Fig. 8, but the printing is partly responsible for this. Fig. 10 shows a 1:4 reproduction of the test chart

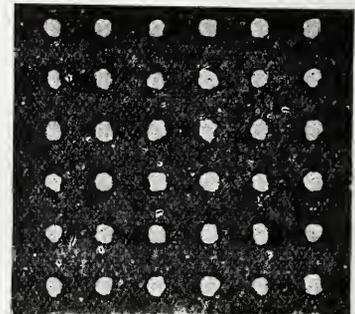


Fig. 17.

The three vertical rows of dots on the left should be discs, the squares on the right squares; but it will be seen that there is no evidence here of proper resolution. According to Fig. 3 the squares and discs should be completely resolved by the 80 line-screen if the

meter and length of side are equally 1 mm. This will be seen to be the case as shown in Fig. 11. All the photo-micrographs, nos. 6 to 11, are of reproductions with an 80 line-screen. Fig. 12 shows a reproduction with a 40 line-screen, and here lines and interspaces of equal width are again resolved on a 4 scale. Fig. 13 shows dots and squares on a 1:1 scale with 40 line-screen, but the resolution is defective; two corners of a square are fairly well resolved, but the two others are insuffi-

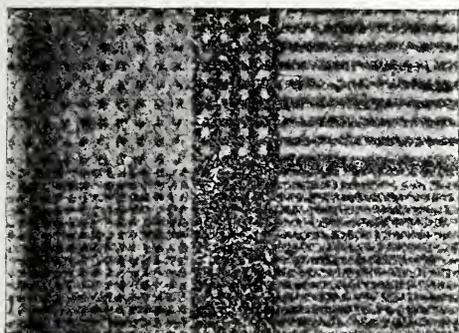


Fig. 18.

ciently so. Fig. 14 shows a line production of the test chart on a scale of 1:16; here the smallest periods are very well resolved, but the dots and circles cannot be distinguished. In this case the limit is reached not only through the appearance of the printing plate, but through the materials, paper, ink, etc., as well as the mechanical conditions of the printing; the dots and

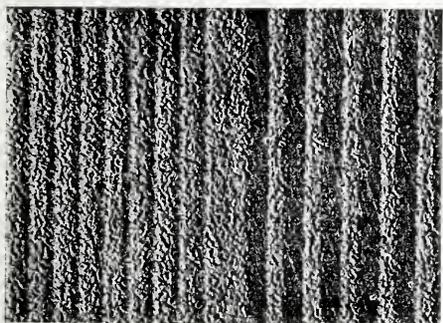


Fig. 19.

squares cannot be distinguished. The 80 line-screen used at 1:8 has resolved periods of lines and interspaces of equal breadth, and at 1:1 squares and dots are plainly distinguishable. The line reproduction resolves the corresponding periods at 1:16 and analogously the squares and discs at 1:2, as is shown in Fig. 15. Fig. 16 shows that at 1:4 the resolution of the squares and

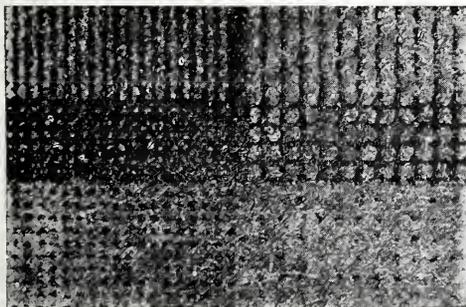


Fig. 20.

dots is quite imperfect. Fig. 17 shows white squares and discs reproduced in line at 1:4; but here again there is no difference to be seen between the discs and the squares. Fig. 18 shows the reproduction of the test chart by photogravure at 1:16; the finest periods are just resolved, and the photogravure plate in this case has been used just at the limit of resolution. If our assumptions as to resolution are correct, the grain of a photogravure plate must have a period of about .06 mm. Fig. 19 shows that this assumption is correct. The photo-

micrograph shows the grain of the photogravure plate in incident light. Numerous measurements showed that the period averaged about .07 mm.

In the case of almost all the reproductions it is noticed that the white elements of the image are represented somewhat too small and the black elements somewhat too large, which is to be explained by the reversal of the negative into a positive, which is repeatedly necessary in order to obtain the great reduction, as also to the intensification, etc., of the negatives of trans-

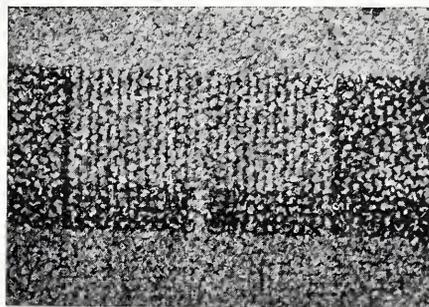


Fig. 21.

parencies. The experiments above described apply to one of the many properties of reproduction. Judging only from the results here obtained, no further conclusion may be drawn as to resolution in the respective processes, but one definite conclusion is possible. The test chart has proved itself of very great use. It is simple in design, and lends itself to quickly judging of the

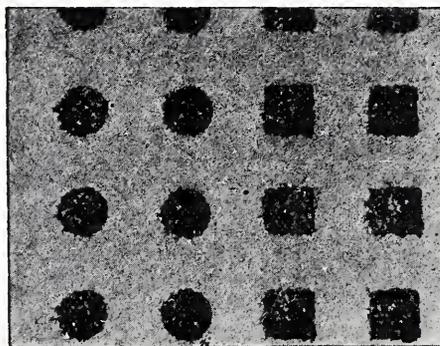


Fig. 22.

results obtained. It is, therefore, a pleasant duty to acknowledge the assistance thus rendered by Messrs. Klimsch and Co., of Frankfort-on-the-Maine, to whom the making of the chart and of the reproductions is due. The photo-micrographs were all made with the Zeiss photo-micrographic installation, using a "Planar" of 35 mm. focal length. The convenience of the instal-

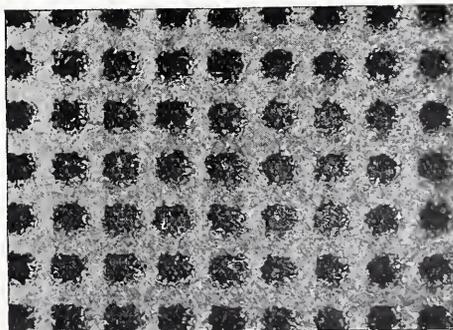


Fig. 23.

lation and the greater aperture of the "Planar" made it possible to carry out all the necessary work of the photo-micrography in a single morning. The results obtained have some importance chiefly for the half-tone process; but it is hoped that further researches may be made in other reproduction methods. With the exception of Fig. 11 all the photo-micrographs are of 25 diameters magnification. Fig. 11 is a 10-times magnification.

DR. W. SCHEFFER.

A COMBINED TONING AND FIXING BATH FOR ILFORD P.O.P.

(From "Photographic Scraps.")

ALTHOUGH many prints toned and fixed in the combined bath discolour and fade very quickly, and the fault is unquestionably in the bath used, any general condemnation of it is not justified. The condemnation should be applied to the particular bath, or to its condition at the time of using, and not to all forms of the combined bath under all circumstances.

The combined toning and fixing bath is capable of producing prints as permanent and as little liable to change in any way as any silver print can possibly be.

In order that prints toned and fixed at one operation may be thoroughly stable and show no tendency to deteriorate, it is essential that several conditions should be fulfilled. In using many of the commercial ready-made solutions, one or more of these conditions will not be satisfied, especially when a bath is used several times in succession. Prints that deteriorate quickly are the natural result.

The essential conditions are:—

1. That there should be enough gold in the solution, at the time of using, for the number of prints that it is required to tone.
2. That the bath should be sufficiently strong in hypo to fix the prints thoroughly by the time that the desired tone is reached.
3. That sufficient time should be allowed to ensure perfect fixation.
4. That the bath should be alkaline.

The most simple manner of ensuring the first requirement is to mix sufficient solution for the number of prints that it is desired to tone, and after using throw the solution away.

The practice of using the solution once only is very desirable for other reasons. A solution that is used many times in succession becomes contaminated and loaded with impurities; its composition is always a matter of extreme uncertainty. Its strength in any one constituent can never be known definitely, and its action is necessarily uncertain.

The combined bath here given is in every respect satisfactory with Ilford P.O.P., and yields very pleasing, rich, warm, purple tones. It is not, however equally satisfactory with all papers on the market. It has stood the test of several years' working in my own practice, and the prints produced by its aid have never shown the slightest tendency to deteriorate in any way.

Each constituent of the bath will keep in solution satisfactorily for a very long time; and if the following separate solutions are prepared, any desired quantity may be mixed in a few moments whenever required.

A—Hypo	...	...	...	...	1 lb.
Water, sufficient to make	...	...	...	...	32 ozs.
B—Ammonium Sulphocyanide	...	...	...	...	2 ozs.
Water to	...	...	...	...	8½ ozs.
C—Lead acetate	...	...	...	...	1 oz.
Water to make	...	...	...	...	8½ ozs.

The lead acetate should be dissolved in very hot water, as nearly boiling as possible. The solution will be cloudy, and it should be shaken up before measuring out any quantity required.

D—Gold Chloride	...	...	...	...	15 grains.
Water	...	...	...	...	3 ozs.
E—Strong Ammonia	...	...	...	...	3 drs.
Water	...	...	...	...	10 ozs.

To prepare the toning bath take three ounces of A and three drachms each of B, C, D, and E, and add sufficient water to make the total quantity up to ten ounces. This quantity of bath is sufficient for eight whole-plate prints; for fifteen half-plate; or for thirty-two quarter-plate.

It is very important that the solutions should be mixed in the order of the letters of the alphabet. The necessary quantity of A should be taken first; B added next, then C, and so on. After measuring C, the measure must be thoroughly rinsed before using it for D, and again thoroughly rinsed before measuring E.

The prints should be placed in the bath without previous washing, and they must receive constant attention and turning-over during the operation. It is absolutely essential that the solution should have free access to the surface of each print while the toning and fixing progresses.

The minimum time for the prints to remain in the bath should be

twelve minutes. This is most important to ensure perfect fixation and, consequently, stability.

Very deep printing is necessary for toning and fixing in this bath. For amateur workers or those whose silver printing is intermittent or for all who experience difficulty in obtaining uniform and good results by separate toning and fixing, this bath will be found a great boon. In addition, there is a marked saving of time by reason there being one operation only and no preliminary washing. The final washing is the same as the usual washing after fixing.

For several years I have used this method exclusively, and results have been all that could be desired. The tone is judged the prints lie in the solution, the final colour being that which they have at the time of being taken from the bath.

HENRY W. BENNETT, F.R.P.S.

THE R.P.S. CAROL

GOOD KING MCINTOSH.

Good King McIntosh arose
A gaping and a yawning,
Raised the blind, and with his nose
The window pane adorning,
Said "I canna well suppose
It will be wet this morning,
Squeezed inside a kilt and hose
I'll gang oot auto-chro-me-ing."

Striding down the Thames in style,
And nothing ever fearing,
Autochroming every mile
In spite of rustics jeering.
Now and then and once awhile,
A "drap o' somethin'" cheering
Broadened Mac's familiar smile,
And kept him from a wear-y-ing.

Thameshead down to Nore he went,
As gaily as on heather.
Kilt and plaid got sadly rent,
And roads were rough on leather.
Bonnet blew away in Kent,
In rather windy weather.
Cheery wire to home he sent:
"Me sporran holds to-geth-er-er."

When he'd lost his bonnet blue
A lens cap looked quite dandy;
When his kilt was torn quite through
The focus cloth was hardy.
When his shoes were lost to view
He picked out places sandy;
When his hose departed, too,
He rubbed his legs with bra-an-dy.

Back in Russell Square one day,
And in the best condition,
We found Mac in spirits gay,
For he'd fulfilled his mission
Worked at autochromes like play
(All with our kind permission);
Helped us once again to pay
For Annual Ex-hi-bi-tion.

NOTTINGHAM CAMERA CLUB.—The eighth annual exhibition will be held from March 17 to 20, in the Mechanics' Lecture Hall, when the awards will take the form of statuettes, eleven of which will be placed at the disposal of the judge, Mr. Furley Lewis, for award in the open classes. As previously announced, exhibits entered for the Birmingham Exhibition (February 22 to March 6) will be collected for Nottingham and thence forwarded to Sheffield (March 3 to April 4) free of charge to those exhibitors desirous of entering pictures for all three. Entry forms are now ready, and may be obtained, together with full particulars of reduced entry fees, etc. from the secretary, Mr. E. L. Kent, 3, Radcliffe Mount, West Bridgeford, Nottingham.

Photo-Mechanical Notes.

The Use of Etching Machines.

In the current number of the American "Engraving and Electro-typer" there are some disparaging comments on acid blast etching machines, it being stated that some newspaper plants in America unsuccessful with them. It is further stated that "the good thing machine is yet to come." The same remark could be made, in fact is made about the introduction of any new machine or process, but photo-engravers will be very unwise to neglect to utilise etching machines until they are absolutely perfect. There is no doubt that in capable hands any of the etching machines now on the market will do better work than the hand-rocked tubs, and in less time. Particularly is this the case with the Levy acid blast, the only thing against this machine being its high price. But all machines require not only absence of prejudice against them (which condition is not always fulfilled), but a determination to understand them thoroughly and to get the best results out of them.

Selective Mirrors.

The "Procédé" for December publishes the following note from F. Dogilbert, in order to reserve to him priority of the idea: "I am struck by the interest there would be in suppressing coloured aberrations, which introduce such a great number of aberrations in the images furnished by the most perfect lenses, I ask myself if it would be possible to realise simultaneously the selection and reversing of a mirror, on the surface of which would be deposited, for example, by electro-chemical means, a thin film of a metal or a transparent substance in a fashion to produce, thanks to the well-known properties of thin films, the absorption of any given spectral region."

Mezzochrome.

The new photogravure three-colour is perhaps a little disappointing when one expects so much from photogravure. The colours are as vigorous as they might be, and the register in some of the specimens shown is not quite perfect. Nevertheless, they are a triumph over what are produced, as is supposed, from copper rollers and printed by the rotary method at a very high speed. The chief advantage is the absence of glare which always accompanies typographic three-colour owing to the art papers on which it is printed. If the three-colour block maker wants to meet this competition he can only do so with success by the use of more pleasant papers. In other respects, probably he could hold his own with the new process, for though it might be thought that the photogravure method would give a greater depth of ink and therefore intensity of colour, this is particularly noticeable on the present specimens; and they could very well be equalled in this respect by three-colour blocks.

Exhibitions.

GLASGOW AND WEST OF SCOTLAND PHOTOGRAPHIC SOCIETY.

On the occasion of its twenty-fifth exhibition the Glasgow and West of Scotland Amateurs threw open their exhibition to non-member competitors, and set aside three classes for them; but still the members' class keeps on top with 109 entries, against the 90 entries in the open, but then in the open class the "pictures were selected by J. Craig Annan," so we know not how many were selected. This procedure is not usual in society exhibitions, but the tendency of it is to improve the quality of the exhibition, and when we see some of the work that finds a place on exhibition walls, the wish arises that the practice was more generally followed. This exhibition contains much good work, and the secretary with his selection of entries proves what a tower of strength he must be to the members, while the quality of the work shows that he is fully justified, as he is certainly willing, to help the younger members of the society. The open class occupies the small room, and the judges, Messrs. J. Craig Annan and R. M. G. Coventry, awarded plaques as follows:—"Across the Harbour" (191), James A. Angus, Glasgow; "Studiously Inclined" (206), Peter Orr, Govan; and "Childhood" (238), Mrs. James Risk, Castlecary. In the Autochrome (open) plaques are gained by "Portrait" (293), Victor L.

Alexander, Glasgow; "The Crying Girl" (copy of Greuze's painting) (301), Capt. W. J. Stomm, Harrow-on-the-Hill; and "Fruit" (304), E. L. Brown, Edinburgh. Lantern Slides (open), sets of four:—Plaques: 259, Thomas Carlyle, Paisley; 260, Capt. Stomm; and 265, James McKissack, Glasgow.

In the members' classes the awards are as follows:—Open to all Members:—Plaques: "Out in the Coming Storm" (2), A. J. Garwood; "Le Quai des Pêcheurs, Ostende" (3), Alex. G. Watson; "A Portrait Study" (5), John Currie; "The Hen Wife" (15), John McWilliam; "Mid-day Leisure" (24), Harry Thomson; "Eyemouth—Herring Smoking" (35), John Martin; "The Fishers' Harbour, Ostend" (41), James McKissack; "Winter Evening in Stratherrick" (96), W. R. Baxter. Honourable Mention: John A. Stewart and D. W. Macdonald.

Novice Class:—Plaques: "The Ferry" (131), John P. Copland; "The Shore Road" (147), Archibald N. White. Honourable Mention: William Baird, William R. Muir, and Peter W. Gibb.

1908 Outings:—Plaque: "Stirling Brig" (117), John Martin.

Autochromes:—Plaque: "Peacock Butterfly" (288g), Victor L. Alexander.

Lantern Slides:—Plaques: 268, A. J. Garwood; 272, W. R. Baxter; 279, James McKissack; 285, Arch. Watson.

Entertainments are provided in the evening during the course of the exhibition, which opened Feb. 2nd and closes 13th.

GLASGOW EASTERN AMATEURS' ASSOCIATION.

On Saturday, in their compact rooms in Landressy Street, "The Eastern" opened their annual members' exhibition. The Eastern believes in encouraging their own members in their exhibitions, presumably believing that they can see enough non-members' works at the other exhibitions in the district. The pictures are nicely displayed, and show much merit. Several of them, seen elsewhere, now announce where the artist got his encouragement. The mounting and framing are of a more than usual excellence, and show that much thought has been devoted to the "setting" of the picture.

A loan collection of six large pictures by Mr. F. J. Mortimer, London, lend a variety and massiveness to the exhibition, though they tend to dwarf the exhibits beside them.

Altogether the members are to be congratulated on their admirable little show.

The judges, Messrs. Dan Dunlop and G. L. A. Blair, made the following awards:—Landscape, etc.: 1, B. de Pellette; 2, Alex. Gault; 3, H. Collins; 4, Robert Richmond. Portraiture and Figure Studies: 1, James Hamilton (awarded plaque for best picture in the show); 2, Alex. Johnston. Outings: 1, Robert Richmond. Novice: 1, W. A. Arbuckle. Lantern Slides: 1, John Harvey; 2, Robert Richmond; 3, Archibald Campbell. Dr. Richmond's plaque for best gum print: R. de Pellette.

FORTHCOMING EXHIBITIONS.

February 1 to 13.—Glasgow and West of Scotland Amateur Photographic Association. Sec., James McKissack, 68, West Regent Street, Glasgow.

February 3 to 6.—Borough of Tynemouth Photographic Society. Sec., J. R. Johnston, 29, Drummond Terrace, North Shields.

February 8 to 13.—St. Helen's Camera Club. Sec., A. G. Else, Duke Street, St. Helen's, Lancs.

February 10 and 11.—Cowes Camera Club. Sec., E. E. Vincent, 4, High Street, Cowes.

February 10 to 13.—Cleveland Camera Club. Secs., F. W. Pearson and R. Walton, 39, Granville Road, Middlesbrough.

February 11 to 20.—Leicester and Leicestershire Photographic Society. Sec., Harry Cross, 80, Harrow Road, Leicester.

February 16 to 20.—Norwich and District Photographic Society. Sec., J. T. Tanner, The Lodge, Bowthorpe Road, Norwich.

February 20 to March 6.—Edinburgh Photographic Society. Entries close February 6. Exhibition Secs., Edinburgh Photographic Society, 38, Castle Street, Edinburgh.

February 20 to March 20.—South London Photographic Society. Entries close February 10. Sec., H. Crieghton Beckett, 44, Edith Road, Peckham, S.E.

February 22 to March 6.—Birmingham Photographic Society. En-

- tries close February 12. Sec., Lewis Lloyd, Church Road, Moseley, Birmingham.
- February 26 and 27.—Ilford Photographic Society. Entries close February 18. Sec., H. Eales, 53, Coventry Road, Ilford, Essex.
- March 11 to 13.—Coventry Photographic Club. Entries close March 5. Sec., W. R. Harris, 17, Allesley Old Road, Coventry.
- March 17 to 20.—Nottingham Camera Club. Entries close March 4. Sec., E. L. Kent, 3, Radcliffe Mount, West Bridgford, Notts.
- March 22 to 25.—Cripplegate Photographic Society. Sec., H. S. Cuming, 234, North End Road, Kensington, W.
- March 30 to April 3.—Sheffield Photographic Society. Entries close March 13. Sec., H. Merrill, 22, Harboard Road, Woodseats, Sheffield.
- March 31 and April 1.—Shropshire Camera Club. Entries close March 20. Sec., Harry W. Hughes, Kingsland, Shrewsbury.
- April 10 to 17.—Midlothian Photographic Association. Entries close March 31. Sec., B. Sherratt, 8, Castle Terrace, Edinburgh.
- April 29 to May 17.—Photo Club de Paris. Entries close March 15. Secretary General, Photo Club, 44, Rue des Mathurins, Paris.

Patent News.

Process patents—applications and specifications—are treated in Photo Mechanical Notes.

The following applications were made between January 18 and 23:—

- DEVELOPING DISH SUPPORT.**—No. 1,196. Improved means for adjustably supporting a developing dish or tray operated by clock-work mechanism for the purpose of washing plates or films and means for regulating the movement of said mechanism. Thomas Anthony Bowers and James Stanley Craik, 4, St. Ann's Square, Manchester.
- PLATES.**—No. 1,498. Improvements in photographic plates, films, papers, and the like. Henry Sonnenberg, 30, Church Street, Clapham Road, London.
- CHANGING BOXES.**—No. 1,545. Improved means in connection with boxes for photographic dry plates or films for the purpose of loading and unloading without the use of a dark-room. John Martin, 77, Chancery Lane, London.
- PLATE-HOLDER.**—No. 1,693. Appliance for holding photographic plates, papers, cards, or films for developing, fixing, toning, or washing purposes. George Trudgett, Thurston, Colchester Road, Leyton, London.
- FILTERS.**—No. 1,716. Process of manufacturing filters. Reinhold Suco, 31, Bedford Street, Strand, London.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 5d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention

TELEGRAPHIC TRANSMISSION OF PHOTOGRAPHS.—No. 658, 1908 (January 10, 1908). The invention consists essentially in a method by which the lines or tints of a picture may be translated into ordinary telegraphic signals which, having been transmitted in the ordinary way, are re-translated into the original design.

In former methods of pictorial telegraphy, the various tone values of the component dots have been telegraphed by producing equivalent variations in the transmitting current. The actual record in such cases is obtained by causing the current variations to control the intensity of a light, acting upon a photographic plate or film, at successive spots. Thus, since the transmitting and recording of the necessary impressions must occur simultaneously, the speed of transmission is limited by the comparatively slow rate at which successive photographic exposures can be made, with adequate control.

According to the present invention, all electrical and optical devices other than those ordinarily used in telegraphy and photography are dispensed with. The conversion of tone values into telegraphic

signals, and the reconversion of the latter into tone values, is done by simple mechanical means. And, at the same time, the actual transmission is effected with the greatest possible rapidity.

There is first made a photographic enlargement of the picture to be telegraphed, the magnification being twenty diameters if the picture is small. Upon this enlarged picture is laid a transparent sheet of tissue, divided by horizontal and vertical lines into squares, say, one-quarter of an inch square. This being done, it becomes evident that, to all intents and purposes, the small portion of picture enclosed by any one of the subdividing squares constitutes an evenly tinted surface. Further, it is seen that, from the deepest black of the picture to the purest white of the paper, the recognisable degrees of tint are certainly not more than six in number. If, therefore, we take the square subdivisions in regular succession, from left to right and line after line, marking upon each numerical value of the tint within it, we obtain a series of values which may be telegraphed to any distant point, and there be reproduced with certainty. All that is really necessary for the fulfilment of this purpose may be summed up as follows:—

First, the successive tints must be gauged with some degree of accuracy.

Secondly, the end of each line of tints, from right to left or from top to bottom as the case may be, must be clearly indicated.

Thirdly, the six telegraphic signals, which respectively correspond to the six tints recognised in the picture, must be sufficiently definite and concise to ensure both speed and reliability of transmission.

Those requirements being fulfilled, the telegraphic reproduction of any picture can present no difficulty.

For judging the tints in the original enlargements, standard tints for comparison may be employed.

If the picture to be transmitted is rectangular in shape, a successive line of squares will be of uniform length, and no possible mistake can arise in this respect. If, however, the margin is curved or irregular, a straight line must be drawn at the top from which the reckoning is made. Then, at the beginning of each row of squares, the number of blank spaces between the straight line and the true margin of the picture must be denoted; and, at the end of each line, some definite sign must be given. The "D Q" signal (— . . . —) will serve the purpose quite well.

To insure accuracy of transmission, it may be found advisable in practice to let each tint be represented by a sign of the signals, thus:—

. — —	(W)	=	White
. . .	(S)	=	Slight tint.
— . .	(G)	=	Grey.
— . .	(D)	=	Dark grey.
. . —	(U)	=	Ultra-grey.
. — .	(R)	=	Darkest tint.

Considering now the reconstruction of the picture at the receiving station, it is best to employ some form of typographic process capable of reproducing, at will, each of the standard tints, arranged in proper sequence.

Using this method we construct type, the faces of which are respectively fashioned so as to give impressions corresponding to the six standard tints already described. This may readily be done by forming the type-faces into lines varying in number and thickness according to the shade desired or by forming the type faces so as to produce various sizes of dots. Such type may be produced in quantities and set up in the ordinary manner, or, if preferred, they may be attached to a simple form of typewriter, and operated by the usual finger-keys. In either case, they are caused to produce regularly spaced and properly arranged impressions, corresponding to the variously tinted divisions of the original picture. These printed tints need not be upon so large a scale as the squares upon the magnified picture, or the like, used at the transmitting station. Type faces one-eighth of an inch square are large enough.

The successive tints having been thus reproduced, either by printing or type-writing, the result is a coarse reproduction of the original picture. In this state, the impression resembles an enlargement made from an ordinary half-tone printing block. All that now remains is to make a photographic reduction to the original dimensions, and the final result will resemble an ordinary half-tone picture.

This invention comprises advantages of a practical character, the importance of which is considerable. The fact that the actual process of reproduction is independent of the actual transmission provides facilities otherwise unobtainable. The telegraphic portion of the work may be done at the highest speed. The mechanical operations may be carried out at leisure. The transmission of a pictorial image will not unduly occupy the line of communication, and therefore the reproduction of that image need not be unduly hurried. With ordinary care, the results produced must be entirely reliable; and, above all, technical difficulties of every kind are absolutely removed. The only facilities and technical qualifications essential to success are those commonly available in the practice of telegraphy and photography. The Amalgamated Radio-Telegraph Company, Limited, 601, Salisbury House, London Wall, E.C., and Nevil Maskelyne, of St. George's Hall, Langham Place, London, W.

New Trade Names

...s.—No. 307,781. Chemical substances used in photography, photographic plates, and sensitised films. Eugen Albert, trading as Dr. E. Albert and Co., Schwabingerlandstrasse, 55, Munich, Germany, manufacturer of photographic materials. November 9, 1908.

...DERATION.—No. 309,126. Chemical substances used in manufactures, photography, or philosophical research, and anti-corrosives. Co-operative Wholesale Society, Ltd., 1, Balloon Street, Manchester, wholesale dealers and manufacturers. December 24, 1908.

...EROLETTE.—No. 309,015. Photographic apparatus included in Class 8. W. Butcher and Sons, Ltd., Camera House, Farringdon Avenue, London, E.C., photographic apparatus manufacturers. December 19, 1908.

Analecta.

Extracts from our weekly and monthly contemporaries.

Green Tones on Bromide and Gaslight Papers.

Mr. C. Winthrop Somerville, in an article on obtaining various tones on bromide and gaslight papers, in "The Amateur Photographer and Photographic News" for February 2, gives the following formula for green tones:—

Ferric chloride	1 gr.
Oxalic acid (saturated solution)	60 minims.
Vanadium chloride (pure)	2 grs.
Nitric acid	5 minims.
Water to make	½ oz.

then add, stirring the while—

Potassium ferricyanide	1 gr.
Water to make	½ oz.

...one from one to two minutes; the longer the immersion the lighter the green. Wash ten minutes and immerse in hypo bath of—

Hypo	2 ozs.
Boric acid	200 grs.
Water	10 ozs.

Reducing the Density of Negatives,

Mr. R. E. Blake Smith, in some notes on reducing the density of negatives, in "Photography and Focus" for February 2, says:—The negative to be reduced is first well soaked in water. It is then bleached. I recommend the bichromate-chloride bleaching solution I have often described in "Photography."

Potassium bichromate	65 grs.
Concentrated sulphuric acid	400 minims.
Common salt	1 oz.
Water to	10 ozs.

This bath is not used as it stands here, but half an ounce is taken and added to one and a half or two ounces of water. Into this diluted bleaching solution the negative is put, and the progress of the bleaching operation is carefully watched, chiefly by looking at the back of the negative. When the lighter parts have been eliminated completely it will be found that a lot of unchanged silver remains in the darker ones. When the darker parts have been

sufficiently bleached—the degree, of course, depending on the special circumstances of the particular negative—the plate is taken out of the solution and washed.

After washing is complete the remaining silver can be removed by a suitable reducing solution—i.e., one which dissolves silver without reducing silver chloride. Howard Farmer's reducer, of course, will not do. I advise:

Potassium permanganate	4 grs.
Concentrated sulphuric acid	30 minims.
Water	5 ozs.

Or—

Basic ceric sulphate	30 grs.
Concentrated sulphuric acid	45 minims.
Water	5 ozs.

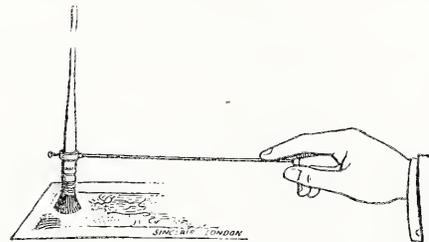
The action of both these solutions is very quick, and a few minutes' treatment only is required. . . . After all the remaining silver has been dissolved out the negative is again washed, and then redeveloped.

I know of no better redeveloper than:

Metol	15 grs.
Sodium sulphite (cryst.)	45 grs.
Sodium carbonate (cryst.)	½ oz.
Water	5 ozs.

New Apparatus, &c.

AN ADJUSTABLE HOPPER FOR "OIL" PIGMENTING.—Messrs James A. Sinclair and Co., Ltd., 54, Haymarket, London, S.W. have introduced a little accessory which will be welcomed by workers of the "oil" and "bromoil" process. It is a holder, in which any pigmenting brush, from No. 1 to No. 10, can be held when using it for the "hopping touch" on a print. The drawing clearly shows how the "hopper" is used. Any brush can be quickly adjusted into position, the handle fits nicely in the palm of



the hand, and by resting the forefinger along the wire any amount of spring may be obtained. The price is one shilling.

It should be mentioned that the four-page price list of Messrs. Sinclair describes all the necessary materials and accessories for the "oil" processes, and has proved its usefulness to those working the process by running three times out of print since its recent first issue.

New Materials, &c.

Ivoryine. Sold by Greenberg and Sons, Water Lane, Ludgate Hill, London, E.C.

Messrs. Greenberg and Sons have been good enough to send us a sample of a new material for photographic purposes, which they have just put on the market, called "Ivoryine." It is a compound with a very even matt surface, and is a very good imitation of real ivory without the grain of the latter. It has about the same flexibility as thin ivory, and about the thickness of an ordinary visiting card, so that pictures upon it require no mounting. Carbon prints can be simply developed upon it direct, without any preparation, the same as if it were matt opal glass or single transfer paper. The pictures are very effective, and also show well as transparencies. Here we have a material the use of which in carbon printing is simplicity itself, while the results are extremely pleasing. It is mentioned that the ivoryine may be used for any process in photographic printing. If, however, it is employed in silver printing it must, obviously, be coated with an emulsion such as a bromide or

chloride one. We should advise those of our readers who are on the look-out for novelties to obtain a sample of ivory. Its price is very moderate, being, for quarter-plate 2s. per dozen, half-plate, 3s. 6d. per dozen, and whole-plate 7s. 6d. per dozen.

"Royal and Rough Velox." Sold by Kodak, Ltd., Clerkenwell Road, London, E.C., and John J. Griffin and Sons, Kingsway, London, W.C.

In these two additions to the already numerous varieties of Velox paper the user of Velox is provided with the means of producing prints of "broad" quality, such as is common among bromide papers, and is, therefore, particularly useful for printing in Velox from large negatives. However, even for quite small work the texture of the new papers is by no means so pronounced as to unfit it for ordinary work; indeed, the agreeable surface will be infinitely preferred by many to that of a semi-matt or semi-glossy paper. The "Royal" is a paper of cream tint, and gives very harmonious results of great richness in the shadows and brilliance in the high lights. The "Rough Velox" is on a white paper, and gave us prints of very fine black colour. Both papers are of the "Special" order—that is, give soft results, and are several times faster than the "Vigorous" brands of Velox. In conjunction with the use of Velox of all grades, the vendors have issued an illustrated leaflet entitled "Border Printing on Velox Gaslight Paper," in which are described and shown the pleasing effects of border printing obtainable by very simple means. This leaflet will be sent post free on application, and will most certainly interest amateur users of the paper.

Commercial & Legal Intelligence

A MANCHESTER BANKRUPTCY.—At the Manchester County Court last week, in reference to the affairs of Max Muenzer, already reported in the "B.J." for Nov. 27, 1908,

Mr. Wise, barrister, made an interesting application to his Honour Judge Parry. Mr. Wise appeared for the trustees under the bankruptcy of Max Muenzer, engaged in the photo-enlargement business, in Chester Road, Manchester.

Counsel stated that his application was that a motion on behalf of the trustees should be heard by his Honour on an earlier date than March 13, the circumstances, it was alleged, being exceptional. Mr. Muenzer, said counsel, shortly before bankruptcy, appeared to have assigned the whole of his estate, which was of the value of £5,000, to a limited company, of which there were no other shareholders than the signatories to the articles of association, and of which, it was alleged, Mr. Muenzer had appointed himself managing director at a salary of £1,500 a year. No payments were made.

His Honour: Your application is on the ground that it is a fraudulent assignment?

Mr. Wise: Yes, sir.

Counsel further said that Mr. Muenzer had the assets of the company in his own hands, and it was very urgent that the motion to come before his Honour should be heard at the earliest moment.

His Honour: You say it is a one man company?

Mr. Wise: Yes. They have not even issued the seven shares. He refuses all information as to the affairs of the company, and we cannot get hold of any assets.

Mr. Wise added that a meeting of creditors was held at the Official Receiver's offices, at which these proceedings were sanctioned. Mr. Muenzer was present, and though he was asked to retire from the room, he knew all about the proceedings.

His Honour agreed to hear the motion at two o'clock on the afternoon of February 9.

The company is described as Muenzer, Ltd., formed to take over as a going concern the business of Max Muenzer at the Helios Photographic Works, Chester Road, Cornbrook.

NEW COMPANIES.

EMIL WUNSCH AKTIEGESELLSCHAFT FÜR PHOTOGRAPHISCHE INDUSTRIE.—Capital 1,000,000 marks, in 1,000 bearer shares of 1,000 marks each. Registered in Reick, near Dresden, in 1898. British address, 24-26, Holborn, E.C. T. A. Peck, of 57, Offord Road, N., is authorised to accept service.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, FEBRUARY 5.

Sunderland Photographic Association. Exhibition of Thornton-Pickard Prizes Slides and Apparatus. R. Hesketh.
Nelson League of Young Liberals. French Lantern Pictures. A. E. Staley & Sutton Photographic Club. "Photographic Shutters." E. A. Salt.
Borough Polytechnic Photographic Society. Annual Dinner.
Mill Camera Club. Portrait Competition.
Wishaw Photographic Association. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.

MONDAY, FEBRUARY 8.

Southampton Camera Club. "A Sketch of the History of English Architecture." Harold Baker.
Bradford Photographic Society. "Elementary Principles of Art Applied Photography." Alexander Keighley.
Scarborough and District Photographic Society. Portfolio of Prints (Members Cripple Gate Photographic Society. "Pictorial Lantern Slide Making." Bertie C. Wickison.
Kidderminster and District Photographic Society. Midland Federation's Portfolio.
Lancaster Photographic Society. Demonstration of "Ensyna" Paper. Young.
Attercliffe Photographic Society. Exhibition of Thornton-Pickard Prize Slides and Apparatus. R. Hesketh.
Glasgow Southern Photographic Association. "On the Printing, Developing and Toning of Velox Papers." W. F. Slater.

TUESDAY, FEBRUARY 9.

Royal Photographic Society. Annual General Meeting.
Salisbury Camera Club. French Lantern Pictures. A. E. Staley & Co.
Beeston Photographic and Art Club. Exhibition of Thornton-Pickard Prizes Slides and Apparatus. R. Hesketh.
Neath and District Photographic Society. Dutch Lantern Pictures. A. Staley & Co.
Hanley Photographic Society, Y.M.C.A. Members' Night.
Hackney Photographic Society. Results from Plates handed to Twelve Members for Developing and Printing.
Worthing Camera Club. "Various and Novel Lighting Effects." H. Esselby Corke.
Blackburn and District Camera Club. "The Camera Abroad." C. L. Fairthorpe.
Leeds Photographic Society. "The Roman Wall from Newcastle to Carlisle." E. Kitson Clark.
Epsom and District Literary and Scientific Society. "Ilford Gaslight Paper Demonstration."

WEDNESDAY, FEBRUARY 10.

Leeds Camera Club. "Enlarged Negatives or Reductions from Untoned Prints." F. Rust.
Croydon Camera Club. "A Tour in Portugal." Hugh Allen.
W. Calder and District Camera Club. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
North Middlesex Photographic Society. "A Swiss Tour." Harry Barnard.
Sale Photographic Society. "The Negative as a Means to an End." H. Pedd.
Borough Polytechnic Photographic Society. "Enlarging." A. G. Buckham.

THURSDAY, FEBRUARY 11.

Handsworth Photographic Society. Lantern Exhibition. "Agfa" Slides.
L.C.C. School of Photo-Engraving, Bolt Court. "The Production of Ordnance Survey Maps." Colonel G. N. Grant.
Liverpool Amateur Photographic Association. "Mountaineering in Sky." Henry E. Bowron.
Hull Photographic Society. Exhibition of Thornton-Pickard Prize Slides and Apparatus. R. Hesketh.
St. Andrews Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Rugby Photographic Society. Affiliation 1908 Prize Slides.
Wimbledon and District Camera Club. "Wanderings in Zoo-land." F. Marjot Duncan.
Melbourne (Dulwich) Camera Club. Photography Prize Slides.
Chelsea Photographic Society. "What I Saw in Japan." E. J. Horniman, M.P.
North-West London Photographic Society. Musical Evening and Distribution of Awards.

ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held Tuesday evening last, February 2, Dr. C. E. K. Meade in the chair. The meeting took the form of a discussion upon the Autochrome process, and is therefore reported in the "Color Photography" Supplement to the present issue.

CROYDON CAMERA CLUB.—On Wednesday, the 27th ult., Mr. P. R. Salmon gave his lecture on "Models I Have Photographed." The lecturer's hints on home portraiture were interspersed with many humorous anecdotes, and the lecture was illustrated by abundance of lantern slides of excellent quality made on Alpa plates. Mr. Salmon explained that he obtained the warm brown and sepia colours on these by making a comparatively thin slide and then intensifying with mercury and ammonia. The series of slides wound up with a set of four dozen, all from one model, the negatives being taken in an ordinary room to show the diversity of effect that could be so obtained.

News and Notes.

ADON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.—On Thursday February 11, the above association will have a very special demonstration-lecture, entitled "Gramophone and Cinematograph organised by Photographic Means," by Mr. Will G. Barker, one of the members of the association. The lecture will be very fully illustrated by means of the bioscope and gramophone.

MERCK FACTORY.—Those interested in the homes of the products which they employ should take the opportunity of seeing the views recently issued by the firm of Merck, describing the factory, which for no less a period than 240 years has been established at Darmstadt, first as a pharmacy and for nearly a hundred years past as a manufactory of "fine chemicals." Up to all this time the business has remained in the hands of the same family, and is still a private property.

THE LONDON PHOTOGRAPHIC SOCIETY.—A simple method of enlarging negatives was demonstrated before the South London Photographic Society by Mr. G. E. W. Herbert, who dispensed with the use of a transparency. In its place he used a P.O.P. print made of cloud and landscape negatives. The print was then copied on a large camera with a short focus lens, the print being illuminated by the use of magnesium ribbon burnt on each side of the negative. The demonstration produced a very successful result.

£10,000 FOR THE ROYAL INSTITUTION.—A general monthly meeting of the members of the Royal Institution was held on Monday last (21st instant), Sir James Crichton-Browne, M.D., F.R.S., treasurer and vice-president, in the chair. The treasurer announced that the sum of £10,000 had been anonymously and unconditionally placed at the disposal of the managers for the purposes of the institution for the year ending 1909; and the members passed a resolution expressing their grateful appreciation of her munificence and discernment, and the gift as a timely and noble recognition of the good works which the institution has done in the past, and is still doing, in the acquisition and diffusion of scientific knowledge, and as an incentive to maintain and extend its usefulness in the unique position which it has for more than a century occupied.

P. TONES ON BROMIDES.—In reference to a reply given last week to a correspondent who asked for a means of obtaining a P.O.P. by rapid artificial-light printing, the Falla-Gray Photo Paper Co., Park Road, Tunbridge Wells, write drawing attention to the action of users of Falla-Gray cards in obtaining such effects by the hypo-alum bath. Some cards sent are first-rate specimens of hypo-alum toning, and would probably meet our correspondent's requirements as a substitute for somewhat warm-toned P.O.P.'s, though we would call them similar to the bluish-black of the sulphocyanide-P.O.P. print. A more exact match of these latter is probably some cards submitted to us by Messrs. Droege and Co., 43, High Road, West Kensington, London, W., who produce them in quantity by a process of their own. They inform us that this allows them to produce cards which are fully as permanent as P.O.P.'s, and equal in appearance to them, within three days receipt of order, and in quantities of several thousands.

PHOTOGRAPHIC CONVENTION OF THE UNITED KINGDOM.—At the annual meeting held on the 28th inst., the arrangements for the Canterbury meeting were completed. The excursions for Tuesday, Wednesday, Friday and Saturday, July 6, 8, 9, 10, remain as originally contemplated. On Wednesday, July 7, there will be an official reception at the cathedral, the Mayor's garden party, and the annual dinner, followed by a smoking concert under the direction of the Committee of the Canterbury Chamber of Commerce. The proceedings at the evening meeting will include: A Re-union, Presidential Address (Mr. H. Snowden Ward, F.R.P.S.), a paper by the Mayor (F. Bennett-Golding, Esq., F.S.A.) on "Canterbury and its History"; a paper by Mr. C. Welborne Piper, entitled "Some Aspects of Photographic Record Work," by Mr. C. H. Bothamley, F.C.S., F.I.C.; a paper on "High-power photography," by Capt. Owen Wheeler, and a lecture demonstration by Mr. F. Martin Duncan. The Headquarters of the Convention during the week will be St. George's Hall.

TRAIT CANVASSERS.—The Kensington Ratepayers' Association has recently had under consideration the nuisance caused in the borough by hawkers of photography, etc. The association adopted a resolu-

tion asking the local authority to consider the advisability of passing a bye-law prohibiting these persons from calling at houses which display the notice that "hawkers are prohibited." The Law and General Purposes Committee of the borough council, in a report issued on Monday in regard to the matter, state that their attention has been called to the provisions contained in Section 54 (16) of the Metropolitan Police Act, 1839, which enacts that a penalty not exceeding forty shillings shall be inflicted upon "every person who shall wilfully and wantonly disturb any inhabitant by pulling or ringing any door bell or knocking at any door without lawful excuse," and empowers a police officer to take into custody without a warrant any person who shall commit any such offence within his view. It appeared to the committee that hawkers, etc., knocking or ringing the bell at any door displaying a notice that they are not required may be proceeded against under this section. In view of this the committee doubted whether, if a bye-law were framed on the lines suggested by the association, it would be approved by the Secretary of State, as the opinion has been previously expressed by him that a bye-law must not deal with an offence which is already punishable by Act of Parliament. Under the circumstances the Ratepayers' Association is to be informed that in view of the existing statutory provision the local authority does not see the necessity for passing the suggested bye-law.

Correspondence.

*** We do not undertake responsibility for the opinions expressed by our correspondents.*

*** Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

"PHOTOGRAPHIC OPTICS AND COLOUR PHOTOGRAPHY."

To the Editors.

Gentlemen,—I regret to find that in my review I have inadvertently credited the author of "Photographic Optics and Colour Photography" with an error that he has not committed. Owing to a misinterpretation of the rough notes made when reading the book, I charged him with the consistent misuse of two words, "reversion" and "astigmat." I, however, discovered too late for correction that this criticism should have been concentrated on the latter word only. This is consistently (or, rather, inconsistently) used many times as an equivalent of "anastigmat," which is its very antithesis. The other word is obviously only a misprint.—Yours, etc.,

THE REVIEWER.

To the Editors.

Gentlemen,—I am much obliged for your review pointing out the errors in my book. They are all, or nearly all, already corrected in the "Errata" slip at the commencement of the volume.

I think, however, that your reviewer emphasises the errors rather too strongly. He says: "When the word 'reversion' is consistently used in the place of 'reversal,' we fear that no excuse for printers' errors will hold good." I have just gone through the section on colour photography again, and find I used "reversal" or "reversing" in every case (ten times), nor have I succeeded in finding the word "reversion" once used in the book, and I shall be greatly indebted to your reviewer if he will kindly point out the passage where the slip occurs. Again, he accuses me of using "unifocal" for "unofocal." This error only occurs once, although the word is printed ten times.

As regards the Adon lens, the error arose solely from a line having slipped out in the press. If you add after the word, "Adon lens," "when it is affixed to the objective, and the front element is removed," it will read all right. I have stated in another place "the Adon lens is a short, low power telephoto lens, having the positive element facing the light," as is naturally the case in all telephoto lenses.

Further, as regards methods of finding the focal length, your reviewer remarks: "The method most strongly advocated is credited to Lionel Laurence, and involves taking the square root of a distance that cannot be accurately measured." I do not approve of the method (although the reviewer's objection is invalid and altogether wrong); in fact, I should not have mentioned it at all had it not

been that the late Mr. Dallmeyer presented a large and expensive apparatus to the Royal Photographic Society for the benefit of members using this method. Laurance's method (not Laurence) merely cuts down Dallmeyer's, which latter is mentioned with approval in Bolas' and Brown's admirable little book on the lens. My method (the angular method) was considered much better than his own by T. R. Dallmeyer himself, since just before his death he informed me of his intention to have it adopted at his works. It is, moreover, largely used by the leading firms on the Continent.

The mistake of the magnesium powder was a printer's error. "Mg.O4" should read "4MgO."

It will be found corrected in the Errata slip.

Further, your reviewer puts a note of exclamation after the statement that varnish should be used while rotating the plate on a whirler. I got this idea from Mr. McIntosh himself, and it is an invaluable "tip." I can heartily recommend it to your readers. Again, he is surprised at the statement that if we reverse a plate we get rid of halation. This is in a large measure true, as I have tried it, the reason being that the light undergoes two reflections instead of one when the film faces the light, and therefore the film only gets 1-625th part of the light instead of the 1-25th, as in the latter case.

The remaining points he finds fault with are frivolous, and entirely without importance. They need no apology, as I am convinced of the truth of my statements. I do not intend to alter my views of perspective to suit the generally received idea. In the statements given the reviewer has evidently mixed up conjugate distortion with perspective.

If the above are the only errors your reviewer can find, it speaks very well for the accuracy of my book.

In conclusion, Mr. Editor, I am delighted at the reviewer having quoted my remarks about Helmholtz, and to the universality of the eye as an optical instrument (page 187); in fact, I am not sure whether it is not the only thing worth reading in the book.—I remain, yours very truly,

GEO. LINDSAY JOHNSON.

55, Queen Anne Street, Cavendish Square, W.

February 2, 1909.

[Dr. Lindsay Johnson has legitimate ground for complaint of his publishers, who most certainly neglected to insert the important "Errata Slip" in the copy sent to us for review. It is to be hoped that we may yet receive it. The word "reversion" occurs on page 229, but we would direct attention to the letter from the reviewer, which corrects his reference to this particular word. Dr. Johnson will pardon us for demurring to his amended description of the "Adon." To talk about the "Adon" in reference to one of these instruments which has had one of its lenses removed can only mislead a reader. The late Mr. T. R. Dallmeyer first described it, and Messrs. J. H. Dallmeyer, Ltd., supply it for use as it is, not with half of it or of the positive lens (whichever Dr. Johnson means) removed. And to represent the "Adon" lens with its nodes behind the lens, thus necessitating a greater camera extension, seems to us a remarkable view to take of a "telephoto" lens. Dr. Johnson will attach little weight to our pointing to opinions which are "generally received," yet we would hint that there is a distinct popular impression to the effect that a telephoto lens saves extension for a given focal length. If words and drawings mean anything at all, those on pages 63 and 112 show that the writer regards the Adon as a telephoto (save the mark) with the negative in front, under which condition the extension requires to be greater than equivalent focal length. We would like to refer to other points, but it is hardly fair to do so in the absence of the "Errata Slip."—Eds. "B.J."]

THE INVENTION OF THE ROLLER-BLIND SHUTTER.

To the Editors.

Gentlemen,—In the review on Dr. Johnson's book, "Photographic Optics and Colour Photography," we notice that your reviewer draws attention to the passage that, "with few exceptions, all the best reflex cameras are made by Kershaw, of Leeds, who holds the patent for the roller-blind shutter in all of them."

In order to make quite clear who the original inventor was, we beg to point out that the late Mr. J. Kershaw, of Buxton, patented over thirty years ago the "roller-blind shutter," the late Mr.

J. T. C. Chapman having assisted in bringing it to its perfect that time, as well as being the sole agent for many years.—faithfully,

JAMES E. CHAPMAN, Director,
Per pro J. T. Chapman, Limi

A MASONIC LODGE FOR PHOTOGRAPHERS.

To the Editors.

Gentlemen,—I note with great interest a note on page 87 "B.J." dated Jan. 29th, in which a Masonic Lodge is suggested for the photographic trade and profession. The subject is, I hardly say, an extremely difficult one to deal with in a newspaper, because of the well-known principles of the Order as I was connected in some way with the two previous and attempts to form a Lodge, a few notes on the subject may interest.

The attempt made ten years ago was partially successful, names were obtained, but the whole thing was squashed by the authority over us, because it was so extensively advertised.

The second attempt, about five years ago, was far more successful. Not only were thirty-seven names of photographic brethren obtained, but the matter advanced so far as to name the principal officers—eight Past Masters, who were willing to serve—and a name of the Lodge was decided upon. Having done so much, the moving spirit in the affair left the world of photography for something more remunerative, and he lost interest in it. The names were lost, and we heard nothing more of it. I can, however, remember about twenty of them, and they include many of the leading men, all good Masons. There is much more that could be said on the matter, but, in view of what has happened in the past, it is not advisable to do so. To-day the photographic Masons are scattered about, but there are no reasons why they should be brought together, just as the artists and literary men are in the "Pen and Brush Lodge."

As I said before, it is a difficult matter to deal with in a newspaper, but there can be no harm in saying that the need for such a Lodge is greater each day, and I can only suggest that one calls a meeting at Anderton's Hotel, where a room might be secured to discuss the matter. The only drawback is that the authority over us might object to an advertisement, even in the "B.J." If, however, the correspondent who wrote the note referred to cares to write to me, "care of the Editor of the 'B.J.'" I should be most happy to give him further particulars of what has been done and the names of several prominent Masons who years ago were anxious to join a "Sol Lodge."—Yours, etc.,

COPYRIGHT RELATIONS WITH AMERICA.

To the Editors.

Gentlemen,—I read through with interest your notes on the draft of the proposed new Copyright Bill. So far as I see, the only real difference is in the probable length of time the copyright may last—e.g., it may really be less than at present, where it lives more than thirty years after its production. But that is nothing to touch what is at present an injustice, viz., the registration of any registered photograph in other countries. Notable as this is extensively done in America. Two cases of the kind have recently come under my notice. An agent for an American publisher called on me, and also on a brother professional photographer. After paying for them, he said, "I suppose you would mind our publishing them?" I said, and I found my friend replied: "These photographs are registered. If you wish to publish them, you should pay a fee." To this he replied, "They are published only in America, and the registration does not hold here. All we can do is to insert your name as the photographer. So, for what costs them practically nil, they obtain other specialities that may have cost you a great deal to obtain.

PROFESSOR

P.S.—He did not say who or what he was until he had bought the photos, or one might perhaps have refused to supply without but this would be difficult in practice.

[The proposed Act claims to deal only with copyright in works made by British subjects anywhere or by foreigners resident in British Dominions. It does not touch international copyright and

provision which could be introduced into the Act could affect the Convention, to which the United States is not a subscriber. Legislation to touch our correspondent's grievance belongs to a different sphere—that of international law,—Eds., "B.J."]

THE "THAMES" COLOUR PLATE.

To the Editors.

Gentlemen,—In your "Analecta" of last week you gave an extract from a photographic contemporary as to a comparison of the "Thames" plates with others. The writer of the article which you quote bases the fairness of his comparison on the fact that he exposed all three plates on the same subject under precisely the same conditions." The conditions, which you did not mention, were: Time about noon. Stop $f/11$, indoors, exposure about an hour. Result, failure to get the greens.

It does not seem to have occurred to the writer that his comparison is about as unjust to us as it could well be, and that the failure of his attempts was due simply to over-exposure.

As far as come to our knowledge that under very similar conditions a successful exposure was made on our plate which gave excellent greens, the exposure being two minutes.

Very early in our work we were approached by a high photographic authority who told us that we should do our utmost to produce on our plate a rapid one. That we have been successful is shown by the extract herewith as to what is thought of the "Thames" plate in Germany. This testimony to our plate is corroborated by results in this country. In one case, shown personally to us, a surgical operation of extreme importance was photographed in a few seconds in perfect colour rendering upon an artificial part of the body and the part then sewn up. This plate will become historic in surgery. If such exposures are possible in the fields of science, they are possible in the many fields of artistic and applied photography.

We have now made the necessary arrangements to make two additions to our present method of manufacture: (1) we are putting the same protective coating on the same glass as the colour-screen, and (2) we are making the colour-screen in finer construction—so that there are 250,000 colour patches to the square inch. This will meet the requirements of those proposing to make lantern slides or for microscopic work. We shall of course not abandon our present method of the two glasses, which would appear to be the only way in which successful duplicates can be made.

THE THAMES COLOUR PLATE Co.,
O. S. Dawson.

The passage referred to is as follows from the "New York Herald" (Paris edition), January 3, 1909:—

Professor Dankmar Schultz-Heinke gave a lecture last evening at the War Academy, before a large and influential audience, upon the progress in colour photography. The lecturer pointed out that such progress has been made possible very largely owing to the new 'Thames' films, made in England. They are an improvement upon the plates made some years ago by the brothers Lumière in New York, with which in more or less time very good coloured photographs were produced. But with the 'Thames' plates a photograph can be taken in a few seconds, and the photograph shows the subject in its fullest natural colours. Ten days ago these plates were brought here, and all the experiments made with them produced satisfactory results.

This discovery is of great scientific worth, and experiments with these plates have been made in the clinic of Professor Virchow upon the treatment of a tuberculous lung. All the pictures taken have come out with a hitherto unknown freshness of colour. Colour photography will therefore, in the future play a considerable rôle in the world of medicine. All the photographs taken by Professor Schultz-Heinke have excited great admiration."

The writer in the "New York Herald" is, we hope, better informed on the "Thames" plate than on "the plates made some years ago by the Brothers Lumière in New York." What are the conditions?

It is not a year since the Autochrome plates arrived in this country. We are glad to hear that the "Thames" is to be issued as a screen-plate, because our experience is that the registration of separate plates will never give the same accuracy of colour as a single plate.—Eds. "B.J."]

Answers to Correspondents.

- *• All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 2A, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- *• Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- *• Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 2A, Wellington Street, Strand, London, W.C.
- *• For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 2A, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

J. L. Sievwright, Newport, Eife. *Photograph of the late Dr. Stewart, Newport Eife.*

J. H. Nosworthy, 3, Richmond Terrace, Queen's Road, Clifton. *Photograph of "Baby and Maude."*

HALF-TONE.—Might I ask if you will be so good as to give me the following information?—Supposing that for a given stop, a 133 line screen and a screen distance of 1.32 inch, an exposure of 5 were found correct, what would the relative exposures be in altering the screen distance to two, three, four, and five thirty-seconds of an inch? Of course such wide variations would not crop up in practice, but I am anxious to know to what extent these alterations would affect the exposure; of course, it being understood that the diaphragm and other conditions remained the same. I have adopted a standard in focussing microscopically for a good strong print, and it is from this fact that my screen distancing will need altering to suit the subject.—FACTOR.

Provided other things remain the same, exposure does not alter with alteration of screen distance. If, of course, the lighting is changed exposure alters accordingly; if a smaller stop is put in the lens, this requires both a longer screen distance and a longer exposure, but the extra exposure is required by reason of the stop alteration, not by reason of the alteration of screen distance.

E. COOPER.—From the Autotype Company, 74, New Oxford Street, London, W.C.

H. HEUSNER.—We have no information as to where specimens can be obtained. We have none.

FLASHLIGHT, ETC.—1. Some two or three weeks ago I asked you if you would kindly give me formula or name of suitable substance for painting out pictures on cinematograph films as advised by Mr. Heyworth in his work on the cinematograph? 2. In using chlorate of potassium with magnesium for flashlight powder, in what proportions by weight should they be mixed? 3. When you say (page 35, "J." 8) "one part permanganate, five parts magnesium"—by weight or bulk? 4. Which burns the quicker, chlorate or permanganate, and gives the less smoke?—L. S.

1. We would suggest celluloid varnish to which some asphalt has been added to make an opaque mixture. We have also found that a solution of gelatine in acetic acid takes very firmly to celluloid, and if mixed with fine lampblack and, say, some black aniline dye, should form an effective stop-out, though we fear it might weaken the portion of film to which it was applied. Perhaps one of our readers or a maker of a special article can reply further. 2. Chlorate is generally used with antimony sulphide, also, as follows:—Magnesium powder, 3 parts; potass chlorate, 6 parts; antimony sulphide, 1 part, all by weight. 3. Yes, by weight. 4. We should say the above chlorate mixture; a quick-burning formula is magnesium and potass nitrate, equal parts. This and the permanganate are preferable to the chlorate as regards freedom from smoke, but neither are so satisfactory as the recent patented powders such as the "Agfa."

LIMERICK.—(1) The result in the brighter print is certainly quite up to the average of work under such difficult conditions. The expo-

sure has been ample; in fact, a smaller stop might have been used, and better definition of the bolt heads in the arch obtained if this latter was of importance to the customers. (2) A reasonable charge.

J. W. BATTEY.—The building is used for trade purposes—it is where you carry on your business—therefore it becomes rateable. Its size, we believe, makes no difference in that respect.

LIGHT.—All the lights you name can be used for both studio work and printing. We should say No. 4 or No. 6 is the most widely used. We advise you to get the catalogues of the respective firms; all the latter are of good standing. You can take it from us that each apparatus is capable of turning out good work.

SANDELL PLATES.—Will you kindly inform me if Sandell double or triple coated plates are still made? If so, where to be obtained?—**ZELVO.**

The plates are no longer manufactured, so far as we are aware. We believe the Sandell Films and Plates, Ltd., may still be addressed at Norwood Junction, London, S.E. Better write them.

RETOUCHING.—Can you tell me the reason of retouching showing when printed? I cannot get it right on a very thin negative, even with a No. 6 pencil. I have only been learning three months. Should be glad if you could put me right where I am wrong.—**ANNIE V.**

It is impossible to say where you are wrong without seeing examples of your work. You say you have only been learning three months. If you have been receiving instruction during that period you should have been more proficient by this time. Anyhow, your instructor would be able to set you right if shown your work. If you are not receiving instruction we should advise you to obtain a good book on the subject, such as "The Art of Retouching Negatives," by Robert Johnson (price 2s.); or "Practical Retouching," by Drinkwater Butt (price 1s.). Any photographic dealer will procure them for you.

BLACK AND WHITE, ETC.—(1) What would you consider a reliable formula and make of plate to produce a negative of extreme contrast for the purpose of copying black and white type printed matter, to be printed on to rapid bromide paper? (2) Please quote a book on the subject of manufacture of bromide, gaslight, and modern P.O.P. papers, price and publisher. (3) Can glossy bromide postcards be treated with a burnisher instead of squeegeed?—**H. DAVIES.**

(1) If you mean an emulsion formula we must tell you that they are the secrets of the dry-plate houses. You want a slow "process" or "photo-mechanical" plate. Nearly every maker produces one. A good developer is that on page 865 of the "Almanac." (2) The best we know is "Plates and Papers," by H. C. Stiefel (Iliffe and Co., 2s.). (3) Yes.

FLASHLIGHT.—I have a flashlight photograph to take in a large building, 90 feet by 80 feet. I propose placing flash-lamps in positions as per sketch below. Would this be a suitable arrangement, or can you suggest anything better? Also, if used in positions stated, how much "Agfa" powder would be required for each lamp?—**FLASHLIGHT.**

You must not use the "Agfa" powder in a lamp—that is to say, you must not blow it through a flame. It will be quite safe to ignite by a match, fuse, or electric spark, and the arrangement you show is about as good as you can get, if you shade the lens from the light A. Half an ounce to an ounce of powder would not be too much for lens with stop $f/11$ or $f/16$, and a plate about 200 H and D.

EIKONOGEN DEVELOPER.—On page 768 of the "B.J. Almanac," 1909, you give two formulæ for Eikonogen developer, which you will see contains no bromide. 1. Is it necessary to have bromide in Eikonogen developers, as in another publication on developers I have been looking up, relating to Eikonogen, it says that the bromide prevents the developer from giving too soft results, and as the developer you give in the "B.J." Almanac" contains no bromide, do they give very soft results? 2. I shall be obliged if you can give me a formula for Eikonogen that gives a negative of a nice printing contrast. 3. Also please say if you consider Eikonogen a very satisfactory developer for snapshot work, and also say if the formula on page 768 (single solution) would be most satisfactory for developing snaps? I presume the single solution is quite as good as the 2-solution given above it, and which would

you recommend to be used? If the formula given in "Almanac" gives the contrast I am requiring, in the case of exposure what should you consider should be added in the wa bromide (10 per cent. solution)? 5. Also, would you please say Eikonogen is considered a developer more suitable for general commercial work than pyro-soda; and, in the case of an exposure, which solution in the 2-solution formula for Eikonogen would have to be added in the majority. Which gives detail? Which densities? 6. I ask, in taking, say, two ounces of Eikonogen (as per 2-solution developer on page 768), how many half-penny would be considered sufficient to develop (approximately) **PLATER.**

1. It depends on the plate. Some plates will develop clear without bromide, others will not. Try the effect of half a penny per ounce of mixed developer and see the effect. Bromide tends to brighter results, not to soften, as you quote; but (2) the contrast in the negative is chiefly dependent on the time of development. Eikonogen will give contrast if used long enough. 3. Fairly. We should prefer a developer, such as metol or rodinal, for rapid exposures, or pyro-metol. 4. Up to, say, 3 or 4 grains per ounce of mixed developer. 5. Not so suitable. Eikonogen is not so readily dissolved as pyro. We should say it is used scarcely at all except for lantern-slide work, and not extensively for that. We should say not more than 40 or 60. Why don't you read the rules at the head of this column and write on one side of the paper?

DIPHENAL.—We ordered some diamidophenol and received diphenal in a liquid form. We shall be glad to know the difference, and made up some of the latter according to the formula on page 9 of the JOURNAL, using 40 min. instead of grains. This was not successful. Where are we wrong? Is diphenal suitable for bromide paper, and can you give us a formula for using it in a liquid form?—**SUSSEX.**

Diphenal is not the same body as diamidophenol. The solution you have bought is intended to be mixed with about ten times its volume of water when used as a developer. It is a pity you don't say where your developer is defective. Diphenal is not the best developer for bromide paper, as it is liable to give yellow stain.

W. W. B.—Enamelled iron vessels are not to be recommended for manipulating silver prints in. They are all right for their purpose, supposing the enamel is perfect; but it is liable to become chipped or cracked by continued use, and so the iron becomes exposed. We should say that the markings on the prints are due to their lying in contact with the bare metal while there is free silver in them.

THE LANCASHIRE AND CHESHIRE UNION.—The 1909 year-book of the L. and C.Y.U. reaches our table. It contains the rules and subjects of the union, a list of the federated societies (which number fifty-one), and of lectures and lecturers available. The number and variety of these latter show the Union to be rendering good service to the weaker societies. The terrible half-tone reproduction of a group taken on a "Union" outing might, however, have been omitted; its inclusion does not say much for the critical powers of the producers of the year-book.

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SUMMARY.

The exhibition of photographs by Count von Gloeden representing "Scenes and Figures of the Coast near Messina," remains open at the house of "The British Journal of Photography" until Saturday, February 20. Open daily 10.30 to 4.30 (Saturdays 10.30 to 1.30) on signing the visitors' book.

The first portion of the eleventh Traill-Taylor Lecture is given this week in the shape of the discourse by Dr. E. Wandersleb on "The Regulation ('or limitation') of the Ray in Photographic Objectives." Dr. Wandersleb's lecture describes, by the aid of a series of numerical examples, the Abbe theory of "pupils" and "lukes" which provides a simplified form of dealing with matters of photographic optics, such as perspective, depth of focus, etc. Some notes explaining one or two of the terms employed appear on page 114.

The Progress Medal of the Royal Photographic Society has been awarded to MM. Lumière et ses fils for their invention of the Autochrome process, and for their photo-chemical researches. (P. 130.) A short sketch of the work of the Lumières, illustrated with portraits, appears on page 115.

The Royal Photographic Society. The report of the annual general meeting of the Society appears on page 129. The names of the officers for the forthcoming year are given on page 130.

There are signs that the Home Office are at last taking steps towards regulating cinematograph exhibitions, such as are now running in many parts of London. (P. 114.)

Under "Photo-Mechanical Notes" the making of celluloid electros from natural objects is mentioned; also a new material for mounting of half-tone and other blocks. (P. 124.)

An X-ray convention and exhibition are to be held in July next. (P. 114.)

A German patented formula for flashlight powders appears on page 127.

The telegraphic transmission of photographs and cinematography in natural colours figure under "Patent News." (P. 126.)

EX CATHEDRA.

The Purity of Photographic Chemicals. A perusal of the "Analytical Notes," which have appeared for the last year or two from the laboratories of Messrs. Evans Sons, Lescher, and Webb, of Liverpool, shows us how little cause for complaint the photographer as a rule can have in regard to the chemical substances he employs. The publication records the results of analytical tests to the number of over 9,000, among which those of substances required for photography figure. In the case of hypo a large number of tests showed that the purity of this salt averages 98 per cent.; formaldehyde solution was found to have a strength of from 36 to 39 per cent. (the nominal strength is 40 per cent.). In the cases of soda sulphite and potassium meta-bisulphite, the report as to the four samples of the latter examined is "very satisfactory"—all were found to possess a purity of over 98 per cent. Sulphite, in the case of twenty-two samples, had a purity of from 92 per cent. to 98 per cent.

* * *

Photography and Modern Literary Criticism. The modern journalist must be smart above all things, and one of the attributes of his smart descriptive writing is a wealth of simile. This, however, is nothing particularly new. The ancients, in whom the idea originated, created a heaven of their own, peopling it with gods and goddesses, using them as similes for the various ideas they would express. The modern writing man is under no such necessity; science, art, and commerce, eked out with a touch of Nature, furnish him with all the similes he requires. And in this connection photography comes in for a fair share. We have even heard it made use of to illustrate sermons, and the simile carried so far that the hearer might be forgiven for imagining that the soul's development was exactly like the development of the photographic plate. Yet it is seldom that the whole range of photography is brought into operation in the course of one short article. This has been accomplished in an article on the Edgar Allan Poe centenary by an imaginative writer, who, unfortunately, does not sign himself. We take the liberty of reproducing the paragraph in full:—

THE FADED PHOTOGRAPH.—It is merely a mundane association of ideas, a remembrance of many reproductions of portraits of Poe dating from the early days of the camera, that his astral image—our personification of his genius—somehow takes the form of a tin-type photograph, or, to be more reverent, of one of those old daguerreotypes in a folding frame with a red velvet pad to keep the glass from breaking? The daguerreotype was never clear and definite, like a silver or platinum print; it had to be looked at closely, and at certain angles; its tone to-day seems to be unpleasantly ashen, and a metallic lustre which fails to compensate us for the absence of honest black and white. But our grandfathers naturally thought of it highly. The astral Poe stands similarly in our impression as a figure vague, elusive a little, monotonously

grey save for the superimposed gilt of the neck-pin and watch-chain, with a surface texture that too closely suggests the chemicals in the dark-room of the old itinerant photographer's tent. The portrait of Robert Burns, on the other hand—Burns who in fiery fate so much resembles him—is a steel engraving, distinctly to be identified across the room, clear-cut in outline and roundly modelled, pure black and white that seems to grow more vivid with age.

* * *

Cinematograph Legislation.

Inquiries made by the L.C.C. have elicited from the Home Secretary that it is his intention to introduce into the coming session of Parliament a short Bill dealing with cinematograph exhibitions. It was reported by the Theatres and Music-Halls Committee that since the deputation waited upon the Home Secretary in March last there has been a continuous increase in the number of places which have been used for cinematograph exhibitions without any supervision or control being exercised over them, and the Committee's view that this undesirable state of things should be terminated was now shared by, among others, the Middlesex County Council, the Hackney and Stepney Borough Councils, and the Theatres Alliance. The L.C.C. think it well that Mr. Gladstone should be acquainted with the extent of the demand for legislation in this matter, and copies of the letters received from the above are to be forwarded to the Home Office.

Under-Exposure.

It is a truism to say that we cannot develop out an image which does not exist in the exposed plate, but it is not so easy to say when such an image begins to exist in the case of under-exposure. When dealing with high-speed focal-plane work we adopt special methods of development and produce results that would be quite impossible with ordinary methods of working. By similar means we could probably save many plates that we throw away as hopeless, though we have not given them the chance that we should have if they had been recognised as on a level with very rapid focal-plane exposures. If we consider what can be, and is often, done in the way of high-speed work, it seems evident that more is possible with what we call under-exposure than is commonly assumed. If we study a Wynne meter, and allow for the fastest plate listed and an aperture of $f/4$, we shall find that with a two seconds' actinometer time (which represents a very intense light), the exposure is 1-340 of a second for a normal subject. This is a fairly short exposure, but the operating photographer will cheerfully cut the exposure down to a half or a third of that amount, expose on a near object, and get a fairly good result. The methods of development employed seem to be very varied. For our own part we have obtained moderately good results by using 1 in 40 rodinal with $\frac{1}{4}$ grain bromide per ounce for times up to one hour and a half, but we doubt if any two workers employ precisely the same methods. Herr Max Wolff, in "Eder's Jahrbuch," describes some experiments on developing faint star images, showing that very opposite methods may be successful. For example, he found that 24 per cent. rodinal acting for 25 seconds gave almost as good results as 1 in a thousand glycine working for 45 minutes. We doubt if either time would be sufficient for work of the kind we are considering, but if strong rodinal is successful it would be a very desirable method. Possibly a preliminary treatment with 1 in 4 rodinal would be a good prelude to a longer treatment in a weaker restrained solution.

AN X-RAY CONVENTION and Exhibition are to be held at the University College, London University, from July 6 to 9, 1909. The proceedings are in the hands of an executive committee consisting of W. Deane Butcher, Lewis Jones, M.D., Reginald Morton, M.D. All communications to be addressed to Ernest Schofield, Organising Secretary of the Convention, 11, Chandos Street, Cavendish Square, London, W.

A SIMPLIFIED METHOD OF CONSIDERING THE ACTION OF A PHOTOGRAPHIC LENS.

THIS week we publish the first part of Dr. E. Wandersleb Traill-Taylor lecture, delivered on November 17, 1908. At the time we drew attention to the value of this lecture to the English student of photographic optics. Hitherto we have not had such an authoritative summary in English of the German method of considering the action of a lens, and to many readers the treatment adopted by the lecturer will probably be quite new. It may, therefore, be well if we draw attention to some of the points that may at first seem perplexing.

Study of the paper will show that the title, "The Regulation of the Ray," covers the limiting effects of the diaphragm, and of the lens margins, upon the light pencils that pass through the objective. The title would probably be more expressive if the word "limitation" took the place of "regulation." The same subject is dealt with by Dr. von Rohr in one of his books, under the title of "Die Strahlenbegrenzung," which can be translated as "ray limitation," and from the English point of view this is the right expression to use if we want to secure a truly descriptive title. The word "regulation" is probably a little inexact, but it is not of any consequence so long as we understand the nature of the subject.

It must be understood that until a very few years ago English text-books practically ignored this subject of "ray limitation." Practical opticians had to consider it, but text-book writers left it out, no doubt because it appeared to be a subject that could not be dissected and reduced to exact formulæ. In pre-Gauss days text-book writers used to similarly slur over the matters of focal length and conjugate foci. The student was not told that the orthodox formulæ were only approximate and not applicable in all conditions, because the study of the various conditions possible showed that the whole subject was very complex, and that universal rules and formulæ were apparently impossible. All these troubles were, however, dispelled by the Gauss theory, with its conception of principal points and planes, which reduced all matters concerning focal length and conjugates or scale of image to simplicity, and provided a system of calculation applicable to all types of lenses. The Gauss theory, however, left the question of aperture practically as uncertain as it was before, and, again, difficulties which were familiar to all serious students were glossed over because they could not be clearly formulated. Then once more a German scientific man, Professor Abbe, came to the rescue and formulated the Abbe theory of "pupils," which cleared up all questions relating to the action of the diaphragm or stop, in as simple and definite a fashion as the Gauss theory did in the case of the focal distance. The theory of "pupils," however, still leaves one matter rather indefinite. It is obvious that very oblique pencils when passing through a lens, are not limited by the stop alone. They are also vignetted or "cut off" to a greater or lesser extent by the margins of the lenses themselves and sometimes by the lens mount. To cover these further limiting conditions the theory of pupils has been amplified by the conception of "lukes," as described in Dr. Wandersleb's lecture.

Pupils and "lukes" are the two most essential features of the doctrine of "ray limitation," and the importance of these conceptions is as great as that of the principal planes and points of the Gauss theory, for the following reason:—If we understand and apply both the Gauss theory and the Abbe theory of ray limitation, then we can calculate or exactly describe the effects produced by any system of lenses without paying any regard whatever to the complex courses of the light rays within the lens.

self. We assume, of course, that the lens is a perfect one, free from aberrations, otherwise none of the simplifying conceptions of either Gauss or Abbe will apply quite exactly.

In the lecture Dr. Wandersleb also makes free use of von Rohe's conception of the "plane focussed for" (see Figs. 14, 15, and 17), which corresponds exactly with the "objective plane" described in an article in our issue of March 29, 1907. This conception still further simplifies the manner in which we need to study the mode of action of the perfect lens. As just explained, the Gauss theory and the theory of pupils and "lukes" enable us to ignore what takes place inside the lens, and we need consider only the course of the light rays before they enter the lens and after they emerge from it. When, however, we adopt the objective plane, or "plane-focussed-for," conception, we still further limit our consideration to the light rays that lie only in front of the lens. We can ignore what happens to the emergent rays, for they only produce upon the picture plane, or plate, a reduced copy of the plane projection which under the theory we assume to be formed on the objective plane.

Pupils, "lukes," and the objective plane are, therefore, the subjects that Dr. Wandersleb treats under the title of "The Regulation of the Ray," or, as we should prefer to call it, "Ray Limitation." The subject generally is by no means new excepting to English text-books. The late Mr. R. Dallmeyer made free use of it in his "Telephotography," but for years after that book appeared other English writers neglected it, with a very few exceptions. Only during the last year or two have "pupils" been considered in the more academic text-books, and even now their practical utility is seldom emphasised. It may be well to point out here that in treating of the theory of pupils Dr. Wandersleb uses the term "principal ray" to describe the ray passing through the pupil centre. This is commonly designated the "chief ray" by English writers, who apply "principal ray" only to the one passing through the principal points or nodes without deviation.

A point that is very likely to confuse readers is the conclusion with regard to depth of definition. It will be

seen that Dr. Wandersleb states and proves very clearly that depth depends solely on the size of the pupil and the distances between pupil and object, and is quite unaffected by any constructional consideration, even by focal length. This conclusion squares more or less exactly with the idea of depth propounded by Mr. Debenham some years ago, but the special conditions must not be forgotten.

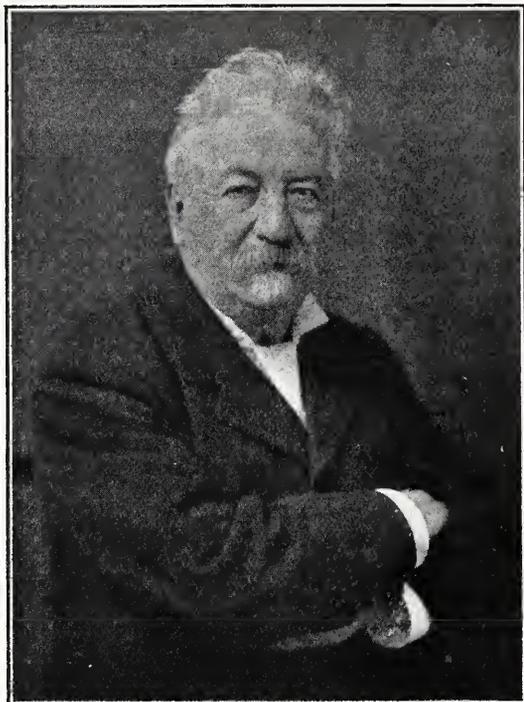
In this view of depth the construction of the lens cannot affect the question at all, but if we adopt the usual English method of comparing lenses when they are producing images of the same size, then construction may be considered to come in. When Dallmeyer stated that a telephoto lens used on a near object gave greater depth than an ordinary rectilinear of the same focal length and aperture, he was comparing the lenses when their principal points (or nodes of admission) were equi-distant from the object. In these conditions the two lenses give equal size images, but the circles of confusion in the telephoto image are smaller than they are in the other, therefore the depth is greater. If, however, we put the lenses side by side so that their entrance pupils are equi-distant from the object, then the telephoto lens gives a larger image than the other, as seen in Dr. Wandersleb's Figs. 11 and 12, and the confusion discs vary on the same scale. If we deem this variation of the discs to be permissible then the depth is equal, though if we apply a linear standard measurement to the circles (say, the usual .01in.) we must say that the depth is unequal and that the telephoto lens gives less depth than the other. From this it will be seen how much depends on the manner in which we look at the question of depth. It may be pointed out that where lenses of equal power and intensity differ constructionally in similar fashion from telephoto and ordinary symmetrical lenses, there are more points of resemblance in their behaviour when they are set at equal pupil distances than when they are at equal nodal distances from a near object. In the former case the results agree as regards perspective and relative depth, but disagree as regards scale and exposure. In the latter case scale is the only respect in which they agree.

THE AWARD OF THE R.P.S. PROGRESS MEDAL TO MM. LUMIÈRE.

The Progress Medal of the Royal Photographic Society has this year been awarded to MM. A. Lumière et ses Fils, of Lyons, on the ground (according to the words of the minute): "for the discovery of the autochrome process of colour photography and for their photochemical researches." The award, which was instituted in 1878, is granted for "important advance in the scientific or artistic development of photography," and in the former category the contributions of MM. Lumière run to such a number and touch such a diversity of photographic questions that there can be no question of the propriety of the bestowal of the medal upon the three joint directors of the famous manufactory at Lyons. For the past twenty-two years MM. Lumière have devoted their own time, that of their assistants, and the cost of a laboratory to the investigation of questions which as often as not were not directly of importance to them in their business of the manufacture of photographic products. In some cases the results of their experiments have led to the protection of the product obtained by patent, in others the subjects and results of the research have been just as applicable to one maker's goods as to another's; in others, again, the results have been negative, the record of experiment that failed; but in every instance the results have been offered freely and frankly to the world, have been trans-

lated into the language of every fortunate country which possesses a photographic Press, and in not a few instances have provided photographers with new and improved methods of work. A glance down the list of the 132 papers which have thus been published since the year 1887 shows not only the mental activity of the authors—though even this total does not include papers on pharmaceutical and medicinal subjects in the preparation of which MM. Lumière have collaborated with others. Colour photography figures in this list as early as 1893 in the form of a paper on the Lippmann process, which was followed by others on the three-colour method contemporaneously with the progress made by the Lumières in working out the methods of trichromy on paper, which, in spite of the somewhat difficult manipulation involved, produced extremely beautiful results, and afterwards underwent further simplification in the so-called L.N.A. process. However, MM. Lumière, like other people working at colour photography, recognised that methods of triple superimposition could never become widely popular, and hence the Autochrome plate, for the remarkable perfection of which the skill, patience, and perseverance chiefly of the two brothers, Auguste and Louis, are responsible. One admires the "niceness" of the principle of the Autochrome; but if MM. Lumière were at liberty to tell all

they have gone through, the award of merit to them would be for their laborious triumphs over details of manufacture. However, the impression should not be created that colour photography alone has monopolised the attention of the Lumière laboratory. Its work has included the production of new developers, the preservation of developing solutions, the toning and fixation of prints, and even such minutiae of practice as the washing of prints and the silvering of mirrors.



M. Antoine Lumière.

We should not forget, also, in this appreciation, the contribution of MM. Lumière to cinematography. In the eighties and nineties of the past century a great many designs of cinematograph machine were worked out, and many, no doubt, were used in an experimental way, notably that of Demeny, which has developed into the present type of machine, but the first public demonstration of animated photography which

was a popular success was that given by MM. Lumière in Paris in July, 1895, with the "Cinématographe" of their own design and construction. From that date cinematography as an industry was an established fact, and now MM. Lumière, the fairy godmother in the story books, have once more appeared on the scene with their non-flammable film, by aid of which the animated photograph entertainment should be robbed of its regrettable dangerous character.

Apart from the industrial progress which their experimen-



MM. Auguste and Louis Lumière.

work has promoted—a form of progress, we would say, which was quite worthy of recognition—the papers by MM. Lumière alone, and in collaboration with M. Seyewetz, have treated many photographic problems in a scientific way, and have led to a more scientific basis for much of the current photographic practice, and therefore the recognition, now embodied in the "Progress" medal of the Royal Photographic Society, will be endorsed by photographers in general.

ON THE REGULATION OF THE RAY IN PHOTOGRAPHIC OBJECTIVES.

THE ELEVENTH TRAILL-TAYLOR MEMORIAL LECTURE.

GEOMETRICAL optics, which, in contradistinction to the wave theory, makes use only of the conception of rays of light, embraces three large fields:

- (1) The purely geometrical theory of reproduction.
- (2) The theory of aberration; and
- (3) The doctrine of the regulation of the rays.

We will first briefly glance at these first two fields before entering upon our subject proper, and then turn to this latter at length.

On a lens system—for instance, a photographic system—the requisition is in most cases primarily imposed that rays of light proceeding from a point of the object will be so influenced by the system that after emergence from it they strictly intersect again to a point—the image point. This requisition in practice is in the first domain of geometrical optics—that is, in the purely geometrical theory—taken for granted, and may be stated in the following very general form:—We imagine two different spaces, I and II (Fig 1). Straight lines in these spaces we call rays, and we suppose that each ray in Space I is correlated to a definite ray in Space II. To the correlation of the rays the only condition is attached that all the rays of Space I, which intersect in *one* point, for instance the rays a_1, b_1, c_1 intersecting in o_1 , correspond to rays each to each in Space II, which likewise intersect

in *one* point, for instance, the rays a_2, b_2, c_2 , intersecting in o_2 . In this manner it is at the same time established that to each point in Space I, for instance o_1 , there corresponds a definite point o_2 in

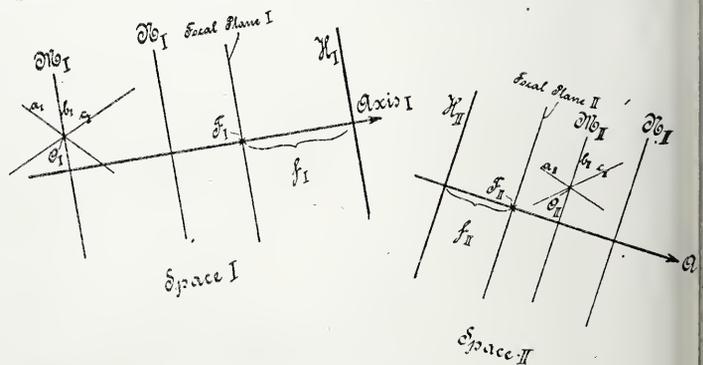


Fig. 1.

The purely geometrical theory.

Space II. From this single hypothesis a series of important geometrical conclusions are drawn: firstly, points and rays which

olly in *one* plane, for instance, M_1 of Space I, correspond to points d rays which lie wholly in *one* plane, M_1 , in Space II; or, in short, each plane in I there corresponds a plane in II. Secondly, one and only one definite group of parallel planes exists in Space I, to which group of parallel planes in Space II corresponds; of all these parallel planes, *one*—named the “focal plane”—is conjugate to the infinitely distant plane of the other space. Thirdly, one and only one ray, standing at right angles to the focal plane of Space I, corresponds to a ray in Space II, standing at right angles to the focal plane of this space. The two last rays so defined are termed the “axes.” If now, having regard to the realisation of the reproduction by centred lenses to come upon, the hypothesis be added that the axes are axes of symmetry, then each of the above-named parallel planes of Space I is reproduced exactly alike, that is to say, free from distortion, in that plane of Space II conjugate to it, and, further, in each space a definite length can be found which we call the “focal length,” and designate f_1 and

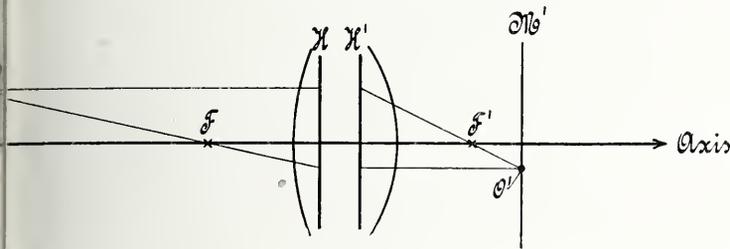


Fig. 2.

focal points and principal planes of a lens-system used for the construction of an “image-point.”

These focal lengths permit, with the assistance of the previously mentioned focal planes, of finding the conjugate point in Space II to every point in Space I, and inversely. The rules and constructions according to which this is done are identical with those which are employed when the focal points and the focal lengths of an objective are given, and when the image points corresponding to object points are to be determined.

As is easily seen, this deduction of the laws of reproduction is rendered wholly independent of the possibility and of the manner of realisation of the reproduction by lens systems; it is a pure geometrical theory, and when we name, as we generally do, the correlation of straight lines, points and planes as above defined, a reproduction, and, moreover, make use of the terms “object space” and “image space,” “object rays” and “image rays,” and so on, it is purely to facilitate expression.

The first discussion on the law of reproduction which was ren-

both media are the same. The planes lying at right angles to the axis at a distance from the focal points equal to the focal lengths are called the “principal planes,” H, H' (Fig. 2).

You are aware that solely with the assistance of the two focal points and the two principal planes to each object point the image point can be found by calculation or drawing without knowing anything whatever how the system is constructed, and that Fig. 2 shows one of the simplest methods.

It is unfortunate that in real systems these rules hold only in the case of rays close to the axis and have practical importance, without entailing further work, for very narrow apertures only and for a very small field of view of the reproducing system. For larger apertures and inclination of the reproducing pencils of rays, aberrations are generally in evidence, which prevent the formation of sharp and correct images. To discuss those aberrations, and to find means of rendering them innocuous, is the scope of the theory of aberrations, which forms the second large field of geometrical optics. It provides an inexhaustible fund of important and difficult problems, a few of the most interesting ones having been already subjects for the Traill-Taylor Lectures, viz., “On Zonal Aberration and its Consequences,” by Prof. Sylvanus P. Thompson, 1901, and “The Aberrations of Photographic Lenses,” by Mr. Chalmers, last year.

The third field of geometrical optics is the doctrine of the regulation of the rays. In this field a few occasional special questions have been dealt with at fitful intervals by Josef Petzval, Thomas Grubb, and Hermann Helmholtz. Then came Abbe, who in 1871 dealt with this problem in its most general form, and gave it its most complete solution. Since then the doctrine of the regulation of the rays has, particularly in the Zeiss Works, Ernst Abbe’s creation, found its scientific home, and has yielded interesting results. First Siegfried Czapski, then in later years especially Dr. Moritz von Rohr, have done the greatest service in elaborating and disseminating the doctrine of the regulation of rays.

Personally I have undoubtedly to thank my connection with Zeiss for the very great honour done me by the R.P.S in inviting me to give this Traill-Taylor Lecture. John Traill Taylor, to whose memory this lecture is dedicated, always regarded as worthy of his best labours the communication to the photographic public of information respecting the interesting and important researches of others, not the least being the subject of optics. Encouraged by this fact, I have the temerity to give you this evening a review of the doctrine of the regulation of the rays in photographic objectives, although I myself cannot boast of having contributed by my own research to the knowledge in this field, and although I have, to some of my hearers, not much to say that is new. But it is a fact that the methods derived from the general doctrine of Abbe in reference to

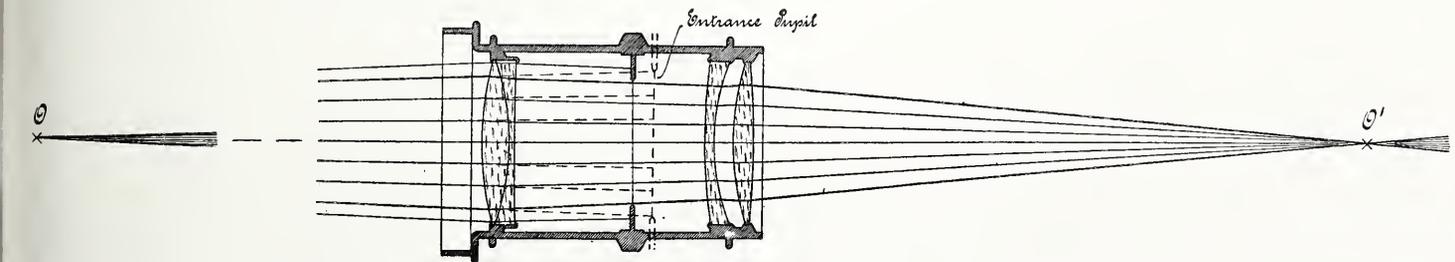


Fig. 3.

Focussed for finite distance, as usual for cabinet portraits. Aperture limited by diaphragm.

dered in this manner free from realisation through lens systems and proceeded with on purely geometrical reasoning, was the paper “On the general laws of optical instruments,” by J. Clerk Maxwell, in the year 1858. Maxwell, it is true, clung to a few reservations. In quite general form, without previous knowledge of Maxwell’s publication, Ernst Abbe was the first to deal with the problem exhaustively. We allude to his lectures in the University of Jena in the early seventies.

Long before these purely mathematical discussions the same laws had been stated as expressing certain effects of lens systems. In his celebrated “Dioptrischen Untersuchungen,” Carl Friedrich Gauss in 1800 showed that in a system consisting of any number of centred lenses a focal point lying on the axis and a focal length can be established in the object space and image space respectively. In the majority of cases the object and its reproduction lie in media of the same refractive index, that is, air. In that case the focal lengths in

the photographic objective are both interesting and valuable, not only to the scientific optician, but to the user of photographic lenses, for the reason that these methods allow of the treatment of such practical problems as rapidity, perspective, depth of definition, and “cut off” in a correct yet quite simple way.

We would enter upon the subject proper of our evening’s discourse by illustrating our remarks upon a well-known and historically celebrated photographic objective, namely, the portrait objective of Josef Petzval, which was constructed in 1840, and given to the world almost at once in such a state of perfection that it stood for decades without a rival, and even to-day alongside the modern objective retains its remarkable place. Fig. 3 is a drawing of this objective. O is an object point upon the axis, which radiates light in all directions. Let us see what rays the objective makes use of to produce an image point at O' . In the first place all rays can enter the objective which impinge upon the free front surface unimpeded by the

objective mount. Here at once a deflection of the rays due to refraction takes place, so that the pencil converges to a point lying on the right. This characteristic of the pencil is maintained as the rays pass through the successive lens surfaces. Only upon emergence from the third lens do the rays run almost parallel to the axis and are finally rendered convergent again by the fourth lens, so that they combine in the point O^1 , which is the "image" of O . The point

exists for the whole series of object points, and that this is identical with the Waterhouse or the iris diaphragm set in the objective by the constructor: this assumption can be thought to be always fulfilled in practice since the diameter of this diaphragm is reducible; for instance, we see from Fig. 5 that for an infinitely distant point lying in the axis the aperture is limited by a diaphragm of the same diameter as in Fig. 3.

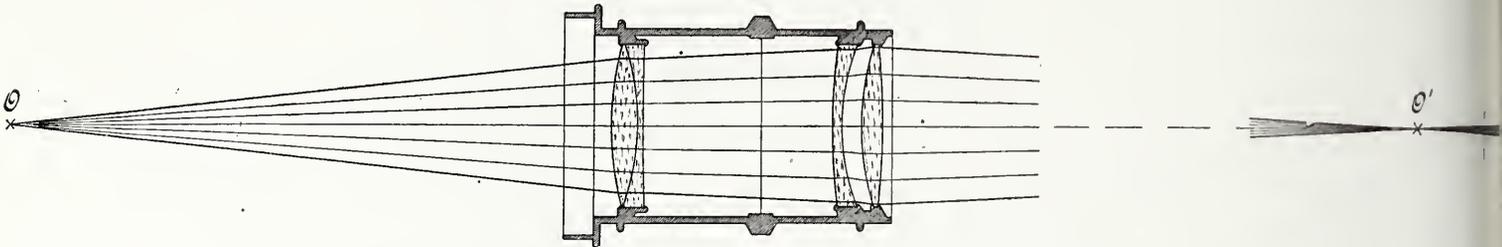


Fig. 4. Focussed for an unusually near object. Diaphragm removed: aperture limited by the mount of the back lens.

O^1 is the proper position for the focussing screen or the photographic plate.

We see that in the example the limitation of the rays contributing to the formation of the image O^1 is performed by the diaphragm, for all rays entering at the margin of the front lens are prevented by the diaphragm from proceeding further. For this reason the diaphragm—it may be a Waterhouse or an iris diaphragm—in effect acts as aperture diaphragm. Supposing the diaphragm to have a larger

In the example hitherto considered, the Petzval objective, the diaphragm has lenses situated on either side of it. Such is the case with all objectives known as double objective or doublets. In the majority of landscape lenses, particularly in the single lenses of convertible objectives, the diaphragm as viewed from the objective itself lies in front of the first lens surface, as shown in Fig. 6. Lenses with diaphragm behind them are rare, but, nevertheless, are conceivable in practice, as, for instance, where the single lens of a convertible objective is to be employed as a projection objective for powerful magnifications. In this case, to obtain a good projection the diaphragm as viewed from the object, that is to say, from the diaphragm, must lie behind the lens, Fig. 6 reversed.

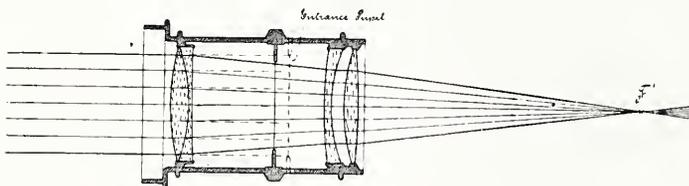


Fig 5. Focussed for an object—an infinity. Aperture limited by diaphragm.

For all considerations into which we shall enter in connection with determining the pencils of rays effectually contributing to the formation of the image it is eminently desirable to be able to delete from one's mind the course taken by the pencils within the lens system and only regard the course taken before their alteration at the first lens surface. Only in the case of a lens with front diaphragm is obvious that this can be done; though for the matter of that it is a great difficulty to apply it also in all other cases. How this is done is illustrated in Fig. 7. Suppose that various rays from a point on the diaphragm, for instance, from a point A, on the margin, or point B, in the plane of the diaphragm, proceed through the lens of the system lying in front of it towards the object. These then appear—influenced in their path by these lenses—ultimately to have proceeded from quite a different point, A and B respectively. The points A and B are therefore the virtual image points to A. and

diameter, all rays entering the first lens would go without let or hindrance to form the image O^1 , and then the margin of the first lens surface would take up the rôle of aperture diaphragm. Again, suppose that the diaphragm be entirely removed as in Fig. 4, and we follow the path of the rays which proceed from a point O , lying much nearer to the objective. The collective working effect of the first lens is then insufficient to render the rays on the right forthwith convergent. Convergence in this case only takes place at the front surface of the

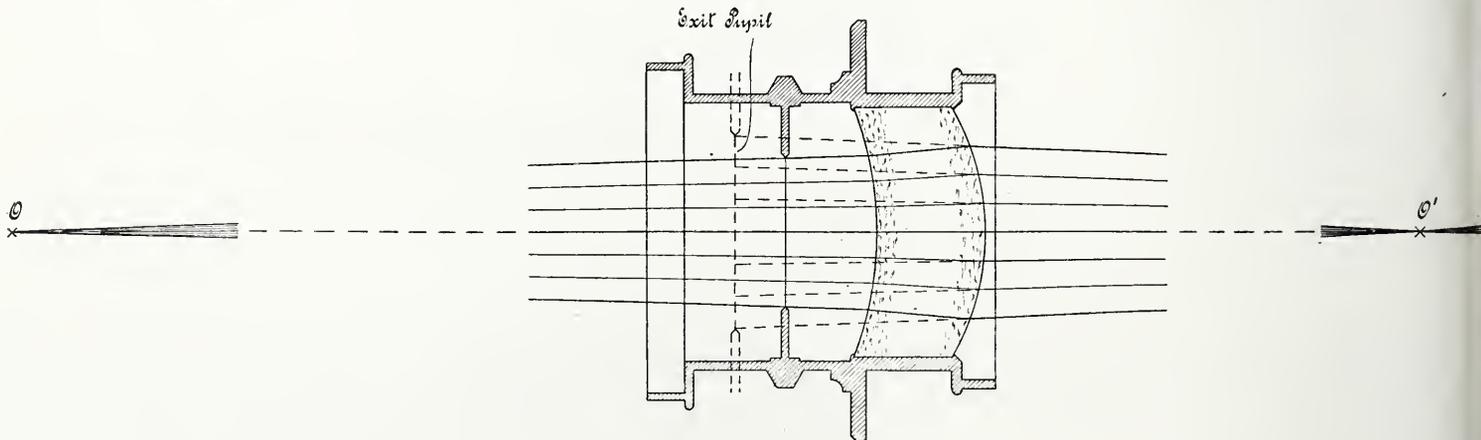


Fig. 6. Single lens with front diaphragm.

last lens. It is at once seen that now the margin of this last lens takes up the limitation of the rays, *i.e.*, becomes the aperture diaphragm, whilst in the former supposed case the margin of the first surface of the system would have this function. From these examples it will be quite clear that in one and the same lens system the effective aperture diaphragm for differently situated points on the axis may lie in quite different positions. Notwithstanding this fact, let us assume, henceforth, that only one definite aperture diaphragm

produced by the front component. In the same manner the front component produces for each point on the margin and the plane of the diaphragm a corresponding virtual image point. All these points together produce the virtual image of the diaphragm. This virtual image is shown in dotted lines behind the diaphragm. It is the same image taken up by the eye when we view the diaphragm through the front component of the double objective as with a kind of magnifier. Since we can follow the course of the rays just indicated all

rsely, it at once follows that all rays proceeding from the object directed towards this virtual image pass through the actual hragm after alteration by the front component. We give to this al image, which the lenses of the system lying in front of the hragm project from it, the name suggested by Abbe, namely, the

It will be understood from our derivation that the exit pupil is the virtual image of the entrance pupil as projected by the system as a whole.

The two pupils of a lens system have, therefore, a like importance for the selection of the rays really effective in reproducing axial

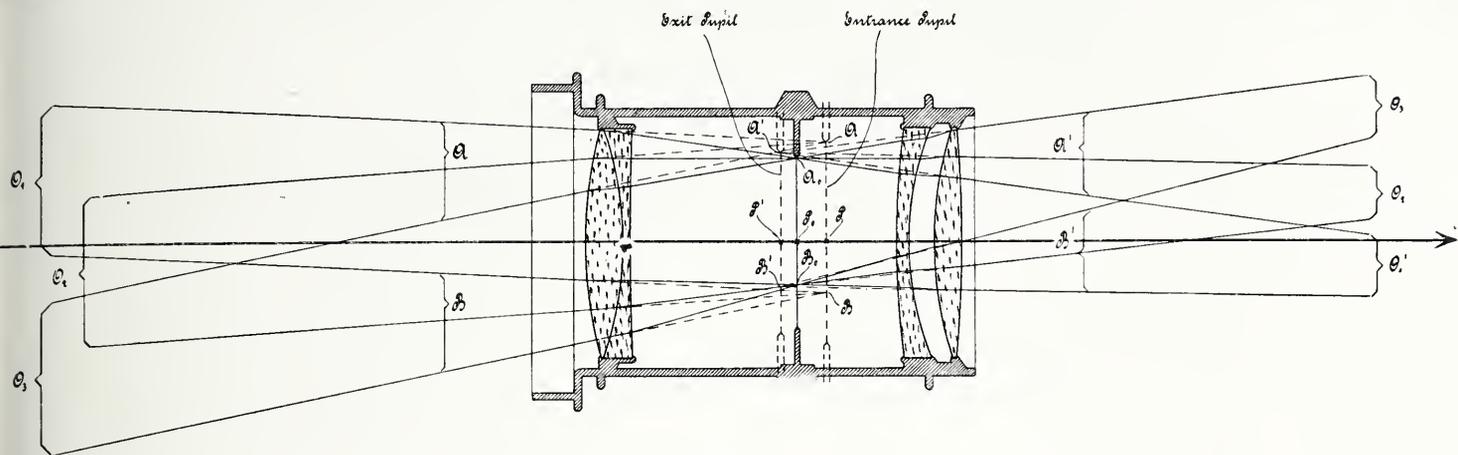


Fig. 7.
Derivation of the entrance pupil and the exit pupil in a doublet.

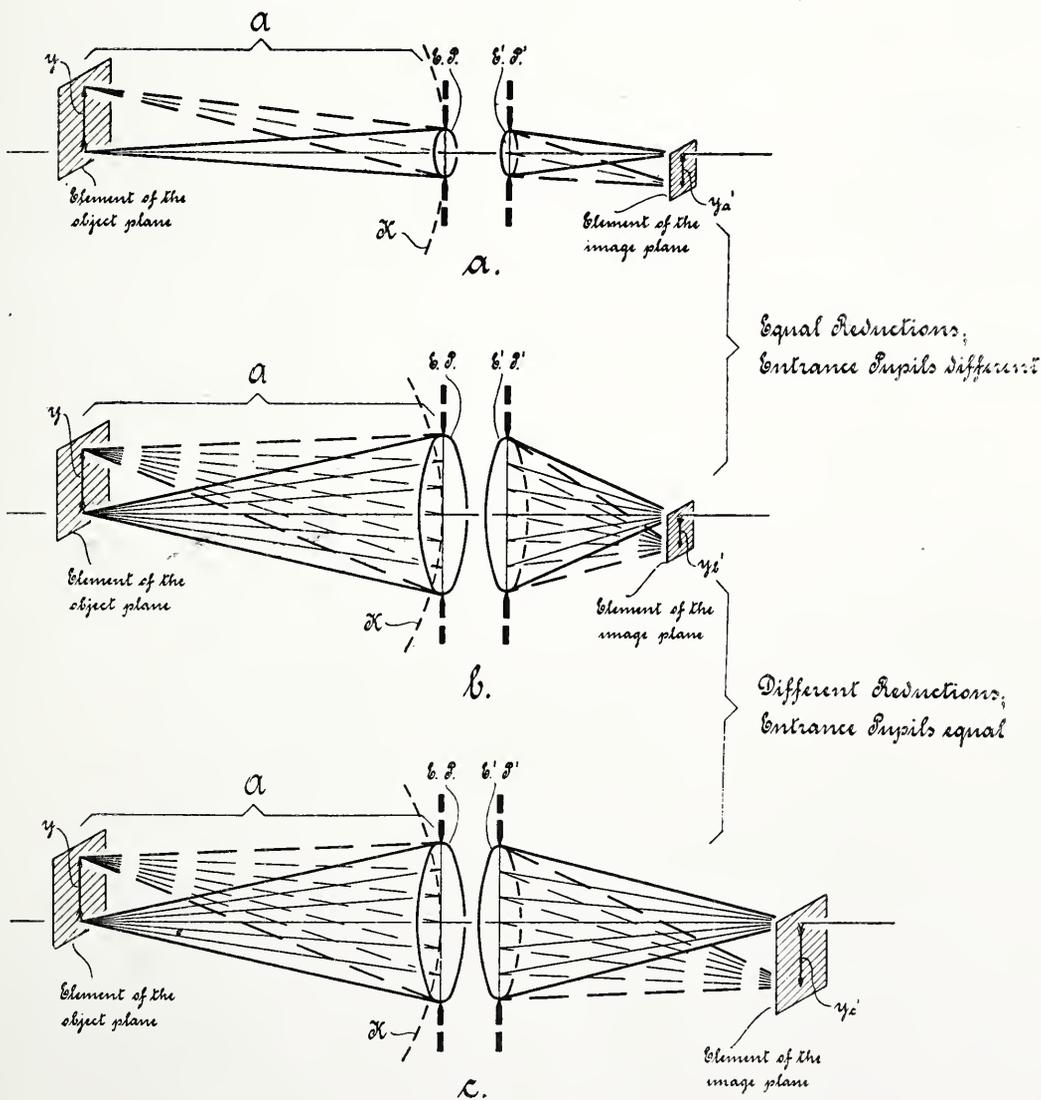


Fig. 8.
Equal near objects at equal distances from the entrance pupils.

ance pupil of the system, an easily comprehensible analogy being de use of. In the same manner the virtual image of the diaphragm projected by the lenses of the system lying behind the diaphragm is designated the *exit pupil*, and in the figure shown lies in front of the diaphragm. From it all rays which pass through the actual diaphragm appear to come on emerging from the last lens surface.

points, as have the Gauss principal points and the focal points of a lens system in all investigations as to the position and size of an image for any given object; since the introduction of the pupils frees us from the necessity of following the course of the rays within the system itself.

For our further consideration we will therefore leave the details

of the construction of the objective out of the question, and only assume that besides the principal and the focal points, or instead of these Gauss elements the position and size of object and image, we know its entrance and exit pupils. It may again be recalled to mind that in an objective with frontal diaphragm the entrance pupil is identical with the physical diaphragm itself (Fig. 6), that in objectives with middle diaphragm (Figs. 3 and 5), on the other hand the entrance pupil is in most cases an enlarged virtual image of the diaphragm, and lies in proximity to it.

The first question that obtrudes itself in the discussion of the pupils is the one dealing with relative rapidity. In Fig. 8 there are three different optical systems, characterised by their pupils by the position and size of a square object element standing at right angles to the axis and of the image element appertaining thereto. The distance A of the object from the entrance pupil, the object

$y'^2_b : y'^2_c$. They stand then inversely as the squares of their size image, other things being equal.

The comparison is somewhat simpler if it be supposed that the object be infinitely distant. Fig. 9 is intended to represent this case. The object is again in all three cases, a, b, c , identical, that is to say, it appears under the same angle w , and it illuminates the three cases with the same brightness. In a and b the sizes of the images are again equal, the entrance pupils different. The spherical surface K , which we have made use of in the foregoing consideration as a measure for the quantity of rays contributing to the reproduction, coincides with the surface of the entrance pupil since the radius of the measuring sphere is infinitely large. The quantity of light contributing to the image is here consequently the same, the ratio of the surfaces of the entrance pupils, or, what amounts to the same thing, in proportion to the squares of their diameters

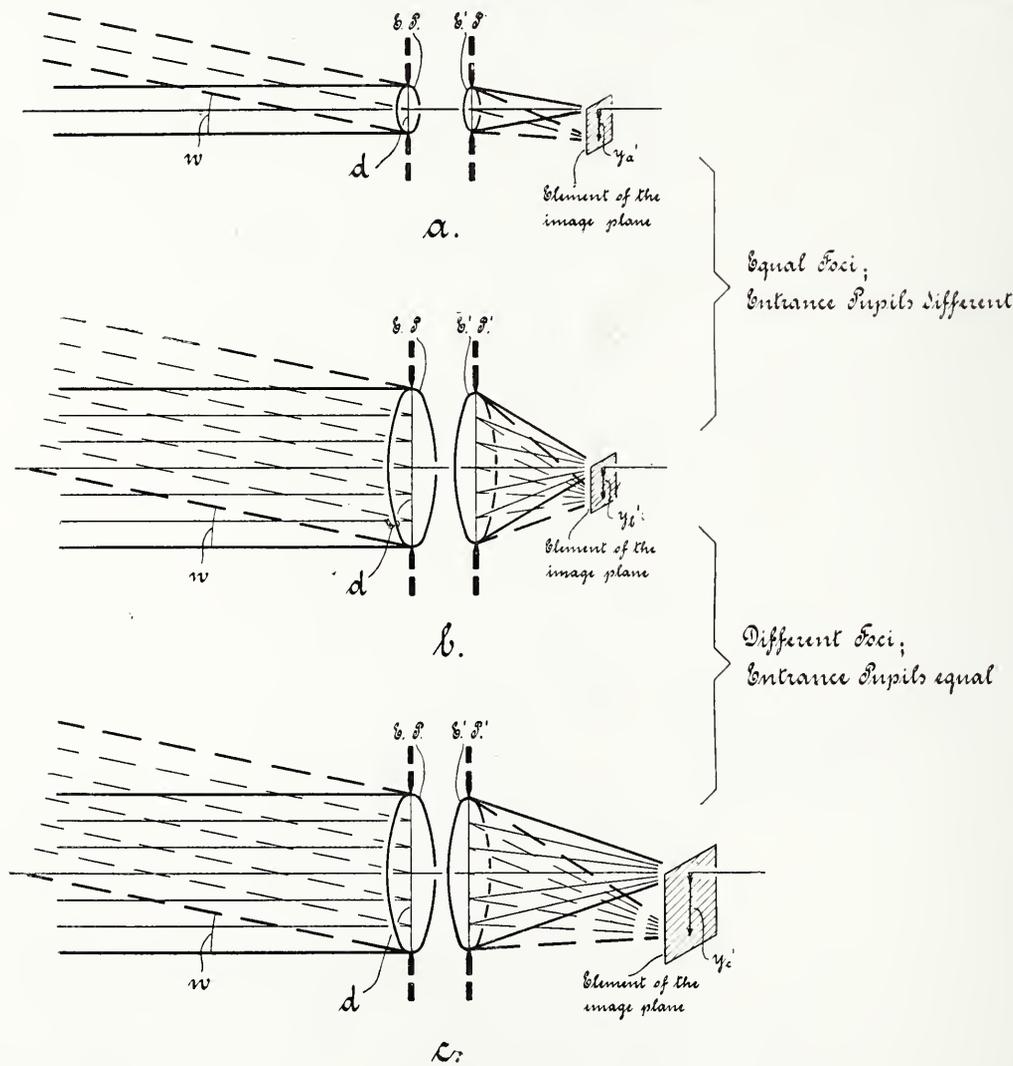


Fig. 9.

Equal objects at infinity.

itself as well as its radiating capacity, is the same in all three cases. In the cases a and b the size of image y' is the same, but the diameter of the entrance pupils is very different. It is evident that in the case b the image must appear brighter, since the quantity of light producing the image is much greater in the case of b than in the case of a , and the light is spread upon an equally larger surface. If now a sphere K be described about the object point on the axis having the radius A , the quantity of light contributing to the reproduction is measured by the part of the surface of the sphere which is limited by the rays directed towards the margin of the entrance pupil.

Let us now compare the two cases b and c . Here the diameters of the entrance pupils are equal; consequently the quantity of light entering the system from the object element is also exactly the same. This quantity of light is, however, in the case c , transferred to a larger image element than in the case b ; the two image surfaces are as the squares of their diameters $y'^2_c : y'^2_b$. The intensity of illumination of the two image elements must therefore be in the inverse ratio

The intensity of the image elements is thus in the same ratio $D^2_b : D^2_c$, other things being equal.

In the case b and c equal entrance pupils are supposed, but unequal sizes of image. Analogous to the case spoken of above the intensity of the images must consequently be in this case inversely as the square of the size of the image $y'^2_c : y'^2_b$. The size of image is expressed according to a well-known rule by the formula $y' = f \tan w$. According to our supposition the angle w is in all three cases equal, so that we have—the image sizes are as the equivalent focal lengths $f_c : f_b$. It follows that the intensity of the images in the cases b and c is inversely as the square of the focal lengths of the systems.

In the case of an infinitely distant object as represented in Fig. 9 we have the result therefore in a condensed form. Other things being equal the intensity of the image on the focussing screen or on the photographic plate is directly proportional to the square of the diameter D of the entrance pupil, inversely propor-

al to the square of the focal length; it is consequently measured by the expression $D^2 : f^2$, i.e., $(D : f)^2$. The expression in brackets, namely, the diameter of the entrance pupil over the focal length, is known as the "relative aperture" of the system.

It is readily understood from the last consideration that in the case of an infinitely distant object the "relative aperture" of the system is a reliable measure when the relative rapidities of different objectives are being compared. This fact cannot be applied indiscriminately in the case of near objects. Here cases arise where it is absolutely necessary to ascertain directly the entrance pupils and the sizes of image in order to avoid error. An example will make this quite clear. It is taken from a domain in optics, which John Traill-Taylor took a most practical interest, namely, in the domain of the telephotographic objective.

In photographing near objects it is often convenient that the distance between negative element and focussing screen shall remain unchanged, and focussing be effected by altering the distance between positive and negative elements, a requisition frequently occurring in hand cameras with fixed extension. Suppose, for example, that the object lies 3 m. in front of the entrance pupil as shown in Fig. 11. Since the focal length of the front element is 150 mm., the front element projects a 19 times reduced image of the object at O_1' , and this point O_1' lies about 8 mm. behind the focal point F_1' . By the same amount of 8 mm. must now the distance between positive and negative element be enlarged, in order that the primary image O_1' again, as in the previous case, lies 20 mm. in front of F_2 . It is only then that the sharp three times magnified secondary image from the negative element will be again

Teleobjective: $f_1 = 150 \text{ mm.}$, $f_2 = 60 \text{ mm.}$, $\Delta = 20 \text{ mm.}$ } $f_1 \times f_2 = \frac{150 \times 60}{20} = f = 450 \text{ mm.}$, $\frac{d}{f} = \frac{45}{450}$ - Relative aperture = $f/10$, Scale of reduction $D_0 = \infty$

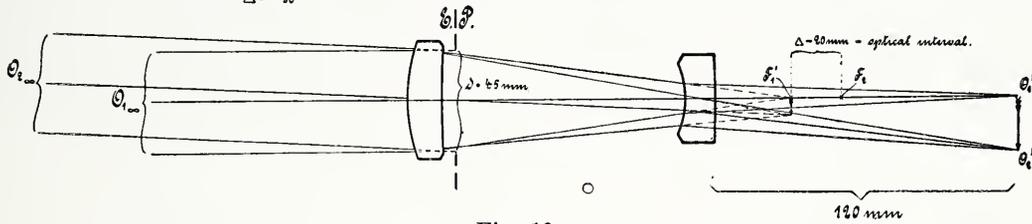


Fig. 10.

Teleobjective: $f_1 = 150 \text{ mm.}$, $f_2 = 60 \text{ mm.}$, $\Delta = 28 \text{ mm.}$ } $f_1 \times f_2 = \frac{150 \times 60}{28} = f = 320 \text{ mm.}$, $\frac{d}{f} = \frac{45}{320}$ - Relative aperture = $f/7$, Scale of reduction $D_0 = 6.3$.

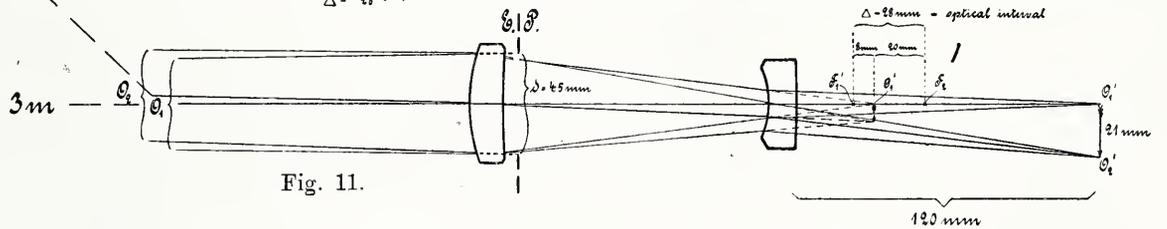


Fig. 11.

Ordinary Doublet: $f = 320 \text{ mm.}$, $\frac{d}{f} = \frac{45}{320}$ - Relative aperture = $f/7$, Scale of reduction $D_0 = 3.1$.

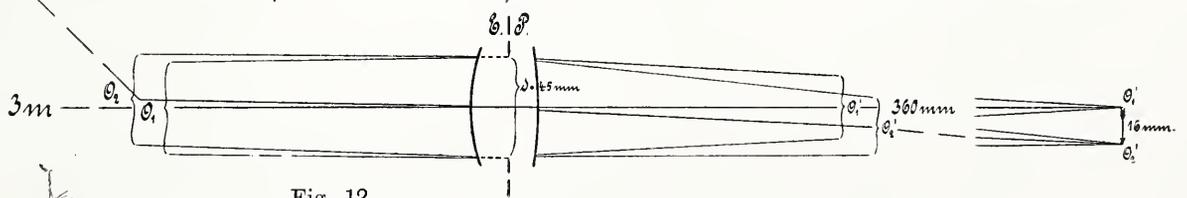


Fig. 12.

Ordinary Doublet: $f = 450 \text{ mm.}$, $\frac{d}{f} = \frac{45}{450}$ - Relative aperture = $f/10$, Scale of reduction $D_0 = 3.2$.

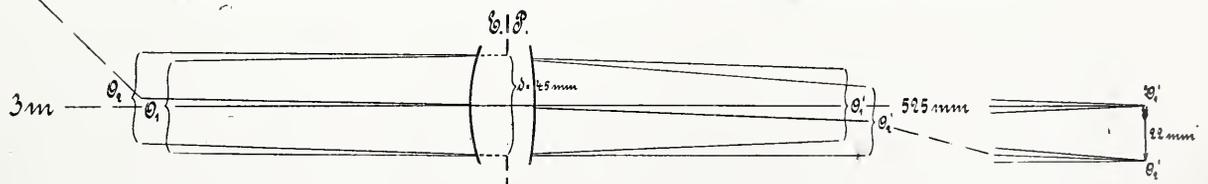


Fig. 13.

A certain type of tele-objective is represented in Fig. 10. The positive element has, say, a focal length of 150 mm., the negative of 60 mm. The distance between the two elements is adjusted, so that the focal point F_1' of the front element lies in front of the front focal point F_2 of the negative element by the amount $\Delta = 20$ mm. The image of a distant object projected by the front element at F_1' , were the negative element absent, is magnified threefold, at a distance of about 120 mm. behind the negative element. The focal length of the tele-objective as a whole is according to a well known rule $f = \frac{f_1 f_2}{\Delta} = \frac{150 \text{ mm.} \cdot 60 \text{ mm.}}{20 \text{ mm.}} = 450 \text{ mm.}$ The entrance pupil is assumed to lie in the neighbourhood of the front element and have 45 mm. diameter. The relative aperture of the system is thus $f/10$.

projected upon the focussing screen, which according to our supposition has not altered its distance from the negative element. The reduction, with which the final image is reproduced, is $\frac{19}{3} =$ about 6.3. The optical interval, contrary to the previous case, is increased by 8 mm. and amounts therefore to 28 mm. In this way the focal length of the system as a whole now amounts to $\frac{150 \cdot 60}{28} = 320 \text{ mm.}$ Since the diameter of the entrance pupil 45 mm. has remained the same throughout, the relative aperture in the new form of the objective is $\frac{45}{320} = f/7$.

We take now instead of the tele-objective two ordinary photographic objectives one after another, the entrance pupils of which are

likewise 45 mm. diameter, at the same distance of 3 m. from the same object. The first represented by Fig. 12 has, we will suppose, a focal length of 320 mm., consequently having a relative aperture of $f/7$, exactly as the tele-objective when being focussed upon the near object. It then projects an 8.1 times reduced image of the object. The second objective has, say, a focal length of 450 mm., relative aperture $f/10$, exactly the same as the tele-objective in focussing upon infinity. It then projects a 5.9 times reduced image of the object. You see, the sizes of image are in the cases of Figs. 11 and 13 almost the same, since the scales of reduction N 6.3 and 5.9 differ but very little; in the case of Fig. 12 the size of image is considerably smaller. The total quantity of light is in all three cases exactly the same.

We have consequently the result, that our tele-objective, in the case where distant focussing is effected with fixed distance between negative element and focussing screen by altering the distance between front and hinder element, has the same effect with respect to the size of image and intensity for distant and fairly near objects as an ordinary objective of 450 mm. focal length and with the relative aperture $f/10$, notwithstanding that the tele-objective has these data in reality only when focussed upon infinity whilst

to the axis of the objective sharply and free from distortion upon the plane focussing screen. If a very small region of the image near to the axis of the objective, be examined, we know that ready here in the middle of the image field no objective produces mathematical sharpness, but that circles of confusion take the place of image points, the sizes of which circles go hand in hand with spherical aberration, and aberration of the sine condition in pencils parallel to the axis. Comparing only systems of the same objective type the remnants of these aberrations are in general all the greater, the greater the relative maximum aperture of the objective. Comparing objectives, however, of different types, it is found that certain types are favourable to the extinction of the above-mentioned aberrations, whilst others are not. In this way an objective of particularly favourable sort may even, with the relative aperture $f/3$, produce the same sharpness in the middle of the field, which in another less favourable type can only be reached at, say $f/18$. It is a question, not so much of the sharpness in the middle of the image field, but rather that the image field shall have the largest possible extension, upon a plane plate, sharp and in correct drawing. Consideration only of the above-mentioned aberrations for pencils parallel to the axis is no longer sufficient; on the contrary, speci-

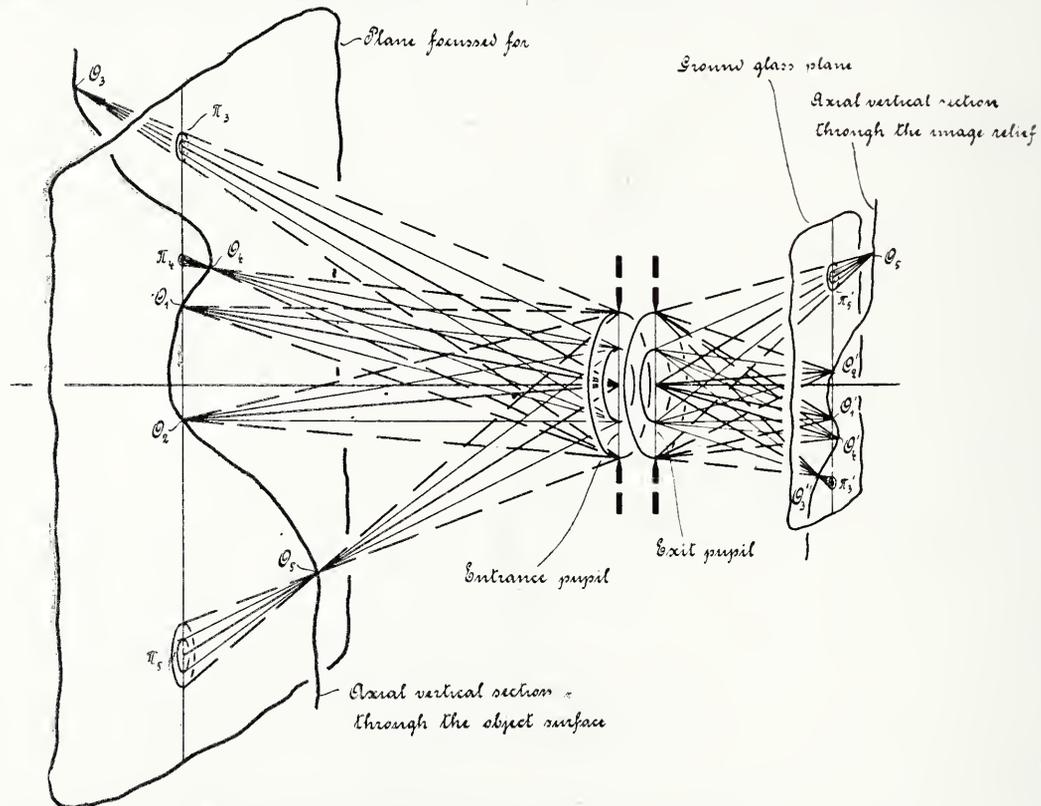


Fig. 14.

Representation of a three-dimensional object.

when focussed upon 3 m. its focal length is reduced to 320 mm., but its relative aperture enlarged to $f/7$.

We have seen hitherto that the regulation of the image-producing rays by the entrance pupil determines the rapidity of the system. With regard to a maximum rapidity it appears desirable to make the entrance pupil relatively to the focal length as large as possible. You know that in photographic objectives only in the most rare special cases has this ratio, the relative aperture, exceeded the value $f/3$, that the objective for every-day use has a maximum aperture not greatly exceeding $f/4.5$, or even $f/6.3$, and that these large apertures in ordinary use, in the majority of cases, are more or less reduced by stopping down the iris diaphragm.

The geometrical optical reasons why a regulation of image-producing pencils of rays by the entrance pupil must take place, are of two kinds. The first reason, which is in general dealt with in the most detailed manner, is that all rays, which in consequence of their too large aberrations would produce inadmissible unsharpness, must be prevented from taking part in the formation of the image. Upon this point only a few words more.

In a photographic objective care has to be taken by the constructor that it reproduces a plane object standing at right angles

errors of pencils inclined to the axis arise, and must be corrected, e.g., astigmatism, curvature of field, distortion, etc. General speaking, it may be said that those types particularly favourable to the elimination of the aberrations of pencils parallel to the axis are unfavourable to the elimination of the errors of pencils inclined to the axis, and inversely. In this way the desire for a very large available aperture is antagonistic to the desire for a very large available field of view. The constructor of an objective has, therefore, to make a compromise, yet he must always endeavour to discover objective types, the limits for the relative aperture and for the image field of which are simultaneously the largest possible. It is well known that renowned opticians have dedicated their best abilities to this end, and it is just as well recognised, what high degree of success has, particularly in the last two decades, attended their efforts in fulfilling the requisition for rapid objectives with large plane and anastigmatic image field.

It is not our intention to go further into the aberrations of objectives. The above general remarks may remind you of the fact that the regulation of the aperture of the image-producing pencils of rays by the entrance pupil, on account of aberrations, must always be reckoned with.

The second reason why in photographic objectives a regulation of image-producing rays by the entrance pupil must occur has to do with aberrations, but must be ever present also in an ideal system—that is, a system perfectly free from aberration, were such a system possible. With a view to rendering the description as simple as possible, we will assume therefore that the systems are absolutely free from aberration, an assumption we have already tacitly made above.

The second reason is the following:—In the generality of cases the task imposed on the photographic objective is, that it shall project on the focussing screen—i.e., in one plane—objects extended in space, landscapes, buildings, persons, etc. A fulfilment of this condition is conceivable only when a definite regulation of the projecting pencils takes place.

The pupils of a definite system are shown in Fig. 14. It is assumed that they are circular in shape, and that their diameter can be reduced by contracting the iris diaphragm. As before, the object lies on the left side of the drawing. Whilst we have restricted ourselves in the foregoing to considering a plane object, we will now consider an object extended in space, and select a few object points O_1, O_2, \dots, O_5 therefrom. The rays proceeding from these object points and con-

the plane focussed for a projection figure consisting of points and circles. It is self-evident that not only the points O_1 and O_2 appear correctly on the ground glass screen, but also all other configurations lying in the plane focussed for—i.e., the circles of confusion, π_3, π_4, π_5 . In this way the objective reproduces on the ground glass screen the projection figure composed of circles and points lying in the plane focussed for perfectly true on a certain definite scale of reduction. This is the whole function of the objective.

We consequently arrive at the conclusion that the representation of an object extended in space upon the plane photographic plate or focussing screen is not a point-for-point reproduction in the strict sense of the word, but an example of projection. Since the objective does nothing more than reproduce the projection figure lying in the plane focussed for on the focussing screen correctly in any scale N , we need now only concern ourselves in discussing the photography of solid objects with its projection figure in the plane focussed for. Dr. von Rohr was the first to call attention to this exceedingly simple and comprehensive method, and to put it into practice systematically.

In the further discussion of the above-mentioned projection figure in the plane focussed for, two problems must occupy our attention—

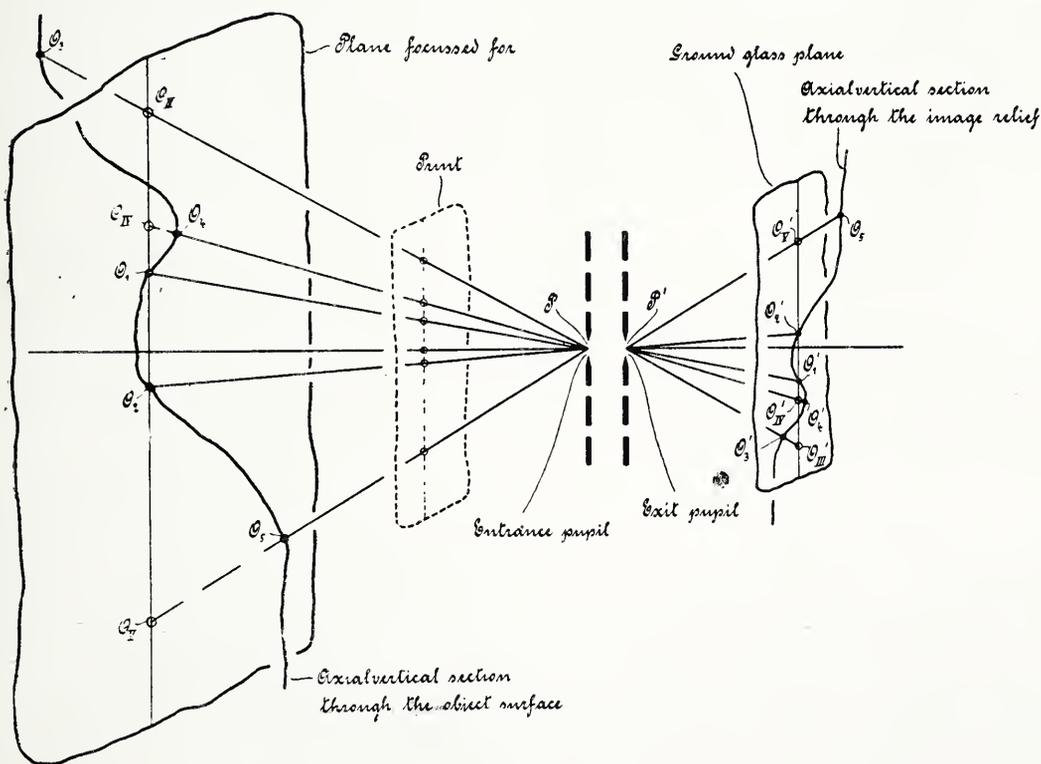


Fig. 15.
The centre of the entrance pupil as the centre of perspective.

...uting to the reproduction are again regulated by the margin of the entrance pupil, and upon emerging from the system by the margin of the exit pupil. Let us now suppose a plane drawn at right angles to the axis through the point O_1 , which lies at a medium distance from the plane of the entrance pupil. The point O_1 is sharply reproduced in the point O'_1 , and we draw through the point O_1 a plane at right angles to the axis. The system reproduces, then, the points lying in the drawn object plane sharply in the drawn image plane; for instance, O_2 in O'_2 . We will suppose that the drawn image plane coincides with the focussing screen, so that the points of the drawn object plane are sharply focussed on the screen. We call this plane therefore the "plane focussed for." Object points O_3 lying in front of the "plane focussed for" also appear sharp, as O'_3 in front of the plane of the ground glass screen; object points O_4 and O_5 behind the plane focussed for appear sharp behind the plane of the ground glass screen. On the latter plane if the pencil of rays converging on the image points O'_3, O'_4, O'_5 , appear as larger or smaller circles of confusion, π_3, π_4, π_5 . If now series of cones be formed with each object point as apex and the entrance pupil as base, these cones cut the plane focussed for in circles, which are greater the farther the object points lie in front or behind the plane focussed for. We obtain in this manner in

namely, the problem of perspective and that of depth of definition. As to perspective, we turn once again to Fig. 14. In the plane focussed for the circles of confusion, π_3, π_4, π_5 , appear as the representatives of the object points O_3, O_4, O_5 . Although these circles have a finite extension, their middle points would, nevertheless, be always considered as the points which they are said to replace. In these middle points the plane focussed for is met by rays which are directed from the object points towards the centre P of the entrance pupil. In Fig. 15 these rays alone are drawn. They are called "principal rays." In the manner represented the points of contact of the principal rays in the plane focussed for form what is known as the perspective representation of a solid object and the centre of the entrance pupil is the centre of the perspective.

We must here remember that upon the photographic plate there appears a true N -times reduced image of our projection figure; we can then place a print between the entrance pupil and the plane focussed for in such a position that seen from the centre of the entrance pupil of the system each point of the print lies in the same straight line as the object point represented by it. To establish this coincidence a certain definite position of the print has to be found; the point of the print, which lay on the axis of the objective during exposure, must lie at right angles to the centre of the entrance pupil, and

simultaneously the distance of the print from this centre must be N -times as small as the distance of the plane focussed for. It is easily comprehended that the eye must take up the same position relatively to the print as the centre of the entrance pupil, if the eye is to view the image with correct appreciation as to perspective; and must further be borne in mind that the centre of rotation of the eye must form the centre of perspective, since images are not viewed with the eye at rest, but with the eye continually in motion, so that the various points of the image can be looked at one after the other. In the majority of images this rigid rule of viewing has to be carried out at so short a distance between centre of rotation and the image—that is to say, with few exceptions at a distance equal to the focal length of the objective employed—that persons with normal vision find it impossible to obey it, and instinctively hold the image farther off from the eye. In so doing they obtain naturally quite a false impression of the object.

In Fig. 16 a few false impressions are represented in a simple manner. A, B, C is intended to be a print of a skeleton cube. When the print is situated at the correct distance from the centre P of rotation of the observing eye, a correct impression as to the print representing a cube is obtainable. This is shown in fig. 16a. If the same print be viewed from a too great distance a true impres-

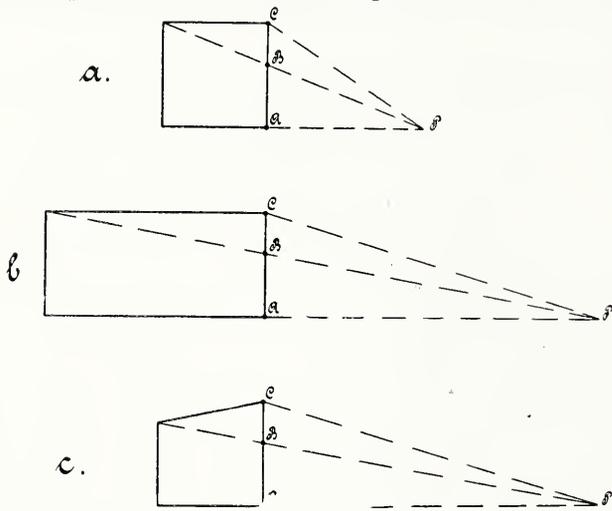


Fig. 16.

Apparent alteration of depth and form, due to increased distance between eye and print.

sion of a cube is no longer possible. Instead of this one, as shown in fig. 16, *b* or *c* will be inevitable. How such false impressions are to be avoided will be found described in a paper given by Dr. von Rohr before this society on November 10, 1903, entitled "The Verant, a new instrument for viewing photographs from the correct standpoint." For a closer study of the question connected with the perspective of photographic prints this paper—from which fig. 16 is taken—can be warmly recommended.

In the photograph of an object extended in space the centre of the entrance pupil has thus the extremely important function of forming the centre of the perspective, and it is hardly necessary to repeat here that the type of objective, provided it be free from distortion, as well as its focal length, has nothing whatever to do with the perspective of the print.

The second question which obtrudes itself in the photography of an object extended in space is that of the depth of definition. This question, too, is answered for us, when we investigate the action of the entrance pupil. As shown in detail in fig. 14, the objective projects from the object points O_3, O_4, O_5 , which do not lie in the plane focussed for, in no case sharp image points upon the focussing screen, but, on the other hand, larger or smaller circles of confusion.

DR. E. WANDERSLEB.

(To be continued.)

ERRATUM.—By an error of translation of the article by Dr. Scheffer in the "Colour Photography" supplement last week, the author was made to state the exact contrary of the fact as to the presence of filling in the 'Omnicolore' plate. The passage in the second column of Dr. Scheffer's article on page 11 should read: The colour areas do absolutely join: there is no filling material, but the edges of the areas are somewhat more transparent than the centre.

Photo-Mechanical Notes.

"Klimsch's Jahrbuch, 1909," and "The Graphic Arts Year Book, 1909."*

"KLIMSCH'S ANNUAL" maintains its lead in regard to taste and get-up. The binding is suitable, the type is good, the paper satisfactory, in the type matter there are no insets having no relation to the text, and the decoration of the latter initials, tail-pieces, etc., appears to be the work of one hand, thus preserving a pleasing uniformity throughout the pages, which is in the least monotonous. While the articles in the English "Process Year-Book" deal mainly with process matters, in the volume under review, the articles cover a wider range, dealing with everything concerning book production. In addition, in the American one there is a general section containing articles not always strictly related to the technical side of the craft, as for example, on film systems. The two most interesting articles in Klimsch's book, from the photo-mechanical point of view are, one by Dr. Scheffer dealing with the capacity of reproduction processes for rendering detail, which we recently reproduced, and one by Herr R. Russ on the screen-containing printing frame. This is the only article we can remember dealing with this matter since the controversy in the "Photogram" as to this process so long ago as 1901 and 1902. The method is that invented by Dr. Albert. He has recently sold it to one or two English firms, and it is still being actively pushed by his agent in London. We are therefore likely to hear a good deal more of the process, and hence a description is particularly welcome just now.

Other articles deal with type-setting, type-setting machine, type-founding, newspaper rotary printing, lithographic stone, negatives for litho-transfers, modern photographic lenses, steel etching, paper-making, bookbinding, end papers, steam power for printing, and the usual list of the year's books, patents, and notable events in the German printing world. Then we have the supplements all together at the end, and these comprise examples of modern reproduction processes, all excellent, also examples of new types, some of the antique founts being very good. "Klimsch's Annual" is decidedly one that those interested in book-production ought to possess.

"The American Graphic Arts Year Book" has made a notable step in advance this year in its artistic ensemble by adhering to one type throughout. The binding is also better than former ones, even though it is not so showy. But we cannot help feeling irritation at meeting all sorts of irrelevant supplements in the midst of text, and we look forward to the time when all the specimens will be placed at the end of the volume. Certainly some of the examples are extremely good; we never remember to have seen a finer colotype than the "lady with fan," while some of the half-tones probably reach the limit of possibility in this process with the means available at present. There are a very large number of three-colour plates, many of them good, others quite the reverse. The originals have something to do with this, perhaps. The articles include reviews of progress, on photography in colour, on photo-engraving matters, on lettering typography, on commercial illustration, and general matter. Many of these articles are written by Europeans. The English contributors include Wm. Gamble, H. Klein, Arthur Payne, A. L. Newton, A. J. Bull, Dr. Mees, and Joseph Goodman.

In an article on "Type Designing" there is a gem that we cannot refrain from quoting. It runs, "In America there are but few notable letter-foundries, and yet this country leads the world in type-making. The best that can be said of most English foundries in the matter of type design is that they are good copyists. Perhaps the gentleman is right with regard to some of the horrible abortions we have seen in type-founders' specimen books, but when it comes to really beautiful type where is the American type that is an improvement on old-face Caslon, or, to take a select example, have they type to equal the design of that used by the Doves Press?"

* "Graphic Arts and Crafts Year-Book." Republican Publishing Co., Hamilton, Ohio, U.S.A. Price, 5 dols. "Klimsch's Jahrbuch." Klimsch and Co., Frankfurt-on-the-Main, or Hunter's Ltd. 6s. net.

preceding two articles on type matter themselves, however, only a sufficient correction to the ridiculous claim quoted.

Two of the most interesting articles are those on "The Magnetite Plates," by G. M. Dyott, and on "Various Automatic Engraving Processes," by N. S. Amstutz. As in the case of the English Year Book, it must not be forgotten that many of the articles deal with processes and materials in which the writers have a direct pecuniary interest, though it is difficult to see how the matter for a year-book of this character could be obtained from quite impartial sources.

Celluloid Electros Direct from Natural Objects.

It is proposed to prepare electros for typographic printing direct from such objects as lace, leaves of trees, etc. The patent specification (No. 8,557. 1908) drawn up by H. Sefton-Jones for the inventors, Société Anonyme Petitcollin, of 20, Boulevard St. Denis, Paris, describes the process as follows:—The block of celluloid is first heated by heating, and is placed upon the platen of the press and covered with the lace itself, upon which is then placed a sheet of copper or perfectly smooth metal. The pressure causes the lace to press itself into the soft material. The counterpart (when required for producing an embossed print) is obtained easily by ordinary means.

Such blocks obtained by direct impression from samples of lace can be utilised with or without their counterpart to reproduce the patterns in all their fineness; sheets of patterns, samples for travellers, and so forth may thus be made by direct impression from the actual print of the lace or the like, giving the exact representation of the original samples.

In the "Bulletin de Maître Imprimeurs de France" we have seen some excellent proofs of lace done in this way, as well as of ordinary work. The use of celluloid for making duplicates of blocks has been long known, and, we believe, has had considerable use in America. Mr. Amstutz has often used his original cut celluloid blocks for printing also. The application of the process to the production of blocks for printing lace appears to be a useful and successful extension of the same idea.

Brown Stains on Wet-Plate Negatives.

A wet collodion negative, which is finished by blackening with a solution of mercuric iodide or ammonium or sodium, sometimes shows bad brown staining. This is generally due to insufficient washing between development and fixing. But it may be due to insufficient fixing, and where fixing is done by placing the plate in a bath of cyanide solution, the negative ultimately becomes so saturated as to fail to dissolve out the mercuric cyanide and silver salt first formed on placing the negative in the bath. Thus, although the negative appears fixed, it is not so really, and brown stain results. When the fixing bath is renewed it will be found that this trouble disappears.

The Fading of Coloured Originals.

It has been found that even the best modern pigments fade under the rays of the enclosed arc lamps, and some of the cheaper pigments used by artists fade very rapidly. This is a point that should be borne in mind by photo-engravers, who, when using enclosed arcs as an illuminant in making negatives for three-colour work, should be sure that the originals are not valuable, otherwise it is possible that they might be liable for damages if the colours faded while the original was in their hands for the purpose of reproduction. When it is known that the original is valuable it would be well to only use daylight for lighting it when making the negatives.

The Mounting of Blocks.

The wood mount of the photo-engraved plate has always been the despair of the printer, and numerous attempts have been made to find substitutes for it. Metal is too heavy, expensive, and more difficult to work, while various compositions that have been suggested have invariably broken down in practice, either when mounting on the plate or under the crushing strain of the printing press. Wood is extremely convenient, if only it would not warp, and it is in order to obviate this characteristic that Green's patent "locked grain clamped board" has been introduced. These boards are clamped on both sides, tongue wherever there is any joint, and the ends are clamped at the ends, and they are planed absolutely true on

both sides. They naturally cost a little more than ordinary mounting wood, and blocks so mounted should certainly be priced at an enhanced figure. But even so, the printer would certainly find them economical, both in saving time and temper, especially when printing three-colour work. We have had a mount under test for the past three months, and it has answered entirely to our satisfaction. These mounting blocks are supplied by Messrs. Green and Sons, Ltd., Electra Mills, Mildmay Avenue, London, N.

PORTRAIT ESSENTIALS.—In portraiture it is not so much the absolutely just relations of the human body or head which concern the photographer as the most striking part of the same. This is the essential—so to photograph the countenance than an agreeable impression will be produced and yet be like the original. Hence we must deviate a little from the principle set down for illumination when we come to photograph the head. We must not let the light fall directly from above upon the head, inasmuch as the upper part of the face, the forehead, by projecting over the lower part horizontally, throws the eyes in shadow. Moreover, we must greatly modify or moderate the front light, in order to preserve the beautiful concavities and elevation which together make up the glory of the human countenance. The front light must be transformed into a soft, diffuse light. The direct upper must, therefore, be shut off behind the sitter and converted into a front upper light. The side light needs but little modification, and is allowed to operate the strongest, inasmuch as it tends to round the countenance. We have, therefore, to bear in mind the following combinations: a full side light, a front upper light, and a diffuse front light.—"Der Amateur Photograph."

FORTHCOMING EXHIBITIONS.

- February 1 to 13.**—Glasgow and West of Scotland Amateur Photographic Association. Sec., James M'Kissack, 68, West Regent Street, Glasgow.
- February 8 to 13.**—St. Helen's Camera Club. Sec., A. G. Else, Duke Street, St. Helen's, Lancs.
- February 10 to 13.**—Cleveland Camera Club. Secs., F. W. Pearson and R. Walton, 39, Granville Road, Middlesbrough.
- February 11 to 20.**—Leicester and Leicestershire Photographic Society. Sec., Harry Cross, 80, Harrow Road, Leicester.
- February 16 to 20.**—Norwich and District Photographic Society. Sec., J. T. Tanner, The Lodge, Bowthorpe Road, Norwich.
- February 20 to March 6.**—Edinburgh Photographic Society. Exhibition Secs., Edinburgh Photographic Society, 38, Castle Street, Edinburgh.
- February 20 to March 20.**—South London Photographic Society. Sec., H. Creighton Beckett, 44, Edith Road, Peckham, S.E.
- February 22 to March 6.**—Birmingham Photographic Society. Entries close February 12. Sec., Lewis Lloyd, Church Road, Moseley, Birmingham.
- February 26 and 27.**—Ilford Photographic Society. Entries close February 18. Sec., H. Eales, 53, Coventry Road, Ilford, Essex.
- March 9 to 10.**—G.E.R. Mechanics' Institution, Stratford, E. (Photographic Section). Entries close February 27. Sec., A. Woolford, 16, Grove Green Road, Leytonstone, N.E.
- March 11 to 13.**—Coventry Photographic Club. Entries close March 5. Sec., W. R. Harris, 17, Allesley Old Road, Coventry.
- March 17 to 20.**—Nottingham Camera Club. Entries close March 4. Sec., E. L. Kent, 3, Radcliffe Mount, West Bridgford, Notts.
- March 22 to 25.**—Cripplegate Photographic Society. Sec., H. S. Cumming, 234, North End Road, Kensington, W.
- March 30 to April 3.**—Sheffield Photographic Society. Entries close March 13. Sec., H. Merrill, 22, Harboard Road, Woodseats, Sheffield.
- March 31 and April 1.**—Shropshire Camera Club. Entries close March 20. Sec., Harry W. Hughes, Kingsland, Shrewsbury.
- April 10 to 17.**—Midlothian Photographic Association. Entries close March 31. Sec., B. Sherratt, 8, Castle Terrace, Edinburgh.
- April 29 to May 17.**—Photo Club de Paris. Entries close March 15. Secretary General, Photo Club, 44, Rue des Mathurins, Paris.

Exhibitions.

GRANGEMOUTH AMATEUR PHOTOGRAPHIC ASSOCIATION.

THIS association held its annual exhibition of members' work in the Y.M.C.A. Hall. Over a hundred prints were exhibited by the members. The work, in the majority of instances, showed a distinct striving after effect; there was evidence of a motif, and although in cases the achievement fell far short of the aim still it was comforting to see the evidence of aim, in contradistinction to the result of promiscuous exposure. Much of this is no doubt due to the influence of the energetic secretary, Mr. R. Marshall, who has attained a wide reputation as a delineator of harbour and shipping pictures, though this year he devotes some attention to landscape and townscape. The secretary takes premier position in both landscapes and figure studies in the former with "The White Sail," well noted at the Salon, and in the latter with "Toilers," a picture of fishers hauling in their nets luminous with every light. The Glasgow Art Circle sent their exhibition panel which graced one wall, the most of the work being well known from its success at the Salon and other exhibitions. The Association is exceptionally fortunate in having a great exhibition of J. M. Whithead's work, in fact, the finest exhibition of his work we have seen, excepting of course, his recent one-man show at Glasgow. His R.P.S. medal pictures "La Tulipe" and "Where once a garden smiled"; his earlier woodland scenes and his later "gloamin'" pictures. Mr. John B. Maclachlan, Secretary of the Federation, judged the exhibition, and also gave a lecture, illustrated by limelight views, on "From Castle to Palace"—a story of "The Royal Mile," Edinburgh.

Patent News.

Process patents—applications and specifications—are treated in Photo Mechanical Notes.

The following applications for patents have been received between January 25 and 30.

AUTOMATIC MACHINES.—No. 1,728. Improvements in machines for the taking and delivering of photographs. Robert Willoughby Vining, 17, Florance Road, Ealing, London.

PRINTING-FRAMES.—No. 1,784. Improvements in photographic printing-frames. The Leto Photo Materials Co. (1905), Ltd., and John Bailey Bensley, 24, Southampton Buildings, London.

TRIPOD SCREW.—No. 1,871. New or improved screw attachment for the tripods or stands of cameras and the like. Thomas Peacock and Newman and Guardia, Ltd., 115, Cannon Street, London.

CINEMATOGRAPHS.—No. 1,981. Improvements in cinematograph machines. Matthew Baker and Will Dean, 66, Bridge Road, Hammersmith, London.

MOUNTING.—No. 2,132. Photographic mounting press. Louis Frederick Crosbie, 6, Bathurst Road, Norwich.

SCREENS.—No. 2,143. Tinted celluloid screens for use in photography. James George Potter, "Aston-Lee," Chesswood Road, Worthing.

PRINTING.—No. 2,273. Pedal press for use in connection with the exposure of photographic printing papers or the like. Louis Brochery, 37, Moorfields, Liverpool.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 3d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention

TELEGRAPHIC TRANSMISSION OF PHOTOGRAPHS.—No. 9,518, 1908 (May 2, 1908). The invention is an improvement in the method of photo-telegraphy in which the electrical transmission depends upon a series of "makes" and "breaks" of circuit due to the

occurrence of enameline or other resist on a metal or other conducting plate. The improved method is as follows:—There is prepared a piece of thick lead or other electrically conducting foil or sheeting, say, by coating the foil with fish glue or gum rendered sensitive to light with potassium bichromate, exposed to light when dry under a suitable negative and line screen, and then the unexposed fish glue or gum (i.e., the light part of the picture) is removed. The photographic image then consists of fish glue or gum lines varying in width on the foil. These lines are slightly in relief. The photograph is now placed between two polished metallic or other surfaces and compressed by suitable means such as an hydraulic or other press. This treatment forces the fish glue or gum into the foil so that the photographic surface is smooth. A metal stylus in passing over this smooth surface does not therefore jump, vibrate, or miss contact, and a superior photo-telegraphic picture is obtained. Thomas Thorne Baker, 7, St. James Avenue, Cricklewood, and 12, Whitefriars Street, E.C.

AUTOMATIC MAGAZINE STEREOSCOPE.—No. 825. 1908 (January 1908). The invention relates to apparatus permitting of stereoscopic or ordinary views being observed in succession, the apparatus being also adapted for use for projection purposes. It comprises a horizontally movable carriage carrying a holder or magazine whereby each view in succession is brought into the plane of an upright frame which is capable of being moved vertically to bring one view at a time opposite the eyepieces of the instrument and thereafter return the view to the holder.

There is improved mechanism for controlling the movement of the carriage as well as the rising and the return of each of the pictures to the holder. This mechanism consists of a crank-disk, a connecting rod, and a sway-bar for imparting vertical movement to the frame. The crank disc is provided with stop mechanism which holds the frame in its raised position and the picture placed opposite the eye-pieces as long as required. Each revolution of the crank disc produces partial rotation of a star wheel or ratchet cross which drives by rack and pinion the horizontally movable carriage. By means of the crank disc and star wheel the carriage with the holder for the pictures may be moved in one direction or the other, the carriage advancing to the extent of the distance which separates two consecutive views at each rotation of the disc. The star wheel is provided with an automatic de-clutching device by means of which it may be released from the action of the crank disc when the carriage reaches the limit of one of its movements. Furthermore, the driving disc may be de-clutched by means of a star wheel in such manner as to permit of the carriage being returned to its original position, or of displacing it rapidly in one direction or the other. A safety device is provided which prevents de-clutching until the last picture viewed has been returned to the holder or magazine. The numerous drawings are necessary for the explanation of the details of construction. Jules Richer, 25, rue Melingue, Paris.

CINEMATOGRAPHY IN COLOURS.—No. 453. 1908 (January 8, 1908). The invention relates to the method of producing animated pictures in colours on the principle of persistence of vision employed in the process described in Patent No. 23,863, 1899. The present improvements relate to methods described in the specifications Lascelles-Davidson, No. 23,863, 1899,* No. 13,468, 1902,* No. 3,729, 1903; of Friese-Greenè, No. 9,465, 1905; and of Smith, No. 26,671, 1906 ("B.J.," August 23, 1907, p. 642).

The essential part of the invention is the use of colour film travelling over the band of sensitive film (at the time of exposure) or with the positive film (at the time of projection) at about the same rate.

Instead of employing a revolving shutter fitted with, say, red and bluish-green colour screens as described in Patent No. 26,671, 1906, there is used a length but preferably an endless band of multi-coloured film, which is caused to travel in any suitable manner with, or at about the same speed as, the colour-sensitive film, the above (preferably endless) band of film being so coloured and dyed that the respective colours thereon are the size of each of the series of pictures exposed through the colour screens through the film or the like.

A series of negatives is thus obtained in which, say, the

* Stated to have lapsed.

and yellows are recorded in one negative, and, say, the blue-greens and yellows in the second, alternately throughout the length of the film.

A series of positive colour records (preferably of a neutral grey black tint) are made from the above negative colour records, and projected on the screen through any commercial projecting machine with a similarly coloured multi-coloured colour screen, so that the pictures are projected in quick succession in the desired order through their respective colours.

There can thus be obtained one picture to every complete revolution of the exposing or projecting shutter in alternate or other order of re-occurring colours which, in other words, means that when taking or projecting the colour records through their appropriate colours at, say, sixteen revolutions of the shutter per second, the pictures will also be taken, or exhibited on the screen, at the same rate of sixteen pictures a second, and not at the rate of thirty-two pictures a second with the shutter only working sixteen revolutions a second as the case would be if the gearing of the exposing or exhibiting shutter were altered as in Patent No. 671 of 1906.

It is thus possible to both take and project pictures in colours about the same speed as ordinary black and white animated pictures.

The simplest way to make the multi-coloured colour screen is to cut out, say, a length of perforated cinematograph film in hypo, roughly wash it, and then sensitize it in a bichromate bath in which has been previously added, say, a blue or bluish-green dye of suitable strength to give the intensity of colour required when finished. When the above bichromatised film is dry, it is placed in a cinematograph camera or such like (preferably without any lens affixed to same), in the usual manner the camera is pointed toward the sun or other bright light and the handle rotated, and by shielding the film from the light by hand or otherwise at every other revolution of the shutter, every other space on the film will be, say, blue (if a blue dye has been used) and every other space will be clear on the bichromatised surface being thoroughly soaked and the free dye unacted upon by light being washed out.

The same surface holding the, say, blue dye in suspension with clear spaces between is then immersed in a red or orange-red dye until the clear spaces have absorbed sufficient of the red colour to balance the blues, according to the adjustment required in relation to the colour sensitiveness of the surface about to be employed. In like manner the multi-coloured colour screen can be prepared for projection.

In all cases the ends of the multi-coloured colour screen are preferably joined to form an endless band of any suitable length; this endless band is made or caused to engage with the sprockets or other suitable parts of a cinematograph camera or projector, so that each colour (or series of colours) is accurately adjusted in the "gate" to superimpose the corresponding future negative colour records in taking the pictures, or the positive colour records for projection on the screen. William Norman Lascelles Davidson, "Harewood," Southview Road, Southwick, Brighton.

WATCH CAMERAS.—No. 5,932. 1908 (March 28, 1908). The invention consists of a camera of watch form provided with time and instantaneous shutter.

The lid of the camera carries on the outside a pointer arm pivoted in the centre and attached to a similar arm on the inside of the lid having a bent down end to act upon a part of the film carrier. The lid of the camera is stamped on the outside or marked in such a manner that the pointer arm indicates the position of the film in the camera.

An important feature of the invention consists in the film carrier of the daylight-loading type, and the manner in which it is used. The carrier is in the form of a circular box in two halves, one revolving outside the other and revolving upon it. The inner half is arranged to remain stationary within the camera, and is provided with a small hole situated immediately behind the lens. The side of this half of the box opposite to the hole above mentioned is cut away to the extent of the size of the picture required. The other half of the box is arranged to turn upon the stationary part and carries for about half its circumference a sensitised film the full length of the box and a circumferential slot is formed in nearly the extent of the other half of the side and a flange on this half

of the box is notched to take the bent arm on the camera lid which acts to turn this part of the carrier.

When the daylight-loading device is placed within the camera the two halves are so arranged together that no light can pass inside, but a slight turn to the outer and revolving half brings forward the slot in same and exposes the hole in the stationary half to the lens when a photograph may be taken on the exposed portion of the film opposite. The necessary turn to the film carrier is given by the pointer arm on the lid which operates the inner arm acting on the revolving portion of the film carrier and by turning this pointer to the next position another portion of the film is brought ready for exposure, and the already exposed portion passed into darkness between the two sides of the portions forming the daylight-loader. When the film is ready for exposure the shutter is operated in the usual manner, and the shutter completely obscures the lens during the time the film carrier is being moved, and when the whole of the film has been exposed the film carrier is moved one position further ensuring the slot in the film carrier entirely passing the hole in the non-revolving half of the daylight-loading device, which may then be removed from the camera in safety as no light can penetrate. Samuel Henry Crocker, 9, St. James Walk, London, E.C.

The following complete specification, etc., is open to public inspection before acceptance under the Patents Act, 1901:—

COLOUR SCREENS.—No. 20,971, 1908. Manufacture of colour plates or screens for colour photography. Christensen.

New Trade Names

CALCI-BLOCK.—No. 308,116. Chemical substances used in manufactures, photography, or philosophical research, and anti-corrosives. Alfred Barnett, 27, Stoke Newington Road, London, N., merchant. November 18, 1908.

MINEX.—No. 308,771. Photographic apparatus, included in Class 8. Arthur Lewis Adams, trading as Adams and Co., 24, Charing Cross Road, London, W.C., manufacturer of photographic apparatus. December 11, 1908.

EMPIRE.—No. 309,503. Photographic apparatus, included in Class 8. W. Butcher and Sons, Ltd., Camera House, Farringdon Avenue, London, E.C., photographic apparatus manufacturers. January 12, 1909.

Analecta.

Extracts from our weekly and monthly contemporaries.

Remedying Developer Stains on "Ensyna" Paper.

Mr. A. D. Weit, writing to "Photography and Focus" for February 9, says: "Having overlooked the point in the directions for 'Ensyna,' which states that fresh developer should be used for each print, I got some prints which on drying were badly stained. As they were spoilt, and so could come to no further harm, I mixed a solution of potassium bromide and potassium ferricyanide, and bleached them. I then re-developed them with metol-hydroquinone, and was agreeably surprised to see the prints restored to their original chocolate colour, but minus the old purple stains. They had lost slightly in depth, so the method would seem to be a safe way to reduce an over-developed print, as well as to get rid of stains."

FLASH POWDERS.—Dr. G. Krebs has patented a non-explosive mixture giving a flashlight with very little smoke, the basis being magnesium or aluminium powder, plus anhydrous copper sulphate or chrome alum, e.g., chrome alum, 100 gms.; magnesium powder, 100 gms.; or copper sulphate anhydrous, 150 gms.; magnesium powder, 75 gms.; aluminium powder, 25 gms. This gives much less smoke than mixtures containing chlorate and the smoke passes away rapidly so as to allow of a series of successive exposures in a room. Ger. Pat. No. 205,499, of July 26, 1904, from "Chem. Zeit." Repertorium, No. 16, 1909, p. 68.

New Books.

"The Oil and Bromoil Processes." By F. J. Mortimer and S. L. Coulthurst. London: Hazell, Watson, and Viney. 1s. net.

The literature relating to the oil printing processes is not as yet very extensive, and a treatise such as this one should be warmly welcomed. The book is essentially practical throughout, and the well-known successes of the authors with the methods described sufficiently guarantee the soundness of the advice given. So far as we can see, the book covers the ground very completely, and the only omission we note is a warning to beginners not to be too impatient. A great many failures that have come under our notice have been due simply to the worker stopping before he had properly commenced the work of pigmenting. In bromoil especially many seem to think that the first touch of the brush is going to give a clear and decided image, and when it does not do so they think the print has gone wrong and put it aside for advice upon it. The majority of the beginners that we have become acquainted with have fallen into this mistake at the start, and we therefore think that a warning on this point is very advisable. It might also have been pointed out that grain or spottiness also will very often vanish if the brush-work is continued a little longer, with perhaps a rather cleaner brush. We note that a plentiful supply of brushes is recommended, and this, according to our experience, is very good advice indeed. The authors deal quite as fully as is necessary with the different methods of brush manipulation. More detailed instructions are quite unnecessary, as every worker rapidly acquires methods of his own. There is a mistake on page 92, where it is stated that the ozobrome-oil process was first described by J. Parrack, in the "Amateur Photographer" for May 12, 1908. The first publication that we know of was in the "Photographic News" for August 16, 1907, where Mr. C. Welborne Piper dealt with it in a supplement to an article on the first bromoil process. The method there described is the same as the one given in this book, but probably better results would be produced by the modern improved ozobrome method with the preliminary acid bath. We think also it should have been mentioned that Mr. E. J. Wall suggested, in the "Photographic News" for April 12, 1907, the desirability of producing oil prints from bromide enlargements before any method of doing so had been published. We can strongly recommend this book, and advise all those interested in oil printing to obtain a copy.

"La Photo-Peinture des Agrandissements de Paysage." By L. Estéban. Office of the "Photo-Revue." Paris: Charles Mendel. Price 60c.

This little manual of the working-up of prints and enlargements in oil colours contains brief instructions and a series of hints on treating different classes of subject. The author, however, lays stress in his first line on the necessity of natural aptitude: "On devient cuisinier, mais on naît rôtisseur."

PHOTOGRAPHIC POSTCARDS.—No. 94 of "The Photo Miniature" treats of the making, in many varieties and degrees of embellishment, of the essential picture-postcard. It contains particularly full instructions for producing cards as vignettes or with borders, and, therefore, is deserving of study by those who would turn out cards which are superior to the usual commercial article. The issue of our always practical contemporary is obtainable in America from Messrs. Tennant and Ward, 122, East 25th Street, New York, and in this country from Dawbarn and Ward, 6, Farringdon Avenue, E.C.

THE CINEMATOGRAPH AS A WITNESS.—The cinematograph does more than amuse or instruct, as the case may be, and according to a message from New York in a Paris contemporary, it has just defeated an impudent and fraudulent claim. Some four years ago a boy was injured in a tramway accident, and his parents have only recently brought an action claiming £1,000 from the tramway company. The ground of the action was that the boy had been paralysed from the effects of his injuries. Counsel for the company obtained the permission of the court to show some cinematograph views of school sports, and in them was to be seen the boy winning a "Marathon" race and engaged in a boxing contest, with the result that the parents have been non-suited.

New Apparatus, &c.

SEAT, TABLE, AND BOX ACCESSORY.—Messrs. F. E. Jones and 22, Gray's Inn Road, London, W.C., have recently shown us their showroom at the above address, an accessory for the studio which can be used as either table or seat, and also forms a



in which artificial flowers, toys, etc., used in the studio can conveniently be kept. The article of furniture is handsomely made of fumed oak, the arms being attached by thumbscrews, so that they and the lid are removable when required. This most useful accessory measures 4 ft., and is sold at £4 4s.

New Materials, &c.

"Wellington" "Special Smooth" Platino-Matt Bromide Paper. Made by Wellington and Ward, Elstree, Herts.

In this new variety of their bromide papers, Messrs. Wellington and Ward have produced a material which supplies a print of graving smoothness, without a sign of gloss or roughness. "Special Smooth" describes its surface, but the tones of the print are no means dead-looking, having, on the contrary, a fine range from a brilliant high-light to rich deep shadows. For work both large and small the paper appeals to us as being equally suitable. So quite small negatives printed in it give very delicate prints, with all the detail in them that could be desired. Messrs. Wellington have so completely covered the field with papers of different surface and different tint that one might almost have thought another variety uncreatable. Yet the new "Special B" is distinct, delightful, in every way worthy to rank with the other "Wellington" materials.

PYRAXE-HAUFF.—Messrs. Fuerst Bros., 17, Philpot Lane, London, E.C., send us a sample of the new form of fine pyro crystals manufactured by Messrs. Hauff, of Feurbach, Germany. The crystals occupy one-fifteenth the space of the feathery re-sublimed variety of pyrogallic acid, but dissolve almost as quickly as this latter, and are quite equal to it in developing power. No one, we imagine, whether dealer or user, will use the bulky form in preference to crystals, one important advantage of which is the convenience with which it is weighed out without the danger of its getting in dark-room measures or dishes, or afterwards causing trouble in the shape of spots.

THE FALLOWFIELD SMOKER will be held at the Inns of Court Hall on Thursday next, February 18, at 8 p.m., Mr. F. W. Hindley in the chair. Those anxious to take advantage of the occasion to spend an enjoyable evening should communicate with Mr. J. C. Preece, with any of the Fallowfield staff at 146, Charing Cross Road. The price of the ticket is 1s. only, and the excellence of the programme on previous occasions is an assurance that the large hall of the Inns of Court should suffice to accommodate the company of friends who assemble to join with the old-established house in its annual festivity.

Correspondence.

We do not undertake responsibility for the opinions expressed by our correspondents.

Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

SANDELL PLATES.

To the Editors.

Gentlemen,—We noticed in your correspondence columns of this week's issue a query relating to Sandell double-coated plates. We would like to inform you that these plates are still being manufactured by us, as are also our "Cristoid" films and other specialties.—Yours very truly,

SANDELL FILMS AND PLATES, LTD.,

Leonard Smith, F.C.S., Manager.

Woodward Junction, London, S.E.

February 9, 1909.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, FEBRUARY 12.

Green Photographic Art Club. 1909 Salon Prize Slides.
London Photographic Club. "The Oil Pigment Process." Hector Maclean.
London Photographic Society. Dutch Lantern Pictures. A. E. Staley & Co.
Wick-on-Tweed Arts Club. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Oldham Amateur Photographic Society. French Lantern Pictures. A. E. Staley & Co.

MONDAY, FEBRUARY 15.

London Photographic Society. "Platinotype." W. E. Fearnley.
Borough and District Photographic Society. "A Trip to No way." E. L. Davis.
London Photographic Society. Exhibition of Lantern Slides.
London Y.M.C.A. Camera Club. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Derbyshire and District Photographic Society. "Landscape Composition." Charles A. Allen.
London Camera Club. Lecture Competition.
London and Forest Hill Photographic Society. Monthly Competitions. Criticism by E. T. Holding.
London Photographic Society. "Photography and the Microscope." H. and F. Cliff.

TUESDAY, FEBRUARY 16.

London Photographic Society. "Stereoscopic Projection." Dr. Scheffer.
London Photographic and Art Society, Oldham. French Lantern Pictures. A. E. Staley & Co.
London and District Literary and Scientific Society. "Yesterday and To day." Burroughs, Wellcome & Co.
London Shields Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
London Photography Society. "Bromoil." W. L. F. Wastell.
London Photography Society, Y.M.C.A. Members' Lantern Slides.
London Park Camera Club, Govan. "A Talk on Pictorial Photography." W. S. Crockett.
London Photographic Society. Lantern Night.
London Camera Club. "Architectural Lecture." T. A. Coysh and H. Mann.

WEDNESDAY, FEBRUARY 17.

London Camera Club. "The Making of Transparencies for Enlarged Negatives." F. W. Hicks.
London and District Camera Club. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
London Middlesex Photographic Society. "Autochromes." J. F. Nisbet.
London Photographic Society. "On Control."
London Camera Club. "In Search of Sunlight." E. Rimbault Dibdin.
London Polytechnic Photographic Society. Lantern Slide Competition.

THURSDAY, FEBRUARY 18.

London Amateur Photographic Association. "May Certain Phases of Photography be Reckoned Among the Fine Arts?" Lieut.-Col. A. Grimshaw Haywood.
London Photographic Society. Exhibition of the Midland Photographic Federation Portfolio.
London Lothian Photographic Association. "Home Portraiture for Winter Evenings." J. B. Johnston.
London School of Photo-Engraving, Bolt Court. "Oils, Colours, and Varnishes in their Relation to Lithographic Tin and Offset Printing." A. J. Rowley.
London Easton and Institute Camera Club. "A Trip to Holland with a Euryplan Lens." A. E. Staley & Co.
London Easton and Institute Camera Club. Dutch Lantern Pictures. A. E. Staley & Co.
London Strand-on-Sea Photographic Society. "Development of Negatives." Florence Bell.
London Borough of Tynemouth Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
London Weststone and District Camera Club. "Winter Sports in Switzerland." Illustrated. F. G. Curtis.
London Green Photographic Art Club. Informal Meeting.
London Hely, Farsley, Calverley, and Bramley Photographic Society. "Platinotype." Mr. Fearnley.
London London and Provincial Photographic Association. "Celestial Architecture." C. P. Butler.

ROYAL PHOTOGRAPHIC SOCIETY.

THE annual general meeting of the Society was held on Tuesday evening last, February 9, the president, Mr. J. C. S. Mummery, in the chair. The report of the council, which was discussed paragraph by paragraph, recorded a total membership of the Society of 1,071, an increase during the year of about 30 members. The income and expenditure account showed a deficit of £81 on the year, due to reduced takings at the exhibition from £847 in 1907 to £506 in 1908. A further reduction in the profit from the exhibition was due to expenditure in electrical work for the trade exhibitors. Although the exhibition was kept open six nights in the week as against three nights in previous years, the total cost was less by £55. A further item of increase in expenditure was that of £50 for house rent.

The discussion of the report, and particularly of the balance sheet and finance section, occupied the meeting until a late hour. Many of the questions put to the chairman were those which crop up with clockwork regularity on this occasion. In fact, a phonograph record of one such discussion might almost be substituted for what takes place at subsequent meetings without very greatly misrepresenting the actual proceedings, not excepting the comments of would-be professional humorists upon minor matters of grammar and propriety.

A good deal of discussion related to the opening of the Society's house on Saturday afternoons and evenings, but was met with the reply from the chairman that the council were unable to trace the existence of a demand for the use of the premises at these times consistent with the cost entailed in the way of extra staff. It was suggested that if light refreshments, such as tea and coffee and cigars were obtainable in the house an inducement to many people to join the Society would thereby be provided.

Regarding the annual exhibition, Mr. Hector Maclean again emphasised the desirability of a change of the selecting committee in the pictorial section. He thought that there should be a feeling among exhibitors that work of a more revolutionary character would be acceptable at the exhibition. He also strongly deprecated the acceptance at the last exhibition of proofs from coloured photogravure plates as well as hand-coloured photographs, such work being specifically named in the prospectus of the exhibition as ineligible.

Mr. C. P. Butler urged that on the ground of its educational value, particularly to workers in the country, the practice of naming the process by which each print was made might be revived.

Dr. Evershed, commenting on the report of the Library Committee, suggested that a regular appeal should be made for gifts of books to make good present deficiencies in the library. He thought that donations would be easily obtainable, and would save purchases in many instances.

A question having been asked as to the usefulness of the Affiliation, Mr. James A. Sinclair reminded the meeting of the great benefit done by the Society through the Affiliation, and equally to the benefit received by the society in the way of membership, support at the exhibition, etc., from members of affiliated societies. Mr. A. Mackie estimated that one-third of the present membership of the society was derived from the Affiliation.

In presenting the balance sheet, the treasurer, Mr. Leslie E. Clift, drew attention to revisions in the method of presenting many of the accounts whereby details of expenditure were more brought out separately, and the statement of accounts clearly benefits by these modifications. The treasurer dwelt upon several suggestions made during the earlier part of the evening, and then proceeded to point out, item by item, the details of the income and expenditure account.

The discussion of the society's position was raised from the sphere of accounts into that of finance by Mr. James A. Sinclair, who produced figures relating to the society's working for the past seven years, which clearly showed the present tendency of expense in several departments to rise considerably.

In reviewing the balance-sheet for the past year, he at the outset trusted his remarks would be considered as purely impersonal, for he had a keen appreciation of the work done by the Council and Officers of the Society. In comparing the balance-sheet with those which had preceded it during the past seven years, he was struck by the fact that the finances stood or fell by the result of the exhibition, whereas in the preceding periods, when the exhibition was invariably run at a loss, the Society had succeeded in making a profit. The exhibition was an important part of the Society's work, but he thought the object to be aimed at was to attain financial equi-

librium without the exhibition support, and that any profits from the exhibition should be devoted to other purposes. To show how the expenses had progressed, he pointed out that while the house account in 1902 was £431, and £410 in 1903, it had mounted up to £500 during the past year. Officers' salaries, which were £199 and £194 in 1902 and 1903 respectively, were £331 during the past year. He did not for the moment suggest that any of the officials were over-paid, nor that improper expenses had been incurred, but pointed out that these tendencies to increase had not been proportionate to the increase in the membership list.

Then with regard to the exhibition, general expenses in the cost of running had mounted up considerably—for example, in 1904 the cost of running was £660, the same amount in the following year, while in 1906 they were £784, £908 in 1907, and £893 during the past year. Having noted the tendencies, he thought it was time that the Society cried "Halt!" and possibly it would be desirable for a finance committee to consider these questions. There was only one remedy to this state of affairs—namely, to considerably increase the membership of the Society, and he would urge all those interested either in the art or science of photography to join the Society, not from any motive as to what they might get out of it, but simply that the Society should the better be enabled to work for the advancement of photography.

The figures were roughly as follows:—

Year.	Membership.	Office Salaries.		House Acc.	Light, Fuel and Heat.		Library Expenses.
		£	£		£	£	
1902	895	199	431	54	29		
1903	950	194	410	50	28		
1904	972	262	415	53	18		
1905	955	290	426	64	14		
1906	1,007	311	418	75	15		
1907	1,044	313	449	75	29		
1908	1,077	331	500	92	23		

Year.	Annual Exhibition.			Result of Year's Working.	
	Takings.	Cost.	Profit.	Including Exhibition.	Apart from Exhibition.
				£	£
1902	865	730	135	+ 156	+ 21
1903	831	697	134	+ 121	- 13
1904	696	660	36	- 94	- 129
1905	827	660	167	+ 92	- 74
1906	891	784	107	- 94	- 200
1907	1,197	908	288	+ 171	- 109
1908	925	893	31	- 81	- 112

Mr. Memory referred to the "loss" on the Journal. He thought that the Society should take steps to produce "The Photographic Journal" at a profit.

The Treasurer pointed out that the Journal was the organ of the Society's proceedings and was practically the only benefit which members of the Society in the country obtained. The cost of the Journal per member had been reduced by one shilling during the past year.

Mr. John H. Gear suggested that a first step in economy by the Society might be the discontinuance of refreshments after the meetings, the present cost of which was £25 per annum. Votes of thanks to the Council and Officers of the Society concluded the discussion, and the report of the scrutineers of the ballot was then announced as follows:—

President.

J. C. S. Mummery, A.R.I.B.A.

Vice-Presidents.

Sir W. de W. Abney.

Sir Joseph W. Swan.

The Right Hon. The Earl of Crawford. Major-Gen. J. Waterhouse.

Honorary Treasurer.

Leslie E. Clift.

Ordinary Members of Council.

T. Thorne Baker.	Furley Lewis.
A. W. W. Bartlett.	Hector Maclean.
Douglas English.	Ernest Marriage.
A. R. F. Evershed.	F. Martin-Duncan.
W. B. Ferguson.	C. E. Kenneth Mees.
T. E. Freshwater.	F. J. Mortimer.
John H. Gear.	C. Welborne Piper.
E. T. Holding.	E. Sanger-Shepherd.
G. Lindsay Johnson.	H. Snowden Ward.
Rev. F. C. Lambert.	B. Gay Wilkinson.

The president announced the award of the Progress Medal to MM. Lumière et ses Fils for their discovery of the Autochrome plate and their photo-chemical researches. A note by Major-Gen. Waterhouse describing the rise of the Lumière factory was read. Mr. T. K. Grant in accepting the award on behalf of MM. Lumière said

he was desired to express to the Society the honour which M. Lumière felt to be done them and the interest which they took in the Royal Photographic Society.

HEREFORDSHIRE PHOTOGRAPHIC SOCIETY.—The annual competition for the Pilley Cup, in connection with the Herefordshire Photographic Society, has just taken place, the award being announced this week. Mr. J. T. Ashby was the judge. There were sixteen prints, as against 34 last year sent in, and the work all round was excellent. Mr. F. C. Pritchard won the cup with "A. September Evening," also an extra award given by Mr. Page, Broad Street, Hereford; and Mr. Sinclair was awarded the cup given for the best print of a competitor who had never before won a prize. The Pilley Cup is given by the president, Mr. Councillor W. Pilley. Entries for the Blake Cup closed March 31.

SOUTHAMPTON CAMERA CLUB.—Mr Harold Baker gave an illustrated lecture on the History of English Architecture before the Southampton Camera Club last Monday evening. Mr. Baker introduced his subject by mentioning the features of English Gothic architecture from the earliest Saxon period, and described in detail the transitional characteristics of the Early English style, the Decorated and the Perpendicular. The lecturer then described and illustrated with numerous excellent slides the construction of the Saxon and Norman architectural features. The former was recognised chiefly by a triangular head to the windows, formed by two stones leaning against one another, and the latter generally was round-headed and enriched with a great variety of ornament. He then described the gradual development of the Early English architecture, and contrasted the lightness of the masonry compared with the massive Norman period, and stated that the comparative simplicity of the style did not present the complicated problems of the later work and the skill in the masonry of the thirteenth century work has never been surpassed. Mr. Baker then referred to the Decorative period and gave an interesting account showing how the development occurred, chiefly by illustrations of tracery work and the elaboration in the carving, which, in his opinion, was usually too overcrowded for good general effect. The Perpendicular style was fully described and many hints were mentioned which would enable the architect or student to recognise the various styles of Gothic architecture. The lecture throughout was most interesting, and the series of slides illustrated not only ecclesiastical buildings, but proved that secular buildings of the different periods possessed similar developments in their design.

Commercial & Legal Intelligence

LEGAL NOTICES.—The partnership subsisting between Walter Briggs and William Edward Watkins, photographers, 27, Cannon Street, Bristol, has been dissolved by mutual consent from the 2nd day of January, 1909. All debts due and owing by the late partner will be received and paid by Walter Briggs.

A first and final dividend of 1s. 3½d. in the £1 is to be paid to creditors of Arthur Joseph Anderson, photographer, ect., 37, Wellington Street, Luton, 36, High Town Road, Luton, and 7, High Street, Leighton Buzzard, Beds.

A PICTURE POSTCARD DISPUTE.—At the Clerkenwell County Court last week a claim in respect of picture postcards supplied and brought by Messrs. Hildesheimer and Co., Ltd., fine art publishers, of 96, Clerkenwell Road, E.C., against Mr. Westbrook, stationer, 158, Uxbridge Road, for £2 15s. 6d.

Mr. Lewis, solicitor for the plaintiffs, said the amount claimed was the first instalment due upon an order given by the defendant for 6,000 local views of Shepherd's Bush. Photographs were taken and proofs submitted. Upon delivery being made defendant was saying the goods were not at all as ordered.

Plaintiff's manager of the picture postcard department gave evidence. Replying to defendant's solicitor, witness said that sample cards were produced to defendant at the time. Witness said he considered the colouring was equal in every sense to the sample cards. In his opinion the printing could not be improved upon. There was nothing unusual, said witness, in some picture postcards having margins. Defendant's order did not say the cards should be without margins.

you went to buy a set of six views would you expect some with in and some without?—I should not give it a moment's deration.

defendant said he would not consider them a set if some of the had margins and the others not. He complained that the cards nothing near the sample shown him. The colour throughout not good, and was out of register. He also complained of the ing.

parts were called on both sides. One said there was nothing al in margins; whilst the other said that picture postcards not acceptable to customers except with full plates.

vidence was given as to the details complained of in colouring printing.

s Honour found in favour of defendant.

MPANY PROMOTER'S BANKRUPTCY.—At the London Bankruptcy t last week the public examination of Sigurd Svern Bojesen, ibered under a creditor's petition as a company director, of 601, bury House, London Wall, E.C., was held. The statement of s showed total liabilities of £7,388 (£4,912 unsecured), and s valued at £1,585. He had been resident in England since

He promoted the De Foest Wireless Telegraph Syndicate, also the Amalgamated Radio-Telegraph Co., Ltd. He acted anaging director of the last-named company (which had recently into voluntary liquidation) until he resigned office in October,

During August, 1908, he promoted Kosmos Photographics, to acquire a secret process for preparing paper for photographic uses. He was also a director of that company, and undertook to de £1,500 for it as working capital, but was only able to find in consequence of which the business came to a standstill. He buted his insolvency to the liquidation of the Amalgamated o-Telegraph Co., Ltd. The examination was concluded.

News and Notes.

REFUMING POSTCARDS, ETC.—For this purpose (writes the armaceutical Journal") procure a tin with a tightly fitting lid—cut-box will do quite well. Place in the bottom a few pieces of bent cotton, moistened with the desired perfume, cover with uple of sheets of filter paper, then pile up the cards as loosely possible, put on the lid, and let stand over-night in a warm . For perfume, the following is recommended as being good almost inexhaustible:—Coumarin, 10 grains; vanilin, 10 grains; tropin, 10 grains; ionone, 10 minims; hyacinthin, 5 minims; ce of milk, 30 minims; otto of rose, 5 minims; alcohol, 1 fl. e. A suitable lilac perfume would be:—Terpeneol, 2 fl. ms; oil of lignaloe, 20 minims; oil of bergamot, 10 minims; tropin, 20 grains; alcohol, 2 fl. ounces.

E.R. MECHANICS' INSTITUTION, PHOTOGRAPHIC SECTION.—The enth annual exhibition will be held in the Mechanics' Institution, ford, on March 9 and 10. Mr. John H. Gear will officiate as e, and silver and bronze medals will be placed at his disposal ward in the open classes. Entries close February 27, on or e which date all forms, accompanied by the necessary fees, must to the hon. secretary, Mr. A. Woolford, 16, Grove Green Road, onstone, N.E. Exhibits entered for this exhibition and also ited at Ilford will be collected from the latter exhibition free arge to exhibitors.

ATES AND CAMERAS IN BRAZIL.—Mr. George A. Chamberlain, S.S. Consul at Pernambuco, Brazil, reports that some years ago ican cameras and plates received a fair share of the orders sent Pernambuco, but to-day they are almost totally supplanted by ean manufacturers. The market now appears to be controlled o European manufacturers, whose plates are remarkable for hard emulsion, and the consequent high temperature they can in treatment. The sale for cameras is at present almost limite- English and German makes. Printing-out paper is mostly sup- from England, but it has found a rival lately in German tions of American papers.

Answers to Correspondents.

PHOTOGRAPHS REGISTERED:—

H. Osguthorpe, 18, King Street, Spennymoor, Durham. *Photograph of the Rev Father Michael McNamara.*

W. T. Keable, Drewett's Studio, North Street, Guildford, Surrey. *Photograph Group of the Teams in the Corporation Rifle Match at Godalming, April 17, 1907, and Photograph, Ditto, at Guildford on May 15, 1907.*

DRAWING REGISTERED:—

P. Hickie, Trading as The Card House, 88, Lyndhurst Grove, S.E. *Drawing: John Bull in Sympathy with Italy over the Earthquake.*

GAINSBOROUGH.—Either that sold for the lamp or the "Agfa" powder is as good as you can have.

HATCHED BACKGROUNDS.—I saw a portrait the other day, printed in B. and W. (no doubt platinum), no photographic background behind the figure, but a few hatched lines put in by hand. The effect was just like a pencil drawing. Has a short article appeared upon how to do these, as I think I remember reading something in the "B.J." about a year or two ago? If so, will you refer me; or, if not, kindly say are these taken against a perfectly white background, or is the figure blocked out on negative (front or back) before printing? It was printed on a large piece of the platinum or bromide paper, and then plate-marked.—WEEDEE.

The white background may be obtained either by painting round the figure, or by taking it with a white, or very nearly white, background. If with the latter method the ground is not white enough, it may be masked in printing by a cut-out mask on the back of the negative. The latter method is the simpler of the two.

CHARLES WEAVER.—We doubt if a photograph will show you more than you can see with a good focussing magnifier applied direct to the painting. You might try full exposure on a panchromatic plate through a deep filter, such as the K₃ of Wratten.

NORMAN HART.—Probably any of the water-soluble black dyes. Better write to Messrs. Mawson and Swan, Newcastle-on-Tyne, who make a specialty of supplying dyes for photographic purposes.

BRADFORDIAN.—1. A few feet to the front. 2. There is some gain in light by using such a reflector, but not enough to compensate for the distracting effect on the sitter if, as is usually the case, it is not possible to completely cover the reflector. With two arcs you can use a diffusing screen if you need it without installing a reflector, or, if you do use the latter, having it of matt-white painted metal.

L. S.—Mix potass. chlorate and antimony sulphide (previously finely powdered separately) in equal parts, add French polish to make a thick cream, and apply evenly to paper. Dry without application of heat, and cut into strips about ¼ in. broad. Another way is to soak thin blotting-paper in solution of nitre (potass. nitrate) of about 10 per cent. strength for a few minutes and dry.

J. S.—We should like to see more detail in the high lights. The exposures, we should say, were rather too much, and the development overdone, thus losing the delicate effect of the hoar frost.

"P. B."—On the tablets of photographic chemicals often appears the initial letters "P. B." What words do these initials stand for, and what is their full meaning?—IGNORANT.

"P. B.," or "B. P.," as it is also written, stands for "British Pharmacopœia," and means that the particular variety of chemical is of the standard of purity described in this publication.

FOCAL LENGTH.—1. What is the easiest plan of obtaining the focus of a lens? One way, I think, is to focus an object, say, inch-rule, on the ground glass, the exact full size, remove the lens, and divide the distance from the object to the ground glass by four. Can this be used for any lens—portrait, landscape, or R.R.—and is it fairly correct? 2. Is the varnish given in current number a hot varnish? Must the negative be heated before and after?—WEEDEE.

1. The method is not quite exact. It is more accurate, after focussing an object same size as you suggest, to mark the position of the lens front on the baseboard, and then to rack in the lens until an object at a great distance (150 times the focal length) is in sharp focus on the ground glass. The distance which the lens requires to be racked inwards is the true focal length. Both methods are applicable to any type of lens. 2. Yes, hot.

CLARENCE.—We do not know a studio which works solely by

artificial light, but there are plenty in the West End of London which do a great deal of their work—*e.g.*, Court presentation portraits—solely by artificial light. We should say the lamps most generally in use are open or enclosed arcs.

INTENSIFYING BROMIDES.—Will you please let me know if there is any satisfactory way of intensifying bromides either before or after fixing? The case I would suggest is that of a 30 x 40 enlargement, somewhat under-exposed. In this case to be able to bring up such a picture to normal appearance would be an advantage rather than to be put to the necessity of duplicating.—L. T. J. H.

Silver intensification can be used:—

A. Pyro	1 part.
Citric acid	2 parts.
Distilled water	300 parts.
B. Silver nitrate	1 part.
Distilled water	50 parts.

Flow the print with solution A sufficient to cover it. Pour off A, and (to every 50 parts) add 20 to 40 parts of B. Return to the dish and rock until print is sufficiently intensified. Then wash well and immerse for a few minutes in a fixing bath, about 1 oz. to 10. The prints must be well fixed and washed before treatment to avoid stains. The chromium intensifier given on page 784 of the "Almanac" has answered excellently in our hands for bromide work, and gives a very good black colour, often an improvement on that of the print.

ENLARGING.—Will you oblige me by information where I could get a good book or books with instructions on bromide enlarging and finishing? I may say that I know little or nothing in that branch of photography.—BROMIDE.

"Practical Photographic Enlarging," by John A. Hodges (1s.); or "Photographic Enlargements: How to Make Them," by Geo. Wheeler (1s.). Your dealer can supply either of these books, and you can also obtain some useful free literature on enlarging from firms such as Houghtons Ltd., W. Butcher and Sons, and Wellington and Ward.

B. S. J.—Messrs. F. E. Jones and Co., 22, Gray's Inn Road, E.C. The material is called "Arras" cloth.

COPYRIGHT.—1. I have copyright photograph. Can a person make a copy for his own private house (not for sale or distribution) without infringing my copyright, and what action can I take if same has been done? 2. The Copyright Act, 1862, in paragraph 6, states: Without the consent of such proprietor repeat, copy, colourably imitate, or otherwise multiply for sale, hire, exhibition, or distribution, or cause, or procure to be repeated, etc. How are the words "repeat," "copy," "exhibition," defined? Is there any legal decision on this point?—COPYRIGHT.

1. He cannot, whatever and however private the purpose. Yours is the sole right to copy. 2. We do not see that it is necessary to define them. The words are explicit enough themselves. There have been some decisions as to what is and is not a copy, *e.g.*, it has been held that the copying of part only of a photograph is an infringement, as is also the re-drawing of a photograph by an artist even though the latter may greatly alter the details. We can best refer you to the article on "Photographic Copyright" in the "Almanac" of 1906. This particular point is dealt with on page 667.

PICTURE FRAMES.—1. Will you please inform me what kind of cramp or other apparatus is usually used in the picture frame making trade for holding the moulding while jointing, also where I can obtain such apparatus? I am thinking of taking up framing as a side line, but have no experience of the work. 2. Also can you suggest a dark green stain?—FRAMING.

1. Mitre cramps for the purpose may be had from any of the large tool shops. 2. As you have had no experience in the work we would advise you to use the ordinary wood stains as sold at the oil shops. They may be had of various colours and tints. Stephen's are as good as any.

CAMERAS AND TOOLS.—In forwarding herewith the pages of the railway coaching tariff, which concern with the rules of the excepted articles, I have to request you to let me know whether camera comes under the category of excepted articles or not. The railway companies, generally, when they want to save themselves from any responsibility, include cameras under the scientific instruments, while really they can be said to be work-

men's tools. Such cases must have already come in the British courts, and hence the request. Your quoting me any case which decision in such matters is given will highly oblige GANESH R. CHOCHÉ (Jodhpur).

We cannot call to mind any case that has come before a British court in which the question raised by our correspondent is involved. In England cameras and lenses would be classed scientific instruments and not as workmen's tools.

TRUE TO SCALE PROCESS.—I shall be glad if you can give me working formula for producing the "true to scale" prints of plans, etc. 2. Also name, if any, of the publishers of a book on this process, which I believe is a kind of photo-lithography.—PLANS.

There are no books published on the "true-to-scale" method which is worked as a secret process by several firms who produce engineering plans. The procedure is as follows:—An ordinary "blue" print is made from the tracing, and, without development is laid down upon a "jellygraph" composition spread on zinc exactly in the same way as a "Fektograph." The print must remain for more than a few seconds, and it is then lifted away. The graph is then rolled over with ordinary letterpress ink, applied with a composition roller, and paper or tracing cloth applied and rolled over in order to ensure good contact. On lifting there will be a print in black of the design on a white ground. Only a few prints can be taken, about fifteen at most. The following is a formula for the graph composition: Take 8oz. of glue, dissolve and make solution up to 16 oz. with water, take 1oz. of gelatin, dissolve, and make up to 2oz. with water, mix, and add ½oz. ferric sulphate and ½oz. glycerine. Strain, and pour warm on to level zinc. When set, the mass will be ready to lay plan down on.

F. E. G.—The Thames Plate Co., 254A, High Holborn, London, E.C.

SPOTS ON NEGATIVES, ETC.—(1) What is the cause of greenish spots coming on negatives within about a fortnight of taking same? (2) How to prevent and cure same. It would not pay to vary each negative. (3) How to get sepia tones on bromide. Do you recommend sulphide toning, and must it be freshly made? I have had some in stock for two months, and I have failed to get proper warm sepia tones.—MONFAB.

(1) We should like to see a negative before saying. (3) The ordinary formula in the "Almanac" (p. 809) will give good tones with almost all papers, but there are one or two papers which do not tone well with sulphide. Try changing your paper, and you cannot get on. The sulphide solution should not be longer than a few days.

MIBLON.—We cannot say. Naturally, the authorities must see to possible previous use of a word.

C. D. V. and others.—In our next.

A TEN YEARS READER.—It seems to us that your second agreement, though verbal, cancels the first. In your letter you do not make it clear whether your employer promised to make any deficit accruing from the "piece-work" arrangement up to the salary stated in the first agreement. If he did, you may recover that in the County Court. Anyhow, you can recover any arrears that may have been due to you at the time of the piece-work arrangement. We should advise you to consult a solicitor on the matter, showing him the original agreement, and explaining to him what was agreed upon when the piece-work arrangement was come to.

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SUMMARY.

The exhibition of photographs by Count von Gloeden representing scenes and Figures of the Coast near Messina” at the house of The British Journal of Photography” closes to-morrow at 12.30.

A paper read before the Sutton Photographic Club by Mr. Hector Maclean dealt in a popular way with the salient features of the emulsion, “Black Japine,” and “Ensyna” processes. (P. 136.)

An article in “Photo-Notes” by Mr. T. H. Greenall gives the working details for a control method of developing gaslight prints by means of which considerable latitude in exposure is secured. The prints are placed first in a highly restrained developer, and after a short immersion, transferred to a solution of eikonogen and developer without alkali. (P. 139.)

A camera for stereoscopic work in which the separation of lenses is automatically done as the camera is racked out when focussing has been worked out by the firm of Carl Zeiss. A paper by Dr. W. Scheffer describing its use appears on page 135.

Among the patents of the week is a process of emulsion-making, intended to produce a paper which may be either printed fully out or developed. A method of producing mosaic colour-screens of irregular grain by means of spherical particles of celluloid has been patented by Mr. Brasseur. (P. 145.)

The Italian Photographic Society is preparing an illustrated volume descriptive of the recent earthquake. The profits will be given to a fund being raised for the children who have been orphaned in the Sicilian disaster. The interest and help of British photographers and photographic societies are asked for. (P. 149.)

Some notes on the actual economy effected by the proper warming of the studio appear on page 134.

An American photographer has described a mirror accessory suitable for the making of firelight portraits by daylight. (P. 143.)

Our contemporary “Country Side” is making a strong advocacy of photographs of natural history subjects in preference to prepared specimens. (P. 134.)

The concluding portion of the eleventh Traill-Taylor lecture “On the Regulation of the Rays in Photographic Objectives,” by Dr. E. Wandersleb, appears on page 139.

EX CATHEDRA.

Dramatic Copyright and the Cinematograph. An article by Mr. W. S. M. Knight, barrister-at-law, in the current issue of our contemporary, the “Cinematograph and Lantern Weekly,” touches upon the

obviously anomalous position in which the law of copyright in cinematograph productions at present stands in this country. As the writer points out, none of the present Copyright Acts afford any protection to works of the “living picture” description, for the simple reason that the framers of these Acts did not foresee the invention of the animated photograph. Yet it does not seem as if there were universal freedom in regard to cinematographic films, for if we understand Mr. Knight correctly, the recent decisions of the International Copyright Conference when ratified, amount to this—that in this country the cinematograph film producers will be able to represent and reproduce the plays of British authors but not those of authors in the foreign countries which are parties to the Convention. International law so abounds in pitfalls that it is not discreet for a layman to expound it; but we imagine that, inversely, British dramatic works will enjoy protection from cinematographic infringement in the foreign countries subscribing to the Convention. In any case, the legal clouds which enshroud the rights of dramatic authors and living-picture showmen evidently need dispersal, and even then, as Mr. Knight points out, the recent decision of the Court of Appeal has laid down that so long as the manufacturer confines himself to manufacturing and selling in the ordinary course of trade to the exhibitors, neither he nor the exhibitors can be restrained from representing a copyright drama, even though the representation should actually amount to a legal infringement of the copyright.

* * *

An Automatic Stereoscopic Camera. On December 11, 1908, we had a note in this column suggesting the possibilities of a stereoscopic camera, arranged

so that the adjustable front should automatically adjust the separation of the lenses to the distance of the object. At the time we had no thought that this idea was actually being worked out, though a little more consideration might have suggested to us that somebody had probably thought of it already, and that that somebody would probably be found at the Zeiss Works. From the article by Dr. W. Scheffer, on another page, it will be seen that this was the actual state of affairs. Such a camera has been in experimental use for a year or more, and is now perfected. It will be seen that with this new camera it is possible to produce full-size stereoscopic images, which means that the camera must be well adapted to all the purposes of scientific stereoscopic photography. In this case there will

be less excuse than ever for the neglect of the stereoscopic camera in scientific work, and it is to be hoped also that the movement will be obtainable in popularly priced stereoscopic cameras.

Telephoto Optics.

A very interesting point in Dr. Wandersleb's Traill-Taylor lecture, to which we did not make reference last week, is the description of the effects of keeping a constant distance between plate and negative lens when using the telephoto lens. It is shown that even though focussing alters the true focal length of the whole combination, yet we can consider it to have preserved its focal length for infinity and treat it as equivalent to a rectilinear of that same power. From this it is apparent that a lens of the telephoto type, when used on a near object, may be exactly equivalent in action to another lens of quite different focal length. This fact was pointed out between seven and eight years ago in one of the English photographic journals in connection with lenses of the "landscape" variety, and is therefore not a new fact. Possibly it may some day be developed and lead to a further simplification of our conception of the manner in which photographic lenses work.

The "New Collecting."

Under this title Mr. E. Kay Robinson, in the "Country Side," is strongly impressing upon naturalists the greater value of the collection of photographs compared with that of preserved or stuffed specimens. Apart from humanitarian considerations, a series of photographs from life is declared to be of greater educational value than a collection of specimens. Unlike a set of specimens, an album of photographs becomes more valuable as a result of each new exposure is added. The naturalist need not be his own photographer, though it is easy enough for him to be. The opportunities for the purchase and exchange of photographs are now so great that the intimate knowledge of the life-history of an animal or plant to be acquired by photography as by no other means is at the disposal even of those not sufficiently skilled in the use of the camera. To those, on the other hand, who would find new fields of interesting work for themselves and their camera, the pages of our contemporary may be recommended for information and inspiration.

The Trimming of Stereoscopic Prints.

On several occasions we have drawn attention to the importance of correctly trimming stereoscopic prints before mounting, but when talking over the matter with practical workers we have often heard the opinion expressed that, after all, precise trimming by rule is not of much consequence, as the fault is generally imperceptible. This is, however, an altogether mistaken view to take. It is true that in some cases the fault is imperceptible unless specially looked for; but this is not the only point. The loss of the effect produced by good trimming is the defect in such cases, and this has of late been very forcibly impressed upon us by the inspection of some hundreds of slides, both commercial and competitive. In many of these it was obvious that great care had been exercised in the trimming operation, and every advantage taken of the possibilities afforded by judicious treatment. In quite a number of cases very striking results were produced with quite ordinary subjects, these effects being almost entirely due to trimming. In other cases the trimming had been neglected, and good subjects were thus allowed to give results that were some way short of being perfect. In bad cases the fault is rendered obvious by the blurred and indefinite effects produced at the margins of the prints; but it is easy to avoid this defect and yet trim improperly. Sometimes an object that obviously should

appear to be behind the mount, is seen partly in front of it, and in others, objects that might with advantage be represented as in front of the mount are seen behind. The trimming should be regulated by the subject. A hard and fast rule is applicable, and each subject should be considered individually.

HEATING THE STUDIO.

THE public have, as a rule, the firm impression that a photographer's operating-room (horrible name) is a comfortable place. This belief is not without a basis of sound reason, and does not do much credit to the foresight of those members of the profession responsible for it. The other morning a lady said to a photographer, "I was afraid to bring my little girl this morning. I expected with this glass you would be very cold, and last time she got such a chill at Mr. So-and-So's." If that does not expose a penny-wise and pound-foolish policy we do not know what does. Taking it all round, however, the proper heating of the principal apartment does present difficulties. The size is not the only one; the general draughtiness and slight partition from the outside air have also to be considered. Moreover, economy of fuel and even distribution of heat should be taken into account. An open fire is not only unduly wasteful of fuel, giving the minimum of heat for the maximum of coal consumption, but it is also the least effective and dirtiest method of utilising fuel. Certainly it is the most homely and pleasant in appearance, and for a few yards round the heat is more easily felt, but outside this radius the air is practically cold. Certainly the newer grates are much more effective than the old-fashioned sorts, and if you must have an open fire, one of the new models will pay for themselves and their fixtures in a very short time, owing to their economy. The appearance, too, is better. A gentleman told us the other day that at his country seat they used to burn 100 tons of coal a year in the old-fashioned grates, but were able to reduce it to fifty when every grate had been replaced by a modern form.

After various trials we have come to the rather obvious conclusion that enclosed stoves are undoubtedly the most efficient apparatus for the generation of heat from coal or coke. Unfortunately, there has been, until within a year or two, a dearth of patterns that were admirable, both from the point of view of utility and appearance. This is the more surprising since the stoves seen in Continental houses, especially in Holland, are really handsome. There are now, however, some fine designs obtainable from English ironmongers, and it is really worth while to spend an extra pound or two on a well-designed stove. A studio we visited recently, although filled with handsome furniture and fine wall-hangings, was absolutely spoiled by the workshop appearance of an ordinary tubular stove combustion stove. Moreover, the pipe, which went straight up through the roof, was decidedly out of the perpendicular and very rusty. This pipe, although adding greatly to the heat of the room, might well be shortened and taken straight back into a flue. If there is no provision made for a fire-grate, and this is quite a usual oversight in studios, it will usually be practicable to break into one of the house flues; the draught will prevent smoke from the other fire entering the studio.

It is economy to get a large-sized stove, for then the fire can be kept in all night, really the only wise course. It may appear a waste of fuel, but a little experiment will prove that in reality it is a saving. Instead of having a large, fiercely burning fire in the morning to raise the temperature as quickly as possible, quite a small one will more effectively keep the air at an equable temperature as long as the room is never allowed to sink to that of

side air. Not only is the time of lighting saved, but assistants can proceed to work at once. Retouchers cannot possibly do good work if they are numbed with cold, and means a good hour wasted if they wait until the place is "aired," so to speak. Moreover, "once cold, cold until next time" is the rule.

There appears to be some doubt with regard to the best method of controlling the burning of a stove, and whilst it must use common-sense to avoid putting the fire out together, it will be found that a valve in the flue can be closed with in the case of the majority of stoves. An arrangement that suits one stove will not suit another; but, generally speaking, with the top door closed and the bottom door full open, the stove gives the greatest heat and quickest combustion, which latter are varied to almost any extent by closing the bottom door more or less. Further control is given by opening the top door, whilst the slowest burning of all is achieved by opening the top door and closing

the bottom entirely. By doing this with one stove we had, we were able to use only two buckets of coke in twenty-four hours. The same stove lit each morning and allowed to die out consumed half a bucket of coal and three of coke, with the result that the temperature constantly varied.

It is advisable for a short time each morning to allow a strong current of cold fresh air to blow through the room, otherwise the air becomes too dry and stale for comfort.

It is unnecessary to itemise the many forms of closed stoves which are obtainable, but the reader may be given the names of three firms making a specialty of this class of apparatus, among which he should be able to select a suitable article. These firms are Smith and Wellstood, Ludgate Circus, London, E.C.; the London Heating and Ventilating Company, Newman Street, London, W.; and the Anthracite Stove Company, Horton Lane, Bradford.

FOCUSsing AND SEPARATION OF THE LENSES IN A STEREOSCOPIC CAMERA BY ONE AUTOMATIC MOVEMENT.

(A Paper in "Photographische Rundschau.")

When using an ordinary stereoscopic camera provided with sufficient long extension and a fixed distance between the lenses, it is found, when focussing upon near objects, that the point of subject common to the two pictures becomes less and less as the camera is to the object. In the special case of photographing a subject same size with a distance between the lenses equal to half the long side of the plate, it will be found that no part of the subject which occurs in one plate will be found in the other. By diminishing the distance between the lenses it is possible to obtain once again an amount of the

extremities of these levers move in a pair of straight grooves inclined at an angle to each other, as plainly shown in the drawing, the grooves being made in metal and fixed in the ordinary baseboard of the camera. The further the lens-board is racked out from the ground glass, the further the lower extremities of the levers are separated from each other, and therefore the nearer the lenses are brought together. This is seen very plainly in Fig. 2.

The arrangement possesses such range that it permits of objects being photographed same size, whereas it is just as

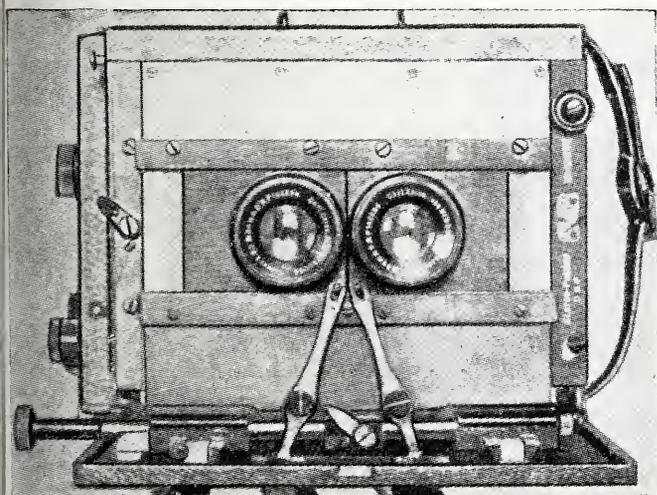


Fig. 1.
Showing the camera when set for stereoscopic negative of object, same size.

subject in both pictures. A very little consideration shows that it is possible by means of the same movement, which controls the movement of the lenses to and fro from the ground glass, also to adjust the correct distance between the lenses. There is thus provided an automatic adjustment, and the photographer has nothing more to do than to focus in the usual way. Such an arrangement was made as an experimental model more than a year ago in the Zeiss Works, and has been fully tested in a practical way by the present writer. The arrangement is shown in Fig. 1. The two stereoscopic lenses are placed on sliding panels, each connected to a two-armed lever. The lower

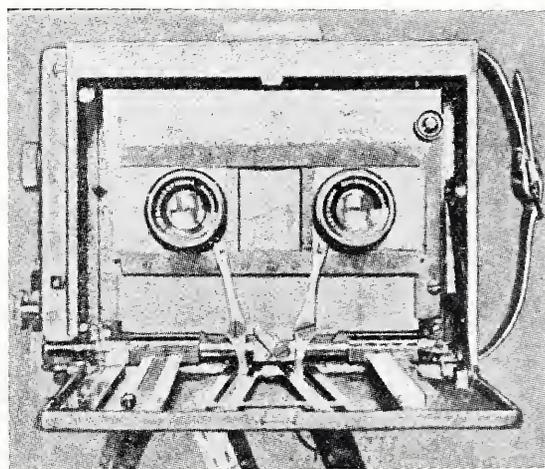


Fig. 2.
Showing the camera set for distant objects.

suitable as any other stereoscopic camera when working on distant objects. In this latter case the two lower extremities of the levers are together, and the lenses are therefore far apart (Fig. 1). The form of the above-described mechanism has been designed in order that the stereoscopic board and the lever adjustment may be embodied without further alteration in the well-known "Stereo Palms" Zeiss camera. The experiments with the first model, which was attached to a "Stereo Palms" camera, which had already been some time in use, were commenced about eighteen months ago. During this time more than 300 exposures of living insects have been made on a scale

from one-third up to natural size, and neither the adjustment for near object exposures nor any other part of the apparatus has failed. As this total number of exposures had to be made during a relatively short period during the two past summers, the total period during which the exposures were going on was about five weeks only. These particular subjects were chosen since they appeared to offer special difficulties, and for the reason also that such work calls for the greatest possible range of movements in the apparatus.

A proportion of the exposures were made with the camera on a stand, and I would here mention that the Stegemann four-legged stand with sliding head has proved extremely useful for this class of work. In spite of extraordinarily severe use, the stand is still in thorough working order, and in as good action to-day as on the first day it was used. The photography of

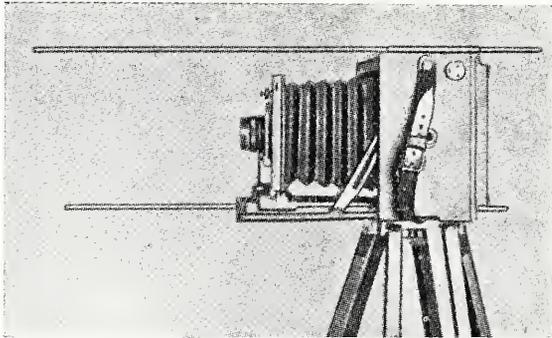


Fig. 3.

Showing camera set for reproduction, same size.

living insects requires a stand with a great degree of adjustability. It frequently happens that one subject has to be focussed from a point directly above it, whilst another requires the camera to be pointed upwards, or one has to focus an insect which may be clinging to the under side of a leaf, and it is also a prime condition that the adjustment should be made in the shortest space of time. To all these requirements the above-mentioned stand has absolutely answered.

In other cases a stand exposure was not possible, and under these conditions the arrangement shown in Figs. 3 and 4 was employed, and was found, for very near objects, more convenient than a reflex camera. It is in preparation for appearance on the market. The corresponding body of the camera is marked in three places, 1:1, 1:½, 1:⅓. On the upper left and lower

right-hand corners of the camera a metal groove is fixed which a steel rod can move. On these rods, marks corresponding to the 1:1, 1:½, and 1:⅓ markings on the body of camera are made, and the photographer, therefore, has nothing further to do than to bring the focussing adjustment and marks on the rods into correspondence. The camera is held so that the object being photographed lies exactly between the rods. The image will then be sharp and the object will lie in the centre of the image. This arrangement can also be applied to any of the "Palmos" stereoscopic cameras provided at same time it has an automatic lens board. Its use is, of course, somewhat limited; but in photographing such subjects as small insects, etc., it is preferable to a reflex camera, since the moving insect can be much better followed as it flies from place to place. In the case of the reflex camera, as soon as

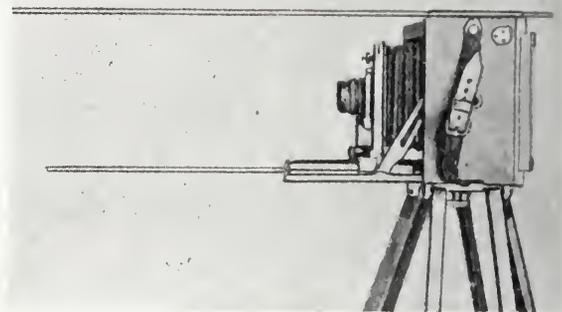


Fig. 4.

Showing the camera set for focus half scale.

object is out of the field a good deal of trouble must be got through in the way of focussing again, whilst in the case of the above-described arrangement, apart from the fixed focus, the handiness of the arrangement is preferable. Some would make an objection that the rods will frighten the insect, but a large number of successful exposures have shown that such fear need not be entertained. Even the timid dragon-fly can be photographed in this way without difficulty; in fact, the working of the apparatus shows that it provides accessory means to such work as this, and those who have once experienced the special charm of such exposures will wonder that an instrument of this kind has not been constructed long before. The prints from the negatives are best examined in the Zeiss "Verant" stereoscope.

DR. W. SCHEFFER.

THREE NEW POPULAR PRINTING PROCESSES.

(A paper read by Hector Maclean, F.R.P.S., at the Sutton Photographic Club on February 12, 1909.)

THE lecture which follows may be considered as an amplification of three others which I have already delivered at this club on various printing processes.

For instance, in my lecture of January 5, 1905, on "Photography with Chromium," I explained in some detail the theory and practice of the oil pigment process, and on two other occasions demonstrated the charming possibilities of and recent improvements in the platinotype processes; so that when to-night I make reference to the Bromoil or to the Black Japine process, I feel that it will not be necessary to go right back to the elementary bases of either of them.

What I propose doing this evening is to first give you a general idea of the Bromoil, next of the new Black Japine, and finally of the Ensyna process; and, as far as time will permit, I shall practically demonstrate the manipulations which are called for.

"Bromoil."

It will be remembered by some of you that the oil pigment process is due to the *direct* action of light on gelatine, sensitised with

bichromate of potassium, so that where much light falls the film absorbs but little water, and where little light falls the gelatine absorbs a larger proportion of the water. In this way the different opacities of a negative become registered, and incidentally, at the same time, the image swells up.

In the case of Bromoil a similar condition of the gelatine film is set up by the *indirect* action of light. That is to say, an ordinary bromide print, if bleached by a suitable mixture containing potassium bichromate, potassium bromide, potassium ferricyanide, alum, citric acid and water, and then treated with an acid bath, will assume a similar condition to that of an oil pigment print as regards its selective action in taking or repelling ink.

It may be well to here shortly outline what are the essential procedures for making a bromoil print ready for pigmentation.

Firstly: A good bromide print should be secured. For this purpose a smooth matt paper and a dilute amidol developer should be chosen. One of the easiest papers to employ is that known as "Bromoil" paper specially made by Griffin; but most ordinary papers—if of the smooth matt surface variety—will answer. T

should be freshly made—the fresher the better—say not than a week before it is bleached. It should be fixed in a fresh bath of plain hypo and then washed.

Secondly: The print, when quite dry, is bleached. Several alternative but similar mixtures have been proposed and used, as good as any is Griffin's "Bromoil" solution diluted with parts of water. In this, the bleaching takes about three

Thirdly: A short wash in water is given to remove the yellow

Fourthly: The print is placed for six minutes in sufficient quantities of pure sulphuric acid, 1 oz.; water, 1 pint; at a temperature of about 65 deg. F.

Fifthly: It is washed and fixed in hypo, 2 oz.; sodium sulphite, 20 oz.; water, 20 oz.; and again washed for five minutes.

The bleaching and after operations can be carried out in daylight. The print is now ready for pigmenting.

Pigmenting.

Shortly put, this procedure is as follows: The wet print is placed on a pad of wet blotting paper and the surface moisture removed with the image with a pad of butter muslin; or by any other convenient means.

The ink, which should be a stiff sample, is then dabbed on with a large brush until the whole of the print shows its image in rough. The print is then gone over with ink that has been mixed with Roberson's (or some other) medium. Mr. Mortimer recommends that a quiet "smudging" action of the brush should be adopted. While higher lights and half-tones may be lightened by employing a hopping action of a brush which has hardly any weight in it, the heavier shadows cannot, with advantage, be much lightened. These include all the essential procedures. Of variations and refinements there are no end. For such, amateurs are referred to various books and articles on the process. Of the latter, "The Oil and Bromoil Processes," by Mortimer and Coulter, and "How to make Oil and Bromoil Prints," published by the same author, are the most useful.

The pigments in the pots (Sinclair) are recommended in that they possess more body than do the tube colours.

When a thinner pigment is required tube colours may be used, but a yet thinner pigment is attained by the addition of the medium (Roberson's).

As for brushes, probably the most useful is the "Pole Cat," one with a bevelled edge supplied by Sinclair. The small brushes are used for "detail" work. Another pattern brush which has an adjustable spring for controlling its touch is that made by Griffin's from the design of Mr. Mortimer. The "hopper" is a device—which, however, is not a necessity—for quickly performing the operation known as hopping, i.e., giving the image a rapid succession of perpendicular touches with a brush having a level finish.

With the time at my disposal this evening I cannot go into further details, but suggest that those to whom this elastic method of making pictures on a photographic basis appeals should acquire a practical acquaintance with its procedure, so that if on an early occasion I or another member were to go more fully into the niceties of the process, they would be able to appreciate the points brought to their notice. Let me add that although a good many oil prints are characterised by vigour and freshness and at times coarseness, the process may be made to give much refinement of image. An example of this was shown only a few days ago by Mr. Gower, of Croydon, who had made a print of some old iron work for the Surrey record which contained a large amount of minute detail.

Black Japine Platinotype.

Although the bromoil process is deservedly popular for the production of what are termed personal impressions, and although it is fully and sympathetically used it is capable of producing effects of great beauty and sometimes of greater truth than might otherwise result from a purely photographic record, many will always regard it as a hindrance rather than a help, inasmuch as it makes a heavy demand upon the manual and constructive abilities of the amateur. With the great majority the charm and the supreme advantage of photography are that it will, without any artistic interference of Mr. Bernard Shaw's "clumsy hand of man," produce results which, for subtlety of tonal rendering, combined with

accuracy of drawing and infinity of detail, no brush-made or pencil-drawn picture can rival. Those who have this feeling strongly developed will never greatly care for such hybrid processes as the bromoil. For the benefit of this class of amateurs, who pin their faith on pure photography, I now draw attention to a new variety of what I think may be still termed the premier printing process—viz., platinotype, a process which, it should be remembered, has been chosen by many of the most able and distinguished workers for producing their best exhibition pictures. Hinton, Gale, Evans, Coburn—many of the leaders of the American school—and scores of other equally clever amateurs have found this process has done more justice to their conceptions than all the other ones put together.

But outside the inner circle of pictorialists there has always been a feeling that platinotype included just a little too much mystery and breadth. It had a knack of converting excessive sharpness of definition into a slightly softened rendering. This longing on the part of amateurs for more detail was, as you may remember, gratified about a couple of years ago by the introduction of the Japine platinotype process, which, at the time, I fully explained and demonstrated at a meeting of this club. The process in question produced juicy prints of great beauty and of a colour resembling Vandyke brown. This was exceedingly useful for a very large proportion of prints. But there undoubtedly remained many subjects which could not be adequately rendered in any colour but black. Even if this were not the case, the fact remains that a considerable proportion of people much prefer a black to a brown print. The former is certainly more vigorous than the latter, because black is more intensely dark than is brown. A few months ago the Platinotype Company placed at the disposal of the photographic community a new variety of Japine paper, which, while in other respects the same as the original make, produces a black image instead of a brown one. Without attempting to describe the operations involved in platinotype printing, I will now show you some examples which illustrate the differences in appearance between an ordinary and a Japine-black platinotype. As is the case with brown Japine, the development of black Japine is not so rapidly performed as with ordinary black paper.

The bath used is, however, the same, and the temperature is merely the normal one. By this I mean that the developing solution should not be less than 60deg. F.—it may considerably exceed this. So far as I am aware, the ordinary oxalate developer may be employed, but I have always found that the best results are obtained by using the special platinotype salts sold for the purpose by the Platinotype Company. A carton of these, costing a few pence, is dissolved in 48oz. of water. As regards the average amateur, with care this is enough to develop all his prints for a year, as the developing solution may be used over and over again. The best way to make it go as far as possible is to have two bottles, one for the above stock solution and the other for the used one.

When the latter has been in use it is poured back into its bottle, and the waste which has been caused by the absorptions of developer by the prints, and by other casual causes, is made up by adding an equivalent volume from the stock solution. The fixing—which are in reality clearing—baths consist of hydrochloric acid of a strength of one to sixty of water. A few minutes in three of such baths, followed by a slight wash in plain water, complete the operations.

Ensyna.

I now come to the third of the important printing processes which have been brought out during the past year. It is one which seems quite likely to become exceedingly popular, as you will probably agree when you have heard and seen what I am about to bring to your notice.

"Ensyna" is the outcome of a long series of attempts which have in past years been made to discover a means whereby a short exposure of P.O.P. could be developed, by means of a suitable developer, into an image of full strength and of satisfactory colour.

It is now several years since various means have been suggested for effecting this. One method adopted was to "bromise" the weakly printed P.O.P. and then build up the image by aid of a modified developer of hydroquinone, the resulting print being subsequently toned by means of gold chloride. This proved to be in practice uncertain and unsatisfactory. Subsequently various patent or secret developing solutions were brought out, of which the best

remembered was known as synoloids. This produced with P.O.P. a fairly satisfactory series of tones, but was very prone to blacken or darken the back of the paper, and it was altogether a dirty working solution, which, moreover, did not act with the same success with all makes of P.O.P. Anyhow, it failed to catch on.

"Ensyna" scores because, in addition to being developed with what may be termed an improved synoloid mixture, the paper itself has been expressly devised for being easily impressed with a more or less invisible image, which is readily made visible by means of the special developer sold for the purpose under the name of "Ensynoids." The special characteristic of Ensyna is that the main ingredient in its preparation is a phosphate of silver, and the chief peculiarity of the paper is that it produces the finished picture by what is termed "physical," as opposed to "chemical," development. That is to say, the faint, often imperceptible, image on the paper, which is presumably of pure silver, is built up by the deposition upon it of silver molecules which the reducer deposits. There is apparently no silver in the reducing solution, but the free phosphate of silver in the paper, being soluble in the developer, is washed out and is then in a condition to be deposited on the faint image, this deposition being inversely proportional to the densities of the negative which has been used to print from. In bromide development the action which takes place is distinctly different. What happens is that wherever light has fallen the pale molecules of silver bromide are decomposed by the developer, bromide being liberated and more or less pure silver molecules of a dark colour left behind in the gelatine film. These molecules are distributed right through the gelatine film, so that development is somewhat retarded by the time occupied for the solution to permeate the film. In a similar way fixing and washing require much time and care.

With Ensyna the conditions are very different. To commence with, the image is practically what is known as a surface one; secondly, as the developer dissolves nearly all the free silver (*i.e.*, that which has been unacted on by light), it follows that there is not much left in the paper for the hypo to remove, hence about one minute of a weak fixing bath is considered to be ample. The hypo being used for so short a time and in so weak a solution, it naturally follows that the amount of washing called for will be proportionately reducible. As a matter of practice, four minutes in running water is considered to be amply sufficient. From the foregoing particulars it will be realised that Ensyna has several points in its favour. The image is on the surface of the film, and is, or should be, for that reason more brilliant, and should exhibit greater detail than if it were partially embedded under layers of gelatine; the development being a physical one, it is reasonable to expect that the silver which is deposited is the pure metal, uncontaminated by any more or less obscure compounds of silver, and, for the reasons adduced, the whole of the operations are much more quickly completed than are similar operations with other kinds of gelatine and silver papers. Roughly speaking, six minutes may be considered an average time within which a print may be made ready for mounting. This in itself places the process far ahead of any other silver printing method, as regards the saving of time and trouble. But the most conspicuous advantages of the paper remain to be described. These are the rapidity with which it can be printed by means of almost any kind of light, either daylight or one of the innumerable forms of artificial light, and the possession in an unusual degree of that valuable characteristic known as "latitude of exposure." What this advantage means all who are accustomed to bromide, or gaslight, or platinotype printing, will understand. With either of the first two of the above-named papers it is well known that, unless

the exposure is very nearly right, it is impossible to obtain a satisfactory print. Over or under-development will make the result of a bad job, but after all the resulting picture falls short of what it might, and should, be. With Ensyna, provided that not less than the minimum of exposure is given, and that a fairly good negative is used, there is an exceedingly wide range of error permissible. For instance, I made three prints in succession from one negative under the following conditions. In each case the light was from an incandescent gas burner, and the distance at which the printing frame was placed was twelve inches. Print No. 1 had thirty seconds, No. 2 had one minute, and No. 3 had two minutes. They were all three developed in a normal developer (Ensynoid) and each one produced a fully satisfactory print, in which the variations were almost identical. The only difference between them was of colour. Thus Print 1 was a cold black, Print 2 a cool sepia, Print 3 a warm brown. It should be added that the shorter exposure the longer was the time needed in order to complete development.

This latitude is, I consider, of inestimable value, because it saves an enormous proportion of what would otherwise prove "waste." On the other hand, where pictorial need demands that a print should be of a particular colour, or "tone," it is a great convenience to be able to get this by merely increasing or decreasing the exposure. It is, however, only right to say that this variation in colour may at times be somewhat embarrassing, as, for instance, when printing several dozens of negatives, the prints from which it is desired to show as a series in an album or otherwise. At the same time, in a little practice, it should not prove difficult to ensure that the prints are practically identical in their colour, and should a print develop up too warm or too cold, by decreasing or increasing the exposure it should be easy to get right at the second time of asking. Reverting to the question of latitude of exposure, let me draw attention to some remarkable experiments, described by Mr. Thorvald Bolas in the "Amateur Photographer" of December 29, 1908, the course of which he states that, if the minimum exposure for a cold black print be five seconds, an exposure of five minutes will yield an equally good print of a warm brown colour; that is to say, the exposure in the one case is sixty times as long as in the other. Furthermore, the exposure may be increased to five hours, and yet a passable print may be obtained provided the print be washed before development, and that the developing solution be diluted with two or three times its volume of water.

Before concluding these notes it may be helpful to those who go to Ensyna a trial to add that, although Messrs. Houghtons Ltd. advise that the special fixing bath that they provide should be used, there appears to be no insuperable reason why a clear plain solution of hypo, of three ounces to the pint of water, should not be employed, or an acid fixing bath of similar strength. By all means use the makers' materials, if you can; but it must frequently happen, in out-of-the-way parts, that such items as the special Ensyna fixing bath may be unattainable.

The Ensyna print is complete when it leaves the washing water. At the same time, should it be thought desirable to alter the colour, there is nothing to prevent one from toning a print in an ordinary gold and sulphocyanide bath; or, for aught I know to the contrary, in any other of the baths usually employed for toning P.O.P.

Much more might be added respecting the variations in procedure which are possible with this paper, on which point I must have more to communicate on a future occasion.

HECTOR MACLEAN, F.R.P.S.

THE LONDON STUDIO has removed to 111, Shoe Lane, E.C., where they are in full working order. The telephone numbers are, as heretofore, 1,706 Holborn and 12,269 Central.

THE DALZIEL FOUNDRY, LTD., 2A, Plough Court, Fetter Lane, E.C., has issued a very good piece of advertising literature (the work of Mr. Frank Colebrooke) in the shape of a journal (price, "H'm, How much have you got?") entitled "Dalziel and the Dalsprites." It contains some very clever illustrations in colour by Mr. Dudley Ward, and cannot help fixing the merits of Dalziel stereos in the reader's mind.

SUTER LENSES.—Messrs. A. E. Staley and Co., 19, Thavies Inn Lane, London, E.C., inform us that they have completed arrangements with the firm of E. Suter, of Bâle, manufacturer of anastigmat lenses and high-class optical instruments, to represent him entirely for England and the colonies. The lenses made by Suter hold a very high position in the trade on the Continent, but the representation in England up to the present time has not been carried on to any extent, and it is Messrs. Staley's intention to put these lenses and to try and make a good position for them in the trade here. An English catalogue will be ready shortly.

CONTROL IN DEVELOPING GASLIGHT PRINTS.

[The following article, by Mr. T. H. Greenall, in the current issue of "Photo-Notes," calls forth from the Editor of our contemporary, Mr. C. Welborne Piper, the following comments: "It has, of course, always been known that a long exposure and a well restrained developer will produce warm tones. There is nothing new in this, but the system of tentative development adopted by Mr. Greenall permits us to turn this fact to account in the case of unintentionally over-exposed prints, and the method of control thus obtained certainly seems to be new and valuable. In the case of a number of specimens submitted to us by the author, with the article, the results produced on 'Rotox' postcards are scarcely distinguishable. The range of exposure is from 20 to 90 seconds at 10in. from an incandescent gas burner. The difference between the extreme exposures is one of colour only, and the variation is so slight that it might easily be unnoticed. Another set of examples represents a series of exposures to a Bray burner, the extremes varying from one minute to twelve. The one-minute exposure is a soft grey black and the twelve-minute one a sepia, but otherwise the prints are identical. These examples show clearly that by adopting the method no print need be wasted so long as under-exposure is avoided."]

The following is a method of working which I invariably adopt for gaslight paper, as it allows enormous latitude in exposure, and yields prints of good gradation in the high-lights and of pleasing colour and clearness in the shadows. It is true the colours will vary slightly, but those usually obtained will be either a rich warm black, or black, or engraving sepia, and as these are, for most subjects, together superior to the cold black given by ordinary development, the variation is an advantage rather than otherwise. Having roughly sorted my negatives into thin, medium, and dense, I expose a batch of six at once, allowing considerably more exposure than the same would require to yield a black print in the ordinary way. One inch of magnesium ribbon at 10in., or 40 to 60 seconds incandescent gas at 10in., is about right for average negatives, dense negatives having longer; but the exact exposure is unimportant unless a particularly warm or cold colour is specially wanted. As an example I made four prints of the same negative on 'Rotox' postcard, giving 20 seconds, 40 seconds, 60 seconds, and 90 seconds respectively, at 10in. from an incandescent gas flame, and there is very little difference in colour, whilst the gradation and density are practically alike in all. An exposure of three minutes would have given warm sepia, that is the only difference.

Development.

As the prints are exposed they are placed in the following solution at normal temperature (60deg. to 65deg. F.):—

Pyrocatechin	2 grains.
Hydroquinone	2 grains.
Sulphite of soda	20 grains.
Citric acid	2 grains.
Potass. bromide	1 grain.
Potass. carbonate	20 grains.
Water	6 ozs.

In my own practice, when I have many prints to make I dilute this further and place the prints upright in the diluted developer in a tank. After two or three minutes in the concentrated, or ten or fifteen minutes in the tank, developer, I examine the prints as

regards their lighter tones. A print which already looks pinky all over must be left to finish out in the restrained developer, as it has had long exposure, and will give a warm-coloured print of good gradation if left until it appears very strong and rich before fixing. But the majority of the prints should show either nothing at all, or a pinky deposit in the shadows only, after the above time in the restrained developer, and these are to be taken out singly as the shadow detail appears, rinsed under the tap back and front for a few seconds, and finished in the following eikonogen solution. This, it will be observed, contains no alkali, and it will bring up the high-lights even when the exposure has been one-fifth or one-tenth that required for a sepia print; at the same time, it will not block up the shadows:—

Eikonogen	10 grains.
Sulphite of soda	60 grains.
Water	2 ozs.

This solution may be used repeatedly, provided the prints are always rinsed as they are transferred to it. As to the proper moment to make the transfer, the general rule is to leave the prints to gain some shadow detail in the restrained developer, and use the eikonogen for finishing off, but a print from a contrasty negative should be changed earlier than one from a flat negative, which should be left a longer time in the restrained developer to gain increased contrast.

"The eikonogen alone would give an extremely soft and thin result, whilst the restrained developer alone would give either nothing, or 'soot and whitewash,' except in the case of those long exposures already referred to. Fixing is in the usual acid fixing bath, and it is well to bear in mind that blacks and cool sepias do not lose as much in fixing as do the warm sepias before mentioned.

"Finally, should it be desired to have 'red chalk' prints, it is only necessary to give long exposure and use the restrained developer with a little extra bromide. The eikonogen may be used to correct errors in exposure in this case also; therefore no print need be wasted, unless, of course, the negatives are hopelessly at fault to begin with."

T. H. GREENALL.

ON THE REGULATION OF THE RAYS IN PHOTOGRAPHIC OBJECTIVES.

THE ELEVENTH TRAIL-TAYLOR MEMORIAL LECTURE.

II.

THE eye, in observing the image on the focussing screen or on the print, accepts circles, however, which do not go beyond a definite size, as sharp points. The size of the circles of confusion, still permissible for this reason, are usually designated with ϵ . In the plane focussed for there are circles of confusion conjugate to them of the size $N\epsilon$. It is, therefore, sufficient to discover the conditions under which circles of confusion in the plane focussed for do not exceed the magnitude $N\epsilon$. If their origin be once more looked into (fig. 14), it is evident that the diameter of the circles are proportional to the diameter of the entrance pupil; in other words, they are greater or smaller in the same ratio, in which the entrance pupil is enlarged or reduced. They increase with increasing distance of the object points from the plane focussed for, and they are, other things being equal, all the smaller, the further the object, consequently also the plane focussed for, is removed from the entrance

pupil. In this latter case the cones forming the circles of confusion will be more acute. If we are now asked the question, how great the "near depth" and the "far depth" may be, that is to say, how far in front and behind the plane focussed for the object points may lie, without the circles of confusion representing them becoming greater than $N\epsilon$, the following formulæ can easily be found:—

$$\text{"Near depth"} = \frac{AN\epsilon}{d + N\epsilon}$$

$$\text{"Far depth"} = \frac{AN\epsilon}{d - N\epsilon}$$

in which A is the distance of the plane focussed for from the entrance pupil, and d is the diameter of the entrance pupil.

It will be remarked that in the investigation of depth of definition the type of objective has absolutely nothing whatever to do. This

fact is from time to time freely discussed in the photographic journals. It is, however, not quite superfluous to point out that also the focal length has, in reality, no influence upon the depth of definition in such images of objects extended in space, which images, to produce an impression as true to nature as possible, should be viewed at the correct distance. This is very easily seen in the following manner: If a print be brought, as shown in Fig. 15 (also in Fig. 14)

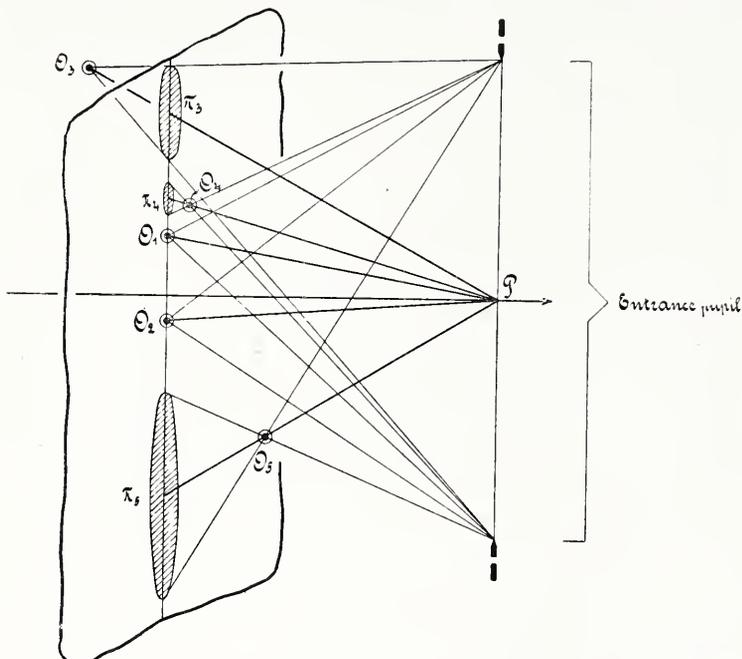


Fig. 17.

Very large entrance pupil: depth of definition very slight.

in the position necessary for the correct perspective between the object and the eye, supposed to be lying in the middle of the entrance pupil, each circle of confusion in the print, for instance, π'_5 , must appear to the eye exactly as large as the corresponding circle of confusion π_5 in the plane focussed for. If the same object and the same position and size of the entrance pupil be fixed, but an objective of shorter focal length be made use of—which from this assump-

is rationally defined, as we have done above, by a linear measure of the circles of confusion on the focussing screen. If it could, however, be supposed that exposures of objects extended into space were viewed by everybody correctly, that is to say, under the correct angle, the only correct way would be to define the depth of definition by an angular magnitude. A point O_5 is then represented as a sharp point, if its circle of confusion π_5 , in the plane focussed for, appears from the middle of the entrance pupil under an angle, which does not go beyond the angular acuteness of vision of the eye. We see, consequently, that this depth of definition is completely determined by the projection figure in the plane focussed for, that is to say, by the object and the distance and size of the entrance pupil. The objective has nothing to do, regarding any special type and specific focal length, but to fix the phenomenon. It does this all the quicker the smaller its focal length, as in that case the ratio $D : f$ is the larger, and consequently the rapidity increases.

If the entrance pupil be given a diameter which has the same order of magnitude or even greater than the distance from the plane focussed for—as shown in fig. 17—the previously defined extent, within which object points are considered sufficiently sharp, contracts into an extremely small space. For even the point O_4 , lying fairly near the plane focussed for, is represented by a circle of confusion of considerable size. The case only assumed here frequently occurs in microscopy with powerful objectives. You know that there the layer of the specimen sharply seen at one view is extremely thin, that the term "optical section" is often applied to it. With the photographic objective this extreme case, it is to be never occurs. For all that the point cannot be considered quite out of place in our discussion, for it emphasises the impossibility of getting a plane representation of a solid object, where definition and regulation of the rays be not taken into account.

We have already defined the "principal rays" as those of pencils producing the images, which before their entrance into the system are directed towards the centre of the entrance pupil,* therefore in their path in the lens system pass through the centre of the diaphragm. We will examine the principal rays a little closer, and to this end we will turn again to the example of Petzval portrait objective, Fig. 18.

As we see, all principal rays, which enter at the margin of the first lens surface, pass unobstructed through the whole system. It is therefore this margin of the first lens surface which defines

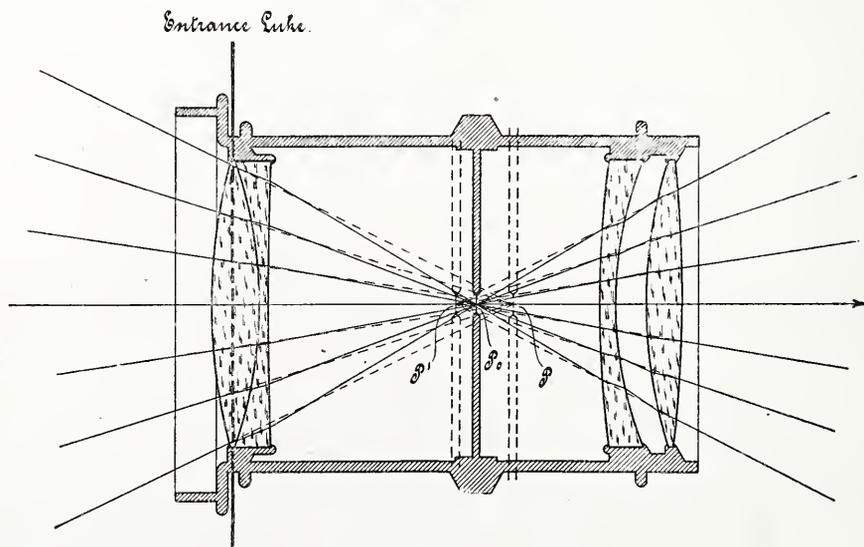


Fig. 18.

Path of the principal rays in a doublet: the margin of the front surface acting as the entrance "luke."

tion possesses naturally a larger relative aperture—the projection figure in the plane focussed for is reproduced on a smaller scale N on the plate and print. To obtain the correct impression of perspective, the print must then be placed correspondingly closer to the eye than formerly. On that account the circles of confusion, for instance, π'_5 , appear, although they have become smaller, to the eye again in the same angular size as formerly. If exposures of objects extended in space be intended to serve for purposes of measurement, in which they are to be viewed with the microscope, the depth of definition

regulates the principal rays; this is the case in the majority of double objectives. It is otherwise in landscape lenses with fr

* Here the rays are represented before entering the objective as if they strictly intersected in the centre P of the entrance pupil, likewise after emergence as if they all strictly proceeded from the centre P^1 of the exit pupil, that is, pencils of the principal rays are drawn as being perfectly free from aberrations according to the assumption already mentioned above. This assumption permitted us in our considerations at this moment. If, for example, the subject of distortion in objectives is being discussed, due regard must be paid to the fact that the pencil of principal rays is affected with aberrations.

diaphragm illustrated in Fig. 19. In this example the principal rays are only definitely regulated upon emergence from the system at the margin of the last lens surface. It is as desirable here as in image-producing pencils, dealt with above, to know or construct an opening, through which we can consider the pencil of principal rays as being already definitely regulated in their entrance into the system, whilst their direction is yet unaltered by refraction in the lenses. This allows of easy fulfilment; we determine the virtual image of the margin $A' B'$ of the last lens surface, projected by

principal rays in this way the "entrance luke" of the system.* Together with the entrance pupil the "entrance luke" forms a second important characteristic of the lens system derived from the doctrine of regulation of the rays.

In Fig. 20 the Petzval objective is represented once more. As the real lenses cannot now be regarded as essential they are indicated by dotted lines only in order to show where the essential characteristics of the system are lying—viz., the focal points F and F' , the principal planes H and H' , the entrance pupil with variable diameter

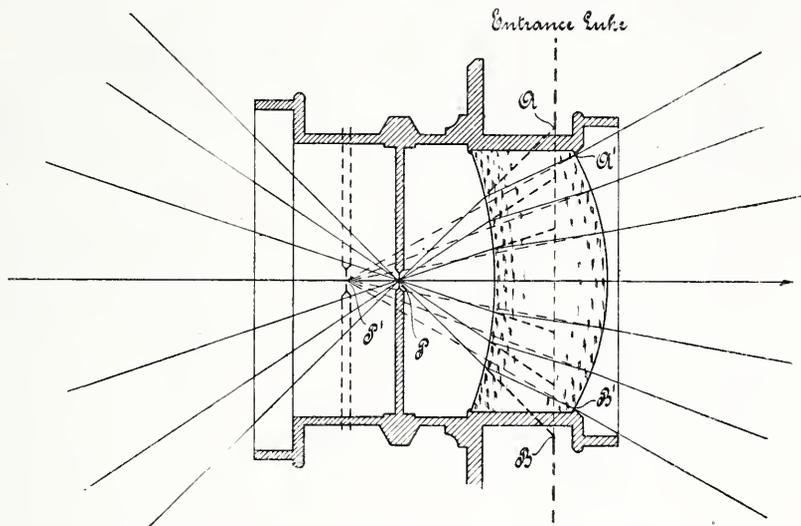


Fig. 19.

Path of the principal rays in a single lens: the virtual image of the margin of the last surface acting as the entrance "luke".

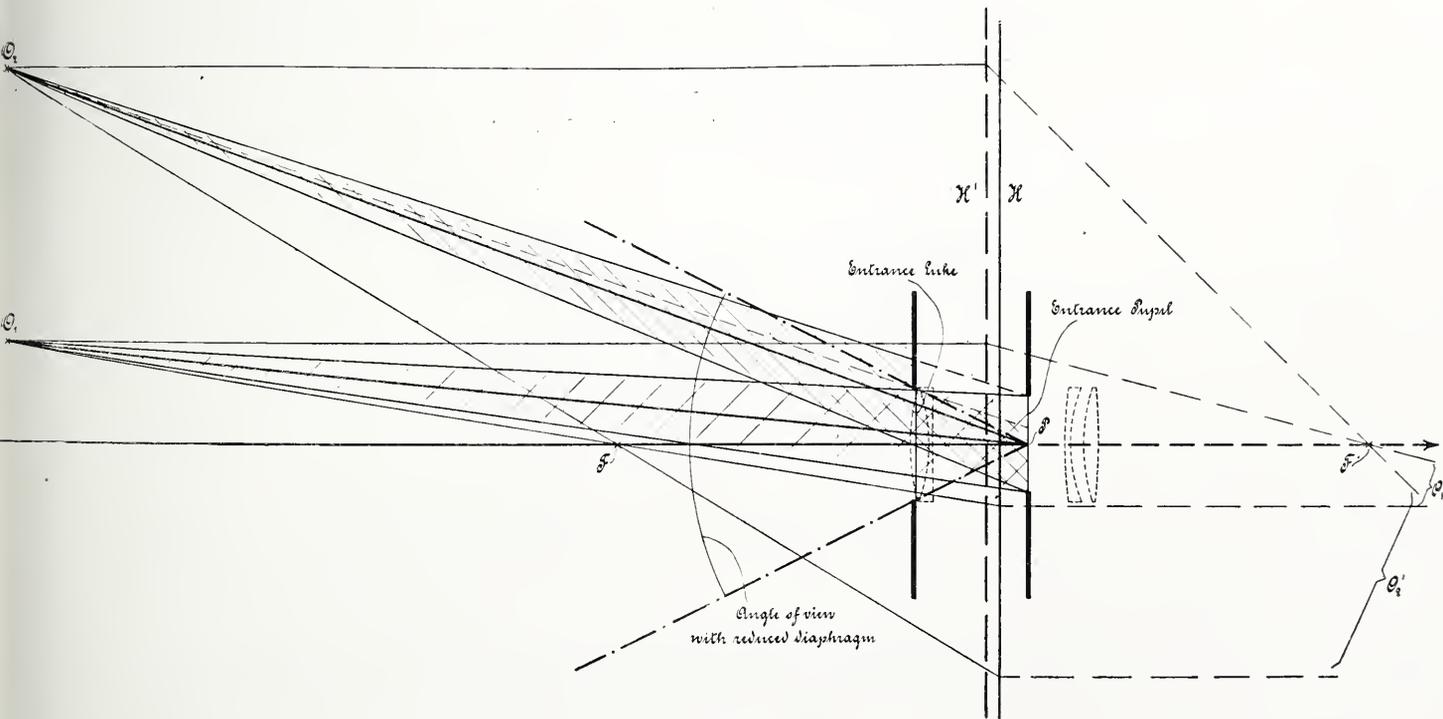


Fig. 20.

A Petzval portrait objective represented by the foci F and F' , the principal planes H and H' , the entrance pupil and the entrance "luke": the entrance "luke" vignetting the aperture of an oblique pencil.

the lens, in the same way as we determined the entrance pupil of a doublet, the latter being the virtual image of the diaphragm projected by the front lens of a doublet. The virtual image of the lens margin $A' B'$ is $A B$ (Fig. 19). The same principal rays, which upon emergence pass through the margin after refraction, pass out before refraction, proceeding from P in straight lines through the virtual image $A A'$. This virtual image, therefore, can be used for definitely regulating the entering principal rays, as in the real margin of the front surface in the doublet of Fig. 18. In every case we call the real or virtual opening which regulates the entering

and the entrance luke with invariable diameter. The principal planes and the focal points are sufficient to determine in a well known way the image point for every object point, although the rays here used as construction lines are too far removed to be used by the objective itself.

The straight lines, proceeding from the centre P of the entrance pupil and passing through the margin of the entrance luke, prescribe

* I employ the German term "luke," signifying a small window such as a port-hole, on the ground that it can be readily understood to mean a more or less distant aperture which may be looked through.

the field of view with small stop. When the diaphragm is fully open, the entrance pupil has the diameter as drawn here. Examine the cone of rays having the point O_1 as apex, and the fully open entrance pupil as base. This whole cone passes through the system. This is not the case, if we consider a cone of rays issuing from an object point O_2 lying nearer to the margin of the field, for a certain portion of the rays from O_2 , directed towards the entrance pupil, is obstructed by the entrance luke. This new secondary regulation of the image-forming pencils will be discussed with the help of our last figures. In Fig. 21a, besides the object plane only the axis of the objective, the entrance pupil E.P. of variable diameter, and the

the point O we project the entrance luke into the plane of the entrance pupil we obtain as projection figure the circle CD. The part common to this circle, and the entrance pupil, evidently correctly measures the quantity of rays with which the point O reproduced by the system. Fig. 21c represents the projection figure in the plane of the entrance pupil on a three times scale. We see in this way it is quite easy to determine for any definite object point and for any definite diameter of the entrance pupil the vignette power of the entrance luke. If the entrance pupil be reduced, the outer circle, as O_{11} , of the object field becomes smaller, the inner circle $O_1 O_1$ larger, and, finally, with quite narrow diameter of

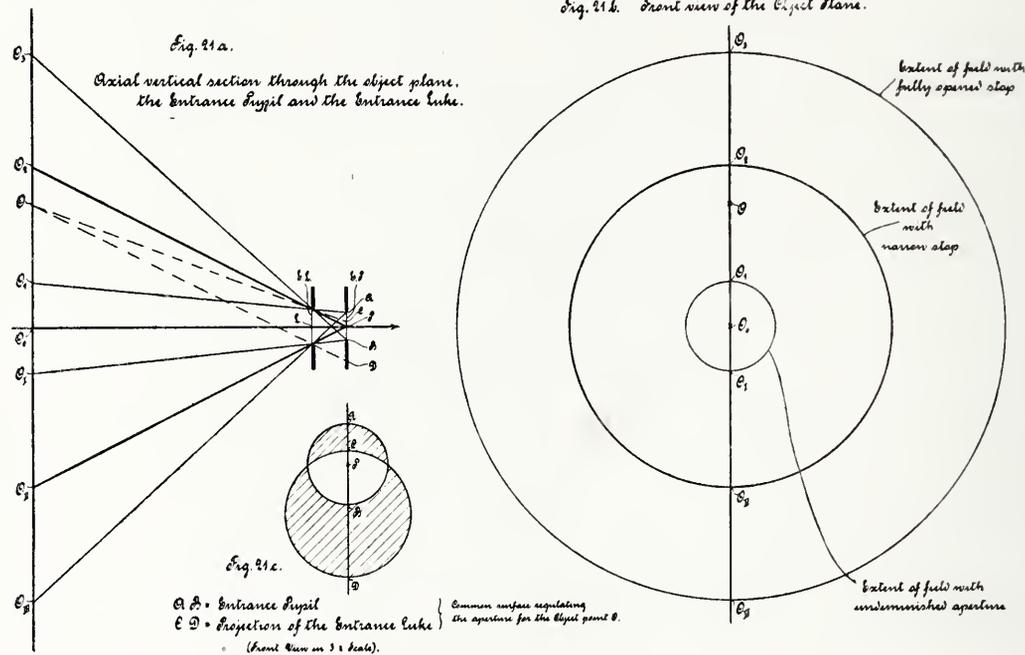


Fig. 21. Secondary aperture regulation by the entrance "luke."

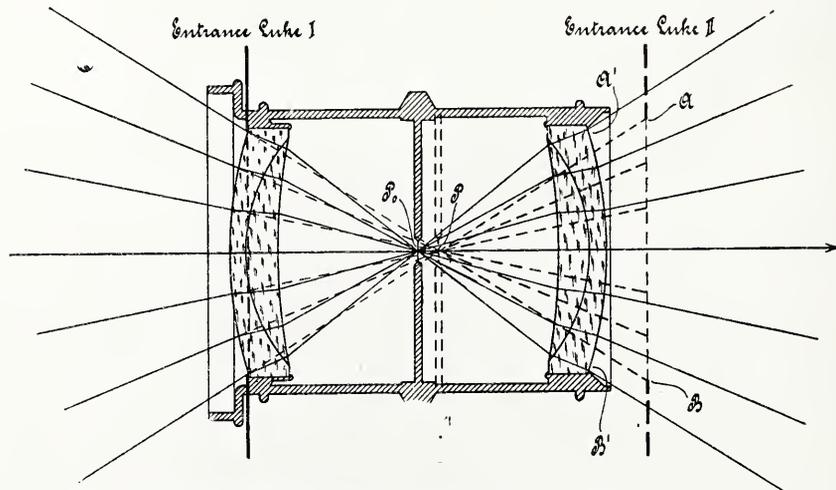


Fig. 22. Path of the principal rays in a symmetrical doublet, the margin of the front surface and the virtual image of the margin of the last surface being two concurrent entrance "lukes."

entrance luke E.L. of fixed diameter, are represented in side view, in Fig. 21b the object plane in front view. If we join the margins of the entrance pupil and the entrance luke crosswise with straight lines, these produced would cut the object plane in the circle $O_3 O_{11}$. It is evident that this circle includes all points in the object plane which send any rays at all through the system. If, on the other hand, we join the margin of the fully open entrance pupil with the margin of the entrance luke direct, such lines produced would cut the object plane in the circle $O_1 O_1$. This circle includes all object points, the rays of which are regulated only by the entrance pupil—i.e., the circle includes the field of undiminished aperture. The rays proceeding from the point O lying nearer to the margin are in part obstructed by the margins of the entrance luke. If from

entrance pupil the two circles simultaneously merge into the circle $O_2 O_{11}$. This circle is, therefore, the field with small stop. In practice two concurrent lukes have often to be dealt with. This case sometimes occurs in non-symmetrical double objectives, in symmetrical objectives always. We will go briefly into the case of symmetrical objective; it is represented in Fig. 22. On account of the symmetry of the objective to the diaphragm all principal rays which enter next the margin of the front lens, must here emerge at the margin of the hinder lens. This margin $A' B'$ is reproduced by the system as a whole in the virtual image $A B$, and this virtual image $A B$ regulates the entering rays which are directed towards the middle P of the entrance pupil behind P exactly in the same manner as the margin of the front surface in front of P . Besides

margin of the front surface, therefore the virtual image A B the margin of the last lens surface appears as a further concurrent entrance luke.

In order to determine the size of the field of view with diaphragm closed down, it is immaterial whether the front or the hinder entrance luke be employed. If, however, it be desired to determine amount of the vignetting, both entrance lukes must be projected in the object point concerned into the plane of the entrance pupil, the measure for the quantity of rays contributing to the image the point is then the surface common to the three circles in 23.

Entrance Pupil
Projection of Entrance Luke I } from the
" II } Object point

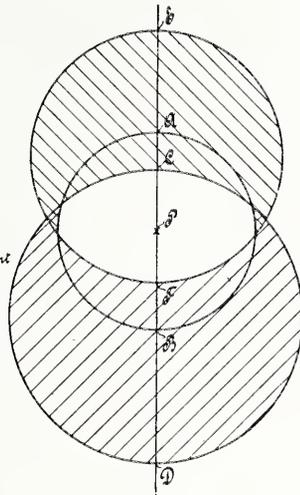


Fig. 23.

Secondary aperture regulation by two concurrent entrance "lukes." Front view of the plane of the entrance "luke."

In Figs. 20 and 21a only one entrance luke was drawn, that is why, the margin of the front lens, since the margin of the hinder would permit the passage of a wider opened pencil of principal rays, as Fig. 18 clearly shows. We represented Figs. 20 and 21a in such a manner as if only the entrance luke (E.L.) acted for vignetting oblique pencils and designated, therefore, as measure for the relative quantity of rays the surface common to the two circles in 21c. For points not lying very far laterally this is also correct. However, object points be considered which lie more distant from the axis, as, for example, the point O₁ in Fig. 20, a glance at this point will show that the lower margin of the hinder lens of the dotted virtual objective must also take part in the vignetting, a fact which can be easily observed practically in such an objective, directly the entrance pupil has been made large enough by opening out the diaphragm. The vignetting effect of the hinder margin of the lens can be deduced by supposing this hinder margin of the lens in Fig. 18 reduced by the entire system, in the same manner as in Fig. 22. The image should be termed AB; it lies, like the entrance luke II, in 22, behind the entrance pupil. If it be desired to more thoroughly investigate the vignetting occurring in points lying very distant laterally, to the essential elements in Figs. 20 and 21a, which are intended to diagrammatically substitute the Petzval objective image just referred to of the hinder margin of the lens must be taken into account in addition.

It is, however, requisite, in order to carry out a really exhaustive investigation, to consider the margin of each lens surface reproduced in the parts of the entire system lying in front of it, and the virtual images of the margins thus obtained, together with the margins of the amount lying in front of the front lens and of the sun shade, added to the essential elements in Figs. 20 and 21. If, then, from any point whatever all these real and virtual circles, some lying in front of, some behind, the point P, be projected into the plane of the entrance pupil, there results a surface common to all these projection circles and to the entrance pupil itself; this common surface being the real measure of the quantity of rays contributing to the reproduction of the point concerned.

After having thus far concerned ourselves upon the subject of vignetting, we have to add a few supplementary words to what has been said above with regard to Fig. 14. In this instance vignetting not having been touched upon, we were only considering the effects of confusion $\pi_1 \dots \pi_5$ arising in the representation of objects extended in space in the plane focussed for. It is evident

that the shape of the confusion figures π in each case must correspond with the shape of the actual opening in the plane of the entrance pupil. In the projection figure in the plane focussed for we therefore find, besides points and circles, also figures included by four or two arcs. This fact must be taken into account in some problems.

We have hitherto assumed that cutting off the pencils of rays, which proceed from the object points towards the entrance pupil, occurs only at the objective. The case can also happen with objects extended in space, that object portion R₁ lying towards the front shuts out a part of the rays, which are directed towards the entrance pupil from a portion R₂ lying behind R₁. This can especially happen in the case of portraits made at a short distance from the sitter with an objective of very large diameter. Here it may happen that portions R₂ are visible from the margin of the entrance pupil, which are shut out from the middle of the entrance pupil by portions R₁. This phenomenon had already presented itself to Sir David Brewster, and he discussed it in an elegant manner. In this case the centre of the entrance pupil ceases to be the centre of perspective for all portions of the object represented. Perhaps opportunity may arise at a future time to go more closely into this interesting problem. At any rate, the idea of the plane focussed for retains its undiminished importance.

This, Mr. President, concludes our present inquiry into the subject. It has been my aim to bring before you in a simple way some modern methods which deserve to be widely known. Lastly, I wish only to express my obligations to my colleague, Mr. Frank C. Wardall, of Jena, for the work he willingly undertook in rendering my original German text into English.

DR. E. WANDERSLEB.

A FIREPLACE ACCESSORY FOR FIREPLACE EFFECTS BY DAYLIGHT.

In the current issue of the "St. Louis and Canadian Photographer," there is a description of an accessory which may be installed in the ordinary studio for the production of firelight effects by the use of daylight only. The method appears to be that of Mr. Essenhigh Corke whose writings on and demonstrations of this branch of portraiture are probably familiar to readers of the photographic press, but from the author, Mr. Leroy Kellogg, making no mention of Mr. Corke's work it is to be presumed that the device is the result of his own experiments. Mr. Kellogg writes from Denver, Colorado, as follows:—"Of all the novel effects

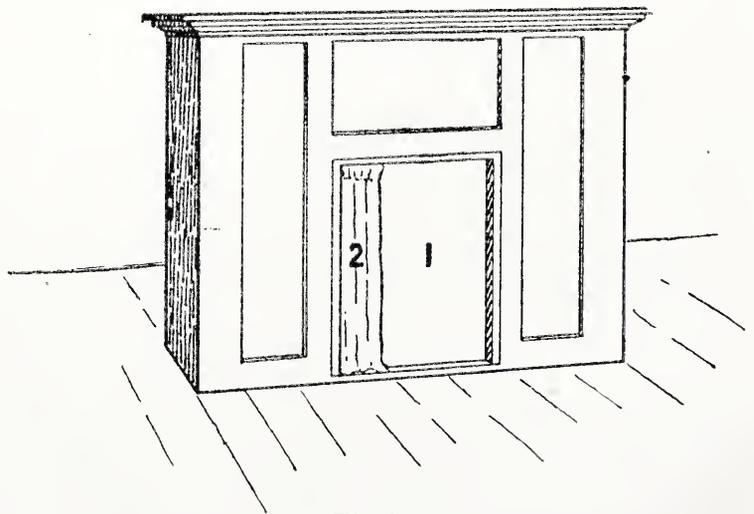


Fig. 1.

Front view of grate.

that I have most desired, none have I more often tried than firelight effects. The practical method which I have conceived and am now using has done away with failures. I now use an imitation fire grate, placed before a half-open window, and by the proper placement of two mirrors enclosed inside I am enabled to control the light, reflecting it at an angle, which enables me to obtain the desired result. One mirror reflects the light downward, the other out and upward through one thickness of tracing cloth, at an angle of from 40 to 60 degrees.

"The best effects are produced in reception or ordinary room.

The reason I suggest a reception or ordinary room is that the surroundings are more suitable for an effect of this kind, giving it a more homelike appearance.

"My first impression was that I would have to give a long exposure. This I found to be untrue—about the same exposure as that given under ordinary conditions in the operating room is right. My second impression was that my shadows would be without detail; this I found could be overcome by using plenty of daylight in the room. Be sure that no direct light from any other source strikes the subject, and that the light coming from the desired source is predominant.

"I will also state that this method is practical from a business

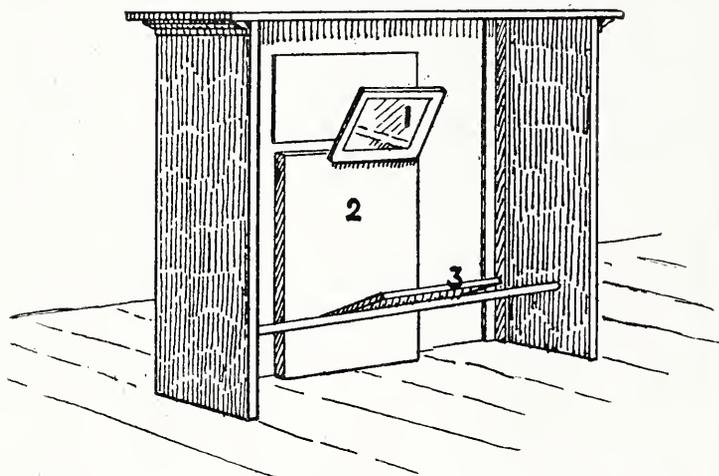


Fig. 2.
Back view of grate.

standpoint, as my second order, which amounted to the sum of \$27, fully covered all my expenses of experiments and cost of having mantel-piece made.

"Good results are also obtainable by the use and proper placement of an Aristo lamp.

"By the use of an acid chemical combination, which shall be further known as 'Fire Tone,'* which is also the result of my experiments, anyone can produce a tone which is absolutely permanent and gives the identical tone to a print that comes from the glow of a burning fireplace, which adds much to the merit of the print.

"It has been demonstrated to me that the best class of society is ever ready and willing to show its appreciation for a new style of work and willing to pay quite well for it, if it fulfils the desire for something peculiarly different in style and individuality."

Photo-Mechanical Notes.

Cutting Up Metal.

The use of the ordinary circular saw to cut up metal for printing is open to two objections, viz., the excruciating noise when cutting and the burr left on the metal, which necessitates filing afterwards. It is, however, often preferred to the guillotine, which makes no noise, and so far from burring the metal, actually puts a slight bevel on it, because it is possible with a saw to cut out a piece of metal, while the guillotine must cut straight across any metal put between its jaws, and it is therefore considered to be wasteful, especially if the spare pieces of metal are allowed to knock about, any sizes on top of each other in a pile against the wall, as is commonly the case. This waste can, however, be easily obviated if a series of vertical partitions is constructed in which to place the surplus pieces of metal. The space between the partitions need only be about 3in., height about 18in.; each pigeon-hole may be reserved for spare metal by half-inches, e.g., a space for 3in., 3½in., 4in.,

* Apparently a copper or similar toning solution. Mr. Corke uses the "Bertha" dye of the Vanguard Co.—EDS. "B.J."

and so on up to 8 or 9in. Then when one wishes a piece of metal, say, 3 x 3, a strip is cut off the whole sheet 3in. deep, 3in. cut the end of this, and the remainder put into the pigeon-hole for 3 metal. Any further plates having one dimension of 3in. can be cut off this strip without troubling to look over a heap of metal or to cut further into the new sheet, and so on for any other size. This simple method will save metal, also time in finding and cutting up any given size.

A New Process.

The "Daily News" of February 9 contained the following paragraph:—

"Art Reproduction.—A New Process.—To-day the 'Daily News' prints two pictures reproduced by an entirely new patent reproduction process. The inventor has been working at this process several years, but till to-day no blocks made by it have been reproduced in any paper either on flat or rotary presses."

All we can say from the two examples shown is that if the process is new, its results are certainly not wonderful, and it has been possible to equal these results at any time during the last fifty years. The blocks are certainly printed from a finer screen than usual in newspaper work (one is apparently 100 lines to the inch), produce similar blocks the blacks might be painted in solid before etching, and the high-lights scraped out and deep-etched. At all events if this is not the way in which the particular process is operated and it very likely is not, nevertheless results equalling those shown are very readily produced in this manner, or by scraping away shadows on the negative and blocking in the high-lights, before print on metal is made; either method, it seems to us, would though of course there may be advantages in the method which not apparent in the newspaper illustrations.

On Thursday in last week Colonel S. C. N. Grant, C.M.G., Director-General of the Ordnance Survey, lectured at Bolt School on the production of maps and plans. Describing the evolution of map production, Col. Grant showed that it had been one continuous advance towards simpler and more mechanical methods, in which photography had played an ever-increasing part, and that it was the application of photography which had reduced the expense of production from £10 to £1 in some cases. Any listener who thought that a Government department cannot be progressive without doubt came away from the lecture with a different opinion, at least in events so far as the Ordnance Survey was concerned.

Exhibitions.

CLEVELAND CAMERA CLUB.

THE sixth exhibition held under the auspices of the above club opened from February 10 to 13. The number of entries was not so good as in previous years, but the general opinion was that the standard of the work was much higher, particularly in the membership classes. The judges awarded the silver vase for the best picture at the exhibition and a silver medal in the open class to "Peace," by J. Walton, of Sunderland. "The Oracle," by O. C. Wilmot, of Sunderland, also secured a silver medal, whilst the bronze medals were awarded "The Village Baker," by N. Blake, of Bedford, "The Love Potion," by H. Lindoe, of Sunderland; and "Winter Sunshine," by J. J. Rutherford, West Hartlepool, and "Stranger in the Village," by N. Blake, Bedford, were highly commended. In the class open to members of clubs affiliated to the Yorkshire Photographic Union the number of entries was disappointing. In this section the silver medal was awarded to "Flora," by F. G. Issot, of Leeds, and the bronze medal to Dr. H. G. Drake-Brockman, of Middlesbrough, for a "Portrait Study." In the classes confined to members of the Cleveland Camera Club the following awards were made: Any subject—"On the Firth of Forth," by J. Key, silver medal; "Sunset," by J. H. Neat, Middlesbrough, bronze medal; Still life—"White Currants," by L. Natrass, Stockton, silver medal; "Chrysanthemums," by T. Brown, bronze medal. For the best three pictures illustrating life in any particular town, the silver medal was awarded to "Scarborough," by J. H. Neat. Large displays of Autochromes (by Dr. H. G. Drake-Brockman) and

er-Shepherd three-colour slides were given each evening. The
ry Photographic Company had on exhibition a good 15in. by
print made by their three-colour carbon process. W. G. Hill,
aglescliffe, had a number of excellent examples of high-speed
s, but these were not entered for competition.

FORTHCOMING EXHIBITIONS.

January 11 to 20.—Leicester and Leicestershire Photographic
Society. Sec., Harry Cross, 80, Harrow Road, Leicester.

January 16 to 20.—Norwich and District Photographic Society.
Sec., J. T. Tanner, The Lodge, Bowthorpe Road, Norwich.

January 20 to March 6.—Edinburgh Photographic Society. Exhibi-
tion Secs., Edinburgh Photographic Society, 38, Castle Street,
Edinburgh.

January 20 to March 20.—South London Photographic Society.
Sec., H. Creighton Beckett, 44, Edith Road, Peckham, S.E.

January 22 to March 6.—Birmingham Photographic Society. Sec.,
Lewis Lloyd, Church Road, Moseley, Birmingham.

January 26 and 27.—Ilford Photographic Society. Sec., H. Eales,
53, Coventry Road, Ilford, Essex.

February 9 to 10.—G.E.R. Mechanics' Institution, Stratford, E. (Photo-
graphic Section). Entries close February 27. Sec., A. Woolford,
16, Grove Green Road, Leytonstone, N.E.

February 11 to 13.—Coventry Photographic Club. Entries close
March 5. Sec., W. R. Harris, 17, Allesley Old Road, Coventry.

February 17 to 20.—Nottingham Camera Club. Entries close March 4.
Sec., E. L. Kent, 3, Radcliffe Mount, West Bridgford, Notts.

February 22 to 25.—Cripplegate Photographic Society. Sec., H. S.
Cuming, 234, North End Road, Kensington, W.

February 30 to April 3.—Sheffield Photographic Society. Entries close
March 13. Sec., H. Merrill, 22, Harboard Road, Woodseats,
Sheffield.

March 31 and April 1.—Shropshire Camera Club. Entries close
March 20. Sec., Harry W. Hughes, Kingsland, Shrewsbury.

March 10 to 17.—Midlothian Photographic Association. Entries close
March 31. Sec., B. Sherratt, 8, Castle Terrace, Edinburgh.

March 29 to May 17.—Photo Club de Paris. Entries close March 15.
Secretary General, Photo Club, 44, Rue des Mathurins, Paris.

Patent News.

*process patents—applications and specifications—are treated in
to Mechanical Notes."*

The following applications for patents have been received between
January 1 and 6:—

Patents.—No. 2,491. Improvements in camera stands and the like.
George Hana, 22, Bedford Street, Strand, London.

Patents.—No. 2,832. Improvements in or connected with photo-
graphic plates. Cavendish Morton, 77, Chancery Lane, London.

COMPLETE SPECIFICATIONS ACCEPTED.

*Specifications are obtainable, price 8d. each, post free, from the
Patent Office, 25, Southampton Buildings, Chancery Lane,
London, W.C.*

*For date in brackets is that of application in this country; or
in brackets, in the case of patents granted under the International
Convention*

Patents FOR BOTH DEVELOPMENT OR PRINTING-OUT.—No. 1,689,
1,693 (January 24, 1908). The invention relates to printing papers
of a kind which can be either printed fully out or developed in
the ordinary way. [Presumably with alkaline developers.—Eds.]
In place of organic silver salts used in print-out emulsions as ab-
sorbents of the halogen (chlorine or bromine) liberated on exposure

to light, use is made of other substances which possess the
properties called for in bodies used for this purpose: i.e. (1) it is
incapable of reduction in the light after oxidation by the liberated
halogen; (2) in the dark it does not reduce the silver salt; and (3)
it absorbs the halogen as rapidly as the latter is set free by ex-
posure to light. The substances in question are salts or derivatives
of hydrazine (NH_2NH_2) and of hydroxylamine (NH_2OH). For
example, a suitable addition to the finished and "cooled" emul-
sion may be made of neutral hydrazine sulphate, hydrazine phos-
phate, hydrazine sulphite, or other easily oxidizable salt. In
making these salts, a solution of the acid is added to hydrazine
hydrate ($\text{NH}_2\text{NH}_3\text{OH}$), using methyl orange to indicate when the
neutral point is reached.

Since chlorine, bromine, and iodine form a series of silver salts
of gradually increasing stability, the particular compound of hydra-
zine or hydroxylamine used in the preparation of the emulsion is
selected with regard to this fact. For example, in the case of
silver chloride, as the chlorine is comparatively easily absorbed,
many of the compounds of hydrazine or hydroxylamine will be found
suitable. For example, a sulphurous acid salt of a primary fatty
hydrazine (RNH.NH_2), such, for instance, as methyl hydrazine
($\text{CH}_3\text{NH.NH}_2$), may be used. With a halogen salt of greater
stability, such as silver bromide, a more active compound of hydra-
zine or hydroxylamine is desirable, such as the phosphorous acid
salt of hydrazine.

The amount of the salt used in the preparation of the emulsion
is determined by a consideration of the reducing action of the
hydrazine, each molecule of hydrazine hydrate ($\text{NH}_2\text{NH}_3\text{HO}$) being
able to reduce four molecules of silver haloid.

In collodion emulsions it is necessary to use a hydrazine salt or
compound which is itself soluble in ether-alcohol and of which
some of the hydrazides, for instance formyl hydrazine
(HCO.NH.NH_2), are examples.

From emulsions thus prepared, sensitive materials are then pro-
duced in the ordinary way.

Sensitive materials may also be produced by dipping plates or
papers prepared in the ordinary way in a solution of a hydrazine
or hydroxylamine salt or derivative.

Sensitive materials can be exposed in the camera for any time
longer than the shortest exposure necessary, up to complete
"printing-out," or they can be exposed for a short time and subse-
quently treated with a suitable developer. The developer should
be such that it will act slowly or quickly according as the sensitive
surface has been exposed for a greater or lesser time, so that it
shall penetrate all parts of the film where light has acted.—William
Hay Caldwell, of Morar Lodge, Inverness-shire.

GRAIN COLOUR SCREEN-PLATES FOR COLOUR PHOTOGRAPHY.—

No. 18,750. 1908 (September 9, 1907). The invention relates to
the making of a mosaic colour screen, the grains in which are
flat on both sides, thin, and touch each other at the edges. The
method is to employ coloured spheres, prepared as described below,
distribute them on a support, flatten them, and bind them together.
The patentee first refers to the English patents of Macdonough
(No. 5,597, 1892) and of Lumière (No. 22,988, 1904, and No. 9,100,
1906). The method of preparing the screens for which protection
is claimed is as follows:—

Blocks of celluloid or of an analogous plastic material are made
of the desired volume. If cut from sheets, cubes can readily be
obtained, with sides running from the one five-hundredth to the
one one-thousandth of an inch. If cut from threads, small cylinders
or prisms will be obtained, according to the section of the thread.
These small particles of transparent plastic material are dyed
of the proper colours and are then rolled between plates until they
assume a spherical shape. The discs may be heated, but it is
found that the heat generated by the friction will, in the case
of such small particles of celluloid, be sufficient to enable them to
assume a more or less spherical shape in a few seconds. Once
these imperfect spheres are obtained, it is well to grade them as
to size by sifting them one or more times and then again to subject
them, in separate lots, to rolling in order to obtain very perfect
spheres of equal diameter.

If made into a screen by distributing over a tacky surface, fol-
lowed by heat and pressure (the process used in making imitation

Florentine mosaics), the colour elements become irregular in shape, since the particles are not free to roll into contact with each other. To overcome the above-mentioned difficulty the following process is preferred:—A sheet of paper or similar material is thoroughly stretched on a very flat board, glass, or open frame. This paper must be coated before or after stretching with a coat of adhesive material gum, gelatine, rubber, etc. This is allowed to dry to such an extent that it loses its adhesiveness, or, at least to such an extent that the spheres of celluloid, when thrown upon it, will readily roll into contact with one another and will not be held in place where they happen to strike. Once the surface of the paper has been entirely covered with these spheres of various colours, the dry and now non-adhesive material must again be rendered adhesive. The grains (spheres) will now become adherent to the paper support, and if the adhesive material be again allowed to harden and dry, the surplus layers of spheres can be removed therefrom by brushing them off.

The result is a support covered with a single layer of coloured spheres, uniformly and symmetrically distributed. The paper bearing the spheres can now be removed from the board, glass, or frame, and be transferred face down on to a thin film of celluloid, preferably flowed on a polished metal plate. The film must be almost dry before the transfer is made. But in the case of ready-made films it is best to spray it over with a solvent or partial solvent of celluloid, so as to facilitate adhesion between the spheres and the film. The whole is now submitted to heat and pressure, which causes the spheres to flatten out, adhere together, and to the film beneath. In this manner, when celluloid grains are used, a screen is obtained in which the grains of different light-selective absorptive properties are integral with a colourless film of the same material as the grains. In order to avoid any tendency for the spheres to run into each other, the paper can have sprayed over it a thin solution of gelatine with acetic acid, or other isolating material, care being taken to pass an absorbing roller over all to clean off that part of the spheres which is to come in contact with the film; or, again, some of the spheres can be rolled in some inert powder or be coated with gelatine or like material, before being applied to the paper.

After the paper bearing the spheres has been pressed on the celluloid film, the whole is allowed to cool, and the paper is then removed by means of a suitable solvent of the adhesive material on it. Any interstices remaining in the screen can now be filled up by rubbing in appropriately coloured powder of celluloid. A thin solution of celluloid is then sprayed upon the surface which has been in contact with the paper, and the film is polished between hot metal plates.

If any interstices happen to remain between the grain, the film at such points can be daubed over with bichromated glue or gelatine. When dry, the film must be exposed to the light from the reverse side, so as to expose only the gelatine behind such interstices to the action of white light, and only such gelatine will become insolubilised. The excess gelatine can be removed with hot water, and that which remains can be dyed of some appropriate colour, thus blocking out all white light. The film in such places had best be sprayed over with celluloid and the sheet be refinished.

The film will now be ready for the various operations necessary to put upon it a sensitive photographic film, out of which is to be formed the negative or the positive. The transfer method offers many advantages. It allows one to apply monochrome bands of the different coloured spheres along the edges or at other suitable places; the uses of these bands has been indicated in prior applications of mine. It also allows one to make endless polychrome films for cinematographic purposes, or for roll film cameras, by transferring grained paper to the endless film, and after removal of the paper filling up gaps, if any, by applying similarly coloured grains. Charles Louis Adrien Brasseur, 116, Tremont Avenue, Orange, New Jersey, U.S.A.

CINEMATOGRAPH MECHANISM.—No. 21,787, 1908. (October 15, 1908.)

The invention relates to apparatus for the perforating of, photographing upon, printing upon, and projection upon a screen of cinematograph films, and other like purposes; and its object is to provide a new and improved movement for imparting a positive intermittent travelling motion to the film in the process of the operations.

In several devices for this purpose a rigid claw arm is driven by a crank connected to one end of it. The invention consists of improvements in such devices by which greater simplicity is obtained and great exactitude in working by substituting a curved stationary slot of such form as to provide a more perfect contact for the teeth. James and Colin Martin Williamson, 11, Wilton Villas, Hove.

CELLULOID MOSAIC SCREEN-PLATES FOR COLOUR PHOTOGRAPHY.—No. 21,739, 1908. (July 13, 1908.) A method of preparing a three-colour mosaic filter-screen from an engraved or etched matrix has been patented. The process consists in forming a pattern in relief on the celluloid sheet by hot pressure against the etched plate the depressions in which form the portions raised above the celluloid surface. The latter is then inked, like a printing-plate, with greasy ink or varnish which is thus applied to the raised lines or bands. The whole sheet is then treated in an alcoholic bath of dye, whereby the depressed portions are coloured, and the greasy ink is then removed. The sheet is then placed across the etched plate at right angles to its former position and a second hot pressure given, the raised lines are inked, and a second application of alcoholic colouring solution such as malachite green, carried out. A two-colour screen is obtained with lines crossing each other at right angles; the raised portions left uncovered at this stage are given a coating of dye by any suitable method, such as sensitising with a bichromated gelatine solution, exposure to light and dyeing in an aqueous dye solution. The process is completed by hot pressing the whole sheet between flat plates in order to get rid of the relief. Vereinigte-Kunstseide Fabriken A.G., Kellstedt-on-Main, Germany.

STEREOSCOPIC PHOTOGRAPHY.—No. 10,493, 1908 (May 15, 1907). The invention relates to a design of stereoscope intended for viewing a pair of stereoscopic photographs made at one exposure with

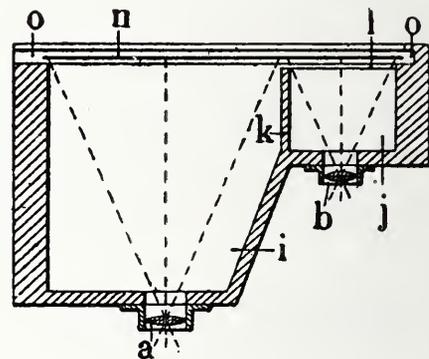


Fig. 1.

of unequal focal length. One picture is taken several times more than the other, with the object of securing better detail, and the construction of the stereoscope is therefore such that the observer is able to combine the two images in the eye. The patentee

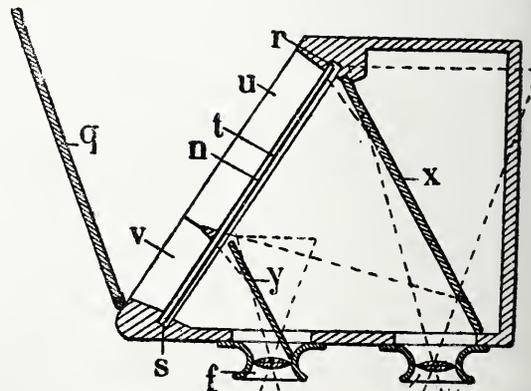


Fig. 2.

twenty-one drawings, from one of which (Fig. 2 herewith) it is seen that the stereoscope consists of two eyepieces of unequal

cal length. The transparency plate bearing the large and small pictures is placed in the grooves *u v*, and the pictures reflected in the mirrors *x* and *y*.—Georges Balmitgère, 2, Rue Philippe Grand, Paris.

New Trade Names.

B. B. (DEVICE).—No. 308,077. Chemical substances used in manufactures, photography, or philosophical research and antiseptics. Norsk Hydro-Elektrisk Kvælstofaktieselskab (a company registered under Norwegian law), Sommerrogaten 15, Christiania, and Notodden, Telemarken, Norway, manufacturers and merchants. November 17, 1908.

New Books.

Handlungen zur Geschichte des Stereoskops von Wheatstone, Brewster, Riddell, Helmholtz, Wenham d'Almeida, and Harmer." Edited by M. von Rohr. Leipzig: W. Engelmann. 2 Mk. 20.

This volume forms one of over 170, each devoted to reprints of original papers on some branch of natural science. Thus Sir Humphrey Davy's Bakerian lecture of 1807 on his electro-chemical work forms one book, and Faraday's electrical papers occupy several volumes. Dr. von Rohr, in selecting for the reading of German students the chief papers on stereoscopy, has reproduced the original drawings of Wheatstone and Brewster, and has made the writings of these founders of the doctrine of stereoscopy actually more accessible to the German reader than to the English. A large part of the volume is devoted to the papers by late F. H. Wenham on the binocular microscope, which, again, is accessible to English readers in the journals of the Microscopical Society.

INTERN SLIDES.—A second edition of the German treatise on lantern-slide work (Die Diapositivverfahren), by G. Mercator, has been published by the firm of Knapp, Halle a/S, price 2 Mk. The treatise deals with several methods of slide-making other than gelatin and chloride plates. For instance, it treats of the albumen, iron, and pigment processes, and contains a chapter on the chrome process, and on the Traube method of toning by means of dyes.

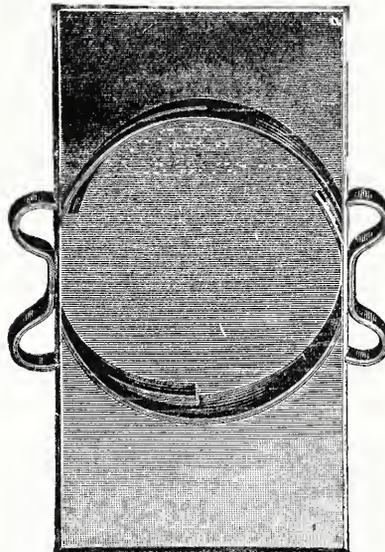
STEREOSCOPY AND THE STEREOSCOPE IN THEORY AND PRACTICE.—The title of this German text-book describes its detailed discussion of the theory of the stereoscope and the practice of stereoscopic photography. In the second edition the author, Dr. F. Stolze, has made a little change, and the volume forms a manual of its subject as we do not possess in the English language. "Die Stereoskopie" is published by Knapp, Halle, at 5 Mk.

TRAITS OF THE ARISTOCRACY.—Under the title, "Photographs of the Aristocracy," Messrs. Lafayette, Ltd., 178, New Bond Street, W., have issued a 75-page list of the celebrities photographs of whom they have at the disposal of the press for reproduction. The list, which runs to a total of 3,000 names, mostly those of the British aristocracy and foreign nobility, is divided in accordance with rules of Court precedence. It is issued to editors of illustrated newspapers, to publishers, and others engaged in press illustration, to all of whom they would prove of frequent service. Messrs. Lafayette announce that they propose issuing a monthly addendum containing particulars of the latest sittings.

O.P. TONES ON BROMIDE POSTCARDS.—In further reference to our paragraph on p. 109 of our issue of February 5, the Falla-Gray Photo-Paper Company send us samples of the cards on Falla-Gray paper, treated with hypo-alum for cold tones only, without departing from standard methods of working. The warmer tone is generally preferred.

New Apparatus, &c.

THE "IRIS" SCREEN.—Messrs. John J. Griffin and Sons, Ltd., have placed on the market an inexpensive form of graduated orthochromatic yellow screen, the usefulness of which is frequently very



marked in landscape work. The screen is made to move in its mount, so that any required amount of sky can receive an extra depth of screen.

OIL PIGMENT BRUSHES.—Messrs. John J. Griffin and Son, Ltd., advise us that under the name "Demachy" they are supplying the French "pied de biche" brushes, now used by many English workers.

New Materials, &c.

Liquid "Lustralene." Made by the Vanguard Manufacturing Co., Maidenhead.

It must be six or seven years ago since the Vanguard Co., ever purveying some useful aid to photographic print- or negative-making, introduced, as Lustralene, the peculiar paste which we have since always had at hand for beautifying or reviving matt prints by any process. Plenty of vigorous rubbing is necessary to secure the best results with "Lustralene," but the added brilliancy and richness of the print are liberal payment for the physical exercise, even if one is not thinking of quitting photography for the more profitable occupation of masseur. What particular purpose the Vanguard Co. have in view in issuing also a fluid form of "Lustralene" we do not know, though it is evident from a first trial that the new form is more quickly distributed over a large print. In all other respects we have found the new product to have the good qualities of its less fluid predecessor. It both improves the print and greatly protects it from alteration, and is a product which, when once its virtues have been recognised, the photographer will not willingly be without.

"Texo" Velox Gaslight Paper. Sold by Kodak, Ltd., Clerkenwell Road, E.C., and John J. Griffin and Sons, Ltd., Kingsway, London, W.C.

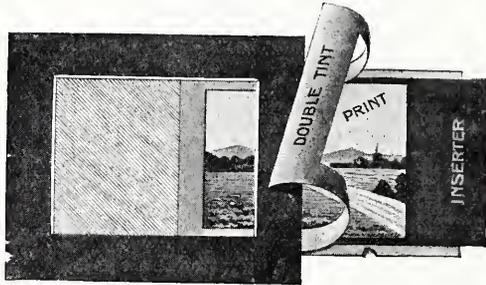
A further new variety of Velox paper is just introduced under this title. "Texo" signifying the fine linen-like surface which the paper possesses. The departure from a smooth matt is not very great. The "Texo" quality resembles that of fine cambric, and the paper thus supplies a new sensitive material which can be



used for prints, both large and small, particularly in the case of subjects in light tones, since the "grain" or texture of the paper becomes obtrusive first of all in extended areas of shadow such as a dark background. In many instances the relief which it thus affords is a distinct advantage, but we have been pleased most highly with the results from negatives in which the lighter tones predominated. The new paper is sold in two varieties, white and cream, both of which belong to the "soft" or "special" class of Velox papers, and are about three times the speed of the ordinary or "Vigorous" papers.

The "Myla" Slip-in Mounts. Made by Carl Ernst and Co., London, E.C.

In this new introduction of Messrs. Ernst the amateur photographer in particular is provided with a very pleasing form of "mounting" for his prints without, however, being put to the trouble of putting down a series of tinted papers. The "Myla" consists of a mount of the ordinary slip-in variety but embellished with a series of "cut-outs" of various art papers, selected either to harmonise or to contrast with the outer mount. Thus in the packet of assorted examples which reaches us, we find one done in two tones of grey, another in grey and white, another in two tones of



brown and others in brown and white, dark green and brown, and dark green and white. In every case the selection is made with regard to the effective display or embellishment of the print, and we cannot but express the opinion that in this embodiment of the multiple-mount method the photographic worker will find a range of mounts sufficient for the tasteful presentation of almost every variety of print. Moreover, if the inner mounts are thought inadvisable on the ground of the masking of the print or by reason of the tint, they can be removed and the full opening of the slip-in mount employed. In any case the result is neat in appearance. Since Messrs. Ernst supply only in large quantities applications for the "Myla" mounts should be made to a retail dealer or to a wholesale house.

CATALOGUES AND TRADE NOTICES.

THE PRISM.—Messrs. A. E. Staley and Co., 19, Thavies Inn, Holborn Circus, London, E.C., have now at hand No. 7 of the "Prism," the tiny magazine of optics issued by the Bausch and Lomb Co. It deals with the photography of snow pictures, and is sent by Messrs. Staley on receipt of a penny stamp.

BARGAINS IN APPARATUS.—Messrs. Houghtons Ltd. have just issued a twenty-page list of apparatus, mounts, etc., to be disposed of at their annual stock-taking sale. The list gives the usual and sale prices of roll-film, folding, box and field cameras, lenses and enlargers, shutters, tripods, cases, and a variety of sundries, all of which are offered as articles which are no longer listed in the firm's regular catalogues, or are shop-soiled samples. A visit to 88-89, High Holborn during the next few days should repay those wanting to make additions to their outfit.

BAUSCH AND LOMB FACTS AND FIGURES.—Messrs. Staley (19, Thavies Inn, Holborn Circus, E.C.) send in exchange for one penny stamp an interesting little booklet describing the rise of the Bausch and Lomb Optical Company, of New York.

MEKER BURNER AND FURNACES.—The Cambridge Scientific Instrument Company, Cambridge, England, send us a full list of these types of Bunsen burners and muffle furnaces, among which latter are several suitable for photo-enamel work.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, FEBRUARY 19.

Mill Camera Club. "Oil Printing." R. Fearnley.
Hartlepool Photographic and Sketch Society. "On the Printing, Developing and Toning of Velox Papers." W. F. Slater.
Sutton Photographic Club. Members' Lantern Night.

MONDAY, FEBRUARY 22.

Bradford Photographic Society. "Round about Yorkshire with a Camera." T. G. Askew.
Liverpool Amateur Photographic Association. Social Evening.
Blaydon and District Camera Club. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Lancaster Photographic Society. "Up the Rhine with a Camera." G. Butworth.
Scarborough and District Photographic Society. Portfolio of Prints.
Kidderminster and District Photographic Society. Competition.
Cripplegate Photographic Society. "How to Make Enlarged Negative." Bertram C. Wickison.
Southampton Camera Club. "O'er Mountain, Lake, and Lagoon." J. Shaw.

TUESDAY, FEBRUARY 23.

Royal Photographic Society. "Some Points in Photographic Shutters, and a Simple Shutter Tester, Popularly Explained." E. A. Salt.
Leeds Photographic Society. "Clouds and the Weather." A. E. Hassé.
Sutton Photographic Club. "Rambles with the Camera." Members.
Hanley Photographic Society, Y.M.C.A. "Carbon." J. R. Cox.
Hackney Photographic Society. Concert.
Wimbledon and District Camera Club. Amateur Photographer Prize Slides.
Worthing Camera Club. "Ozobrome." Rev. H. W. Dick.
Blackburn and District Camera Club. "Oil Printing." S. L. Coulthurst.
Blyth and District Camera Club. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.

WEDNESDAY, FEBRUARY 24.

Borough Polytechnic Photographic Society. Members' Night.
North Middlesex Photographic Society. "Artistic Portraiture." C. Wille.
Sale Photographic Society. "Yesterday and To-day." F. Mahler.
Leeds Camera Club. "Lantern-Slide Making for Beginners." W. H. Reed.
Consett and District Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Edinburgh Photographic Society. "Bromide Enlarging." A. Wall Macgregor.
Dover Institute Photographic Club. French Lantern Pictures. A. E. Staley & Co.
Lancaster Photographic Society. Annual Supper.
Cowes Camera Club. "Life on a Liner." W. Joliffe.
Leeds Photographic Society. "Scenes from Many Lands."

THURSDAY, FEBRUARY 25.

Dundee and East of Scotland Photographic Association. Exhibition of Thomson-Pickard Prize Slides and Apparatus. R. Hesketh.
Chelsea Photographic Society. Annual General Meeting.
Melbourne (Dulwich) Camera Club. "Lantern-Slide Making." The President and P. Fredk. Visick.
Heaton and District Camera Club. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Rugby Camera Club. Dutch Lantern Pictures. A. E. Staley & Co.
L.C.C. School of Photo-Engraving, Bolt Court. "Colour Inks." C. I. Smyth.
Handsworth Photographic Society. Lantern Slide Competition.
Leek Photographic Society. "Enlarged Negative Making." F. Bradley.
Rugby Photographic Society. "Holland." (Illustrated with Slides by S. E. Fincham). R. H. Myers.
North West London Photographic Society. Annual General Meeting.
Liverpool Amateur Photographic Association. Monthly Meeting.

ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held Tuesday, February 16, Dr. S. E. Sheppard in the chair.

The fixture for the evening was a paper by Dr. W. Scheffer, "Stereoscopic Projection," which, however, he had not been able to prepare in time. His place was taken by Mr. E. J. Wall, who delivered a short paper on methods of stereoscopic projection, in the course of which he referred to the stereoscopic camera, and the automatic separation of the lenses as the camera is racked out to near objects, which has been devised by the Carl Zeiss Works.

He divided the methods of stereoscopic projection into two classes, the first in which the constituent pictures are projected on the same plane of the screen, but are differentiated by (a) colour, (b) polarisation, or (c) persistence of vision. In the second class the pictures were projected side by side and united in the eye of the observer by optical means. Mr. Wall confined his discussion of methods principally to (a) of the first class—namely, that in which the two pictures are projected in approximate superimposition on the screen, and are viewed by the observer by means of spectacles containing glasses complementary to each other in colour. The methods and forms

preparing these stereoscopic projection slides by the Pinatype
ss and for preparing the viewing spectacles themselves was
ibed by Dr. König in an article which appeared in the "British
nal" for November 6, 1908. By the kindness of Dr. C. E. K.
and Messrs. Wratten and Wainwright, the audience were pro-
with these spectacles, and were enabled to view a number
reoscopic projections.

discussion followed the reading of the paper, in which the
ving took part: Dr. C. E. Kenneth Mees, Dr. Walsh Owen,
s. C. P. Butler, R. R. Beard, and A. J. Newton.

BYDON CAMERA CLUB.—A capital lantern lecture was given last
by Mr. Hugh Allen, a member of the club, being a descrip-
account of a trip to Portugal with a literary friend, at the
tion of a Portuguese propaganda society, formed to further
interests of the country, and make it better known as a tourist
b. In spring and autumn it would be difficult to choose a
r holiday ground. The country is varied and beautiful, and
are many fine and extremely interesting old walled cities and
s. The peasants, if on occasion of somewhat fierce aspect,
found obliging and amiable, and fruit, flowers, and generous
everywhere in abundance. Finally, and by no means least,
are bull-fights conducted in much more humane fashion than
s the frontier. There is no goring of broken-down horses, for
ce. So far, indeed, is consideration shown to the bull, that
the darts are provided with a ball three or four inches from
point, to prevent them entering more than this distance into
lesh. Although the lecturer did not directly say so, it was
r gathered than when a sufficient number of these were in the
ct position, a pleasurable tickling sensation encouraged the
to become playfully attentive to all around him. A series of
tic slides were shown illustrating this pastime, including an
dant flying through space, in obedience to an intimation from
ull to that effect.

THAMPTON CAMERA CLUB.—At a meeting held last Monday
ng three lecturettes were given by Messrs. W. R. Kay, A. E.
y, and G. T. Vivian respectively. Mr. Councillor F. G. Ryder
led. Mr. W. R. Kay related some mountaineering experiences
Bernese Oberland, which were illustrated with some beautiful
, depicting the characteristics of the Swiss scenery. Mr. A. E.
y gave an account of a sojourn in North Wales, introducing
interesting features of Conway Castle and its immediate neigh-
ood. The slides accompanying his discourse included a view
neighbourhood of Penmanneck, where recently the noteworthy
catastrophe was supposed to have happened. The lecturette
by Mr. G. T. Vivian was an inspiration derived from reading
Doyle's well-known novel, "The White Company," and a
ptive account of Beaulieu Abbey and the surrounding district
given, introducing many of its historical associations. The
es were all well illustrated.

Commercial & Legal Intelligence

AL NOTICES.—The partnership between Frank Sydney Cham-
n and Mark Owen Athey, carrying on business as photo-
ers at 42, Queen Street, Cardiff, under the style of "Athey and
has been dissolved by mutual consent. The debts due or
are being paid by Mr. Athey.

partnership between David Samuel Childs and Frederic
Bursill, carrying on business as photo-etchers, blockmakers,
ngravers at 10, Tenter Street, Moorfields, London, under the
of the "Finsbury Colour Photo-Engraving Company, Bursill
Childs," has been dissolved by mutual consent. All debts due
being paid by Frederic Chas. Bursill, who is continuing the
ss.

receiving order, dated February 9, has been made in the case of
m Henry Bullock, photographer, etc., carrying on business at
n Road Studio, Featherstone, Yorkshire. The adjudication
on the debtor's petition was made the same day.

irst and final dividend of 9s. 7d. in the £ has been declared
t case of Louis Henry Bourlet and Frederick Francis Bourlet

(trading in co-partnership as James Bourlet and Sons at 17 and 18
Nassau Street, Middlesex Hospital, W.), fine-art agents, etc. In
the separate estate of the latter a first and final dividend of 4s. 5d
in the £ is to be paid.

A dividend is to be paid in the case of Alfred Fletcher, photo-
grapher, The Studio, Town End, Chapel-en-le-Frith, Derbyshire.
Creditors must lodge proofs on or before the 27th inst. with the
Official Receiver (Mr. A. C. Proctor), 23, King Edward Street,
Macclesfield.

Correspondence.

* * We do not undertake responsibility for the opinions expressed by
our correspondents.

* * Correspondents should never write on both sides of the paper.
No notice is taken of communications unless the names and
addresses of the writers are given.

THREE USEFUL HINTS.

To the Editors.

Gentlemen,—I get so much useful information and so many "tips"
from the "British Journal" that I venture to make three suggestions
that may be useful to others, if not generally known.

A correspondent in the "B.J." a short time ago recommended
freezing stoppers that had become fast in the bottle; but a freezing
mixture is not always on hand. An effective method in most, if
not all, cases is to drop one or two minims of methylated spirit into
the groove made by stopper and neck of bottle, and set aside
for a short time to allow the spirit to penetrate. I recently took
out the stopper from a Winchester quart that defied all other means.
The bottle had contained a strong varnish, and had not been touched
for nearly ten years. I set it aside for the night, and next day the
stopper came out as though it had been in daily use.

A rapid method of cleaning glass is to wash with a little Monkey
Brand soap and a bit of soft rag, after which water will drain quite
evenly off the glass.

A useful vignetter can be made in a few seconds out of ordinary
corrugated packing-paper. Mark the size on smooth side (length of
vignette running across the ridges), and cut out with a sharp knife
pushed through at a very acute angle.—Faithfully yours,

Grove Lodge, Watford.

R. E. WESTON.

February 14, 1909.

A PHOTOGRAPHIC APPEAL FOR THE CHILDREN MADE ORPHANS BY THE MESSINA EARTHQUAKE.

To the Editors.

Gentlemen,—History does not record a more terrible catastrophe
than the one that destroyed the two beautiful Italian towns, Messina
and Reggio, and their enchanting surroundings. In a wonderful
impulse of charity most of the civilised nations have come with aid
to the miserable survivors. But the misfortune is so great that
no help may be said to be great enough.

Photography, which has given us new means of artistic representa-
tion and of scientific investigation, has in itself the power of becoming
an efficacious means of charity. In all civilised nations the wish
to have a souvenir of those towns, as well as of the convulsions
which destroyed them, is keen. Our society is preparing such a
publication, hoping that you will consent to distribute it.

This work and this distribution we shall do with all our heart,
as the whole income will be for the benefit of those unfortunate
children, who, through the catastrophe, have become orphans, and
who form a most unhappy multitude.

This souvenir, of so much beauty past and so much sorrow present,
will be a monograph, and bear the title, "Messina and Reggio
Before and After the Earthquake, December 28, 1908." We intend
to reproduce, with the finest processes of modern industry, all the
beautiful works of art (as they were), all the most characteristic
scenes relating to the life and topography of those marvellous and
unhappy regions.

The principal Italian photographic establishments (Alinari, Brogi,
Bertelli, Interguglielmi, Sommer, etc.) have offered their collections.
Members of our society have been sent to the ruins to take views
of their present state. The observatories of the world have promised

seismograms of the earthquake, which will explain its terrific effect. Vulcanological observatories will send us photographs of those volcanoes that now and then cause the Italian soil to quake. Engineers will give us types of the scientifically constructed edifices that will form New Reggio and New Messina. The Royal Italian Geographical Institute will furnish a chorographical map of the devastated regions. Some of our best and most competent writers, like Padre Alfani, Pasquale Villari, Gabriele D'Annunzio, Ugo Ojetti, and others have promised short descriptions, and, finally, with the aid of the embassies, we hope to be able to form a page which we propose to call "The Page of Gratitude," in which the Ships of the Nations that offered help in so sad an hour are to have their place.

The favour we request of you is to ask everyone of your readers, who are our companions in work and aspirations, to acquire a copy of our volume, which will be published in four languages (Italian, English, French, and German), and cost in Italy five francs, in all other countries six francs. In so doing they will not only possess a souvenir of the tragic and historic moment, but will also be doing a helpful act of charity.

"Let us then be up and doing," and allow us to send you, anticipatedly, our most heartfelt thanks. We hope that very soon the thanks of thousands of innocents will follow our own.

PROF. LUIGI CASTELLANI,

President of the Italian Photographic Society.

Società Fotografica Italiana, Via degli Alfani 50, Firenze.

THE "THAMES" COLOUR-SCREEN PLATE.

To the Editors.

Gentlemen,—In No. 2544 of the "B.J." you publish a letter of the Thames Colour Plate Company, in which is quoted a German judgment upon the Thames Plate. Further, you reprint a passage from the "New York Herald," January 3, 1909, referring to a lecture given by Direktor Dankmar Schultz-Hencke, on December 28, 1908, in the War Academy at Berlin.

I beg to state *that all said* in the "New York Herald," January 3, 1909, referring to the Thames Plate is strictly invented. The whole content is a bold forgery of the reporter. Direktor Schultz-Hencke only said: "Ten days ago a new colour-plate, 'The Thames,' has been issued in England, for the samples of which I am indebted to Dr. Mebes. I can only show you a photo-micrograph of the colour-screen"—which was then projected. All the other slides which excited the greatest admiration were Autochromes, taken by Miss Mary Kundt. The lady photographer of Professor Hans Virchow has not yet tried any "Thames" plates. The colour-photographs, alluded to and shown in the month of October, 1908, in the War Academy, were taken on Autochromes.

Direktor Schultz-Hencke and myself have together tried the Thames. Eight photographs of a colour chart with grey scale were taken; plate speed Watkins P. 17 adopted; exposure correct; registration succeeded fairly; colour rendering absolutely unsatisfactory.

—Yours very truly,

DR. ME BES.

Berlin, N. 4.

February 8, 1909.

[Without any desire to question Dr. Mebes' bona-fides, but only to obtain a complete and authoritative correction of the statements to which we gave currency in our issue of February 5, we referred to Herr Schultz-Hencke, whose reply in German we have translated below.—Eds. "B.J."]

To the Editors.

Gentlemen,—Acknowledging the receipt of yours of the 10th inst., I beg to inform you that I had already seen the paragraph in question in the "British Journal." Had not Dr. Mebes, on his own initiative, already sent you a letter, I should certainly have done so. But as the opportunity is now afforded me to reply, I should like to put the correction into slightly different form—namely, as follows: It was a misconception on the part of the reporter of the "New York Herald" to state, as he did, that the pictures which I showed at my lecture at the Kriegsakademie, on December 28, were taken on the "Thames" plate. They were in every case Autochrome results, obtained in the School of Photography, under my direction and by my assistant, Fräulein Kundt. The only exhibit of the "Thames" plate which I showed was a photo-micrographic

enlargement of the screen, and I added that up to that time, in a of repeated trials, it had not been possible to obtain on the "Thames" plate a result which was at all satisfactory. The experimental question were made in collaboration with Dr. Mebes, by whom plates were kindly obtained.

D. SCHULTZ-HENCKE

Photographische Lehranstalt des Lettc Vereins,
6, Victoria Luise Platz, Berlin, W. 30.

Answers to Correspondents

- All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.
- For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, &c. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

- H. Smith, 17, Grimshaw Street, Darwen. Photograph (combination) containing Six Church Views.
- H. Osguthorpe, 18, King Street, Spennymoor, Durham. Photograph of the Father Michael McNamee.

SALE OR RETURN.—About last August I took negatives to supply postcards to a firm of shopkeepers. I sent what views I liked, and they sold them, subject to 25 per cent. commission. (A certain date a relative of their family took over their business, paid accounts for them, and paid part of mine. The rest was carried forward. I did not know that the business was his relative's), so when I presented my account since the firm was given up, one in the late firm said this is So-and-so's. So of course, I gave to him, and he said he (the relative) was not a he owed me anything, and takes no notice of my account, which has been presented several times. The understanding with the old firm was what was not sold was to be returned to me, nothing in this case has, so what I want to know is how to proceed?—C. D. V.

As the dealings were with the old firm, it is to it that you should look for payment for what may be due to you.

GERMAN.—(1) We are sorry we cannot say. Better apply to a stationery journal, such as the "Stationery Trades Journal," Warwick Lane, E.C. (2) Neyroud and Sons' Advertising Office, 14-18, Queen Victoria Street, London, E.C.

PORTRAIT LENS.—I have seen a No. 3 Ross portrait lens advertised for £5 18s. 6d. Would this be the same lens as listed at £18 or an earlier pattern? A reply will oblige.—Ross.

It is impossible to answer your query without seeing the lens. From its price we should surmise that it is one of the earlier makes. The old No. 3 has a somewhat smaller diameter than those of the same number of more modern construction, probably a somewhat rounder field. Your best course is to obtain the maker's opinion of it.

R. S.—It is difficult to say any one is the "best." The most useful advice we can give you is to obtain the makers' catalogues and study them alongside the article in the current "Almanac." You would also derive assistance from our issue of June 14, 1908, which described every make of instrument then on the market.

ACCESSORIES.—Can you advise me as to a composition for use on balustrade and pedestal, etc., for photographic purposes? It appears to be quite different to the composition on fire-harder and more gritty.—A. T. HONEY.

Different makers of photographic accessories use different positions. Possibly that on yours may be ordinary plastic.

is; it is used by many. We have seen some that appears somewhat of the character of builders' cement. The various makers of this class of accessories do not publish the compositions they employ.

Q. L. E.—Would you be kind enough to give me a good formula (idol) for black and white; also formula for sepia tone?—**NEWHAM.**

Although you do not say so (you should at least take the trouble to express your meaning), we presume you refer to a developer and toner for bromide paper. The developer is made as follows. Prepare the following stock solution:—

Sodium sulphite	4 ounces.
Potass metabisulphite	1 ounce.
Water to	20 ounces.

Use later:—

Amidol	2 to 3 grains.
Stock solution	100 minims.
Water to	1 ounce.

The toning formulæ are:—

Ammonium bromide	300 grains.
Potass ferricyanide	300 grains.
Water	20 ounces.
Sodium sulphide (pure)	100 grains.
Water	20 ounces.

Place the fixed and washed prints in A solution. Wash for a few minutes in water, and then immerse in B solution until toned. The B solution will not keep long.

TONING BATH.—With reference to the combined bath for P.O.P. given in the "B.J." the week before last, can you suggest, or can you give me, a formula with more solution? For instance, 1 oz. would not be enough to tone eight 12 by 10 at the same time conveniently. Of course, it would be easy to double the quantity of water and keep the prints in for twenty-four minutes. But by doing it this way time would not be saved, which, of course, is a great thing, especially in cold weather!—**EN AVANT.**

We can only suggest that you use double quantities throughout, of chemicals as well as water. Some baths may work rather more quickly, but it is not desirable that they should tone in less than a few minutes.

ADON.—Could you inform me as to what aperture the combination of an "Adon" and an Aldis $f/6$ (5 $\frac{3}{4}$ in.) works at?—**TELEPHOTO.**

We cannot answer this definitely, but if the front lens of the "Adon" is 2in. or over, the aperture should remain unaltered. You had better write to Messrs. Dallmeyer, who can, of course, give you the information at once.

EXPOSURE-METER, ETC.—1. I sometimes do a little "portraiture in the home," but the lighting conditions are so extremely variable that I find some difficulty in arriving at a reliable and correct exposure, and an ordinary actinometer is so slow, under the circumstances, as to be in many cases useless. Is there any other instrument made that will, under the conditions, give the exposure rapidly and accurately, and if so the price of same, or can you advise me of any other method of arriving at the desired result? What size head should I be able to get without distortion using a first-class R.R. lens of 20in. focal length working at $f/8$, and at what distance from sitter? 3. If the back component of lens is 2 $\frac{1}{4}$ in. diameter and the shutter opening 2 $\frac{1}{2}$ in., the distance between the lens and shutter being 1in., would the shutter speed be reduced reduce the effective aperture of the lens or affect it in any way?—**ENQUIRER.**

1. We know of no better method than the use of an actinometer, such as that of Watkins or Wynne, using the quarter tint in each case; or you might find it of advantage to employ a still lighter tint. For a rapid determination of the exposure, the eyepiece actinometer supplied by Staley and Co. should be serviceable, but it requires a little practice to master the method of use.

This question is very vague. In a studio 20ft. long the head could photograph about 1in. high, and the distance between lens and sitter would be none too much. In a 15ft. studio you could not have much more than 10ft. or 11ft. between lens and sitter, and this is about the minimum desirable. The head would measure about 2in. We doubt if you could get a larger

head than this without obvious distortion. 3. All depends on the position of the shutter with regard to the lens and the angle of view. If at the back of the lens it will probably vignette very oblique light-pencils if a fairly wide angle is included. If close to the stop it will probably not affect the aperture at all.

E. HERRIDGE AND Co.—We do not know the firms. You might get the names of some from the "Almanach" issued by Schwier, of Weimar, price 1 M.

R. OWEN.—About the best simple book you can get is "Chemistry for Photographers," by C. F. Townsend (Dawbarn and Ward, Ltd., 1s. net).

J. C. JENNINGS (Montreal).—Thanks for your suggestion. Messrs. Mawson and Swan, Mosley Street, Newcastle-on-Tyne, make a special feature of supplying small quantities of dyes.

TONING FORMULÆ.—Please inform me, as I am a new subscriber, if any of Dr. Sedlaczek's formulæ for toning bromides have appeared in the paper. If so, the number and date, also price of back numbers.—**T. R. WILLIS.**

We translated the chief of Dr. Sedlaczek's formulæ in two articles which appeared in the "B.J." for August 10 and 17, 1906. Our publishers can no doubt supply these numbers at 2 $\frac{1}{2}$ d. each, post free.

BLISTERS IN SULPHIDE TONING.—I am troubled a great deal by bromide prints blistering after sulphide toning. The only remedy I find is to plunge them into an alum bath, after rinsing quickly, on leaving the sulphide bath. Is this liable to cause fading or in any other way detrimental to the prints, as I notice the "perfume" of sulphur is stronger even so?—**GAZOOST.**

It is certainly not wise to use an alum bath after the sulphide bath, as to do so tends to fix the sulphide in the print. The proper stage at which to harden the prints is when fixing or immediately after fixing. A combined fixing and hardening bath which has been found suitable when prints are being sulphide-toned is that made with chrome alum given on page 780 of the "Almanac." One remedy for blistering is to transfer prints from the sulphide solution into methylated spirit, mixed with a certain amount of water. This would be less open to objection than the alum.

LENS QUERY.—Would you be so kind as to tell me the following? I have a Ross symmetrical whole-plate lens, 8in. focus, with rotating stops, numbered 1, 2, 3, 4, 5. Now, as I intend making a trial with colour plates ("Thames," say), I am at a loss to know what f number to use on a Wynne meter. Can you tell me the equivalent f numbers to correspond with 1, 2, 3, 4, 5 on above-mentioned lens?—**SALVO LOMB HUTCHISON.**

We cannot, as the stops are not numbered according to the universal system. What you will have to do is to measure the aperture in the stops and divide it into the focal length (8 inches) of the lens. That will give you the f values.

BACKGROUNDS.—(1) Is it possible to get rid of creases on canvas backgrounds on roller? I have two or three behind one another, and it is worse when I have left it rolled up for a time. (2) Will painting a white canvas reflector with ordinary white paint improve the lighting?—**MONFAB.**

(1) You do not say whether the backgrounds are flatted oil or distemper. In either case it is difficult to get rid of creases when once they are formed. The best thing to do with the backgrounds now will be to strain them on wooden frames. (2) Yes, if the canvas is dirty or discoloured. But it will be better to paper the canvas with white paper. When that gets dirty it can easily be repapered.

ECONOMY.—If both lenses are used at same aperture the drawing and depth of focus will be the same. The field covered may be a little better in one case than another. It depends on the lenses themselves. Certainly it will be an advantage as regards arranging an interior subject to use an anastigmat of, say, $f/6$ aperture, and many of such lenses of 9 inches focus will cover a 12 x 10 plate when stopped down.

S. E.—The faces are about as well rendered as you can expect in such work. We should anticipate better results by using a thin train of powder on one side and a shorter one or a flash on the other. This should obviate the sharp shadows on the stage. If the powder is spread out in a train it should not be necessary to

use a diffusing screen. The powder you name is as good as any, and can be fired with a taper or by electric ignition.

S. C. BONNERGI (Kalighat, Calcutta).—It is out of our province to do what you request, but we have asked two reliable firms to write you with their advice and offers.

CYMRO.—We should advise you to use the two lamps, which should give a very good light for heads and busts, and are better adaptable by using them a little apart for groups of three or four.

ART PHOTOGRAPHER.—Apparently the Postmaster-General will take exception to photographs such as the one you send.

ROTTJOUR.—It is not easy to account for the markings, but they can hardly be caused by the use of amidol or by intensified negatives. Some look to us as if the prints had overlaid each other in one or other of the processes, but that will not explain the oval marks. We advise you to send some to the makers of the paper.

UNSHARP COPIES.—In making a copy from a coloured miniature recently I used an iso plate also a thick yellow screen over the hood of the lens. On development the negative was very much out of focus. I took off the screen and found the focussing quite correct. I then took one without screen quite all right, and again replacing screen took another quite out of focus exactly like the first. The screen is dark yellow, and took twenty times more exposure. Can you give me the reason? The camera back was screwed down in each case to avoid any shifting of focus.—**ALPHA**.

Most probably the yellow screen is at fault, not optically flat. If you use a small stop you should be able to use it and still get a sharp copy.

CRYSTALS AND OTHERS.—In our next.

C. C.—Mr. J. C. Stevens, 38, King Street, Covent Garden, London, W.C.

NOTICE TO LEAVE.—I get my wages weekly and I intend giving my master a week's notice when I leave. Is it sufficient, or can he refuse to accept it, and if he does refuse shall I be safe in going?—**DOUBTFUL**.

If you are a weekly servant you must give your employer a clear week's notice of your intention to leave. That is all that is necessary. If, however, you are under an agreement for a definite period you can only leave under the terms of that agreement, whatever they may be.

ENQUIRER.—Charles Bowen, glass dealer, 58, Grove Road, Holloway, N.

P. P. A.—At present I am an amateur, but I intend shortly to commence business as a professional. Will you please inform me if I can be elected a member of the Professional Photographers' Association, as if so I should like to join at once, as it might be of assistance to me?—**AT PRESENT AN AMATEUR**.

Only members of the profession are eligible for membership, and until you are a bonâ fide one you are not eligible.

COPYING A COPYRIGHT PICTURE.—A customer has brought us a picture to copy. He tells us that he believes there is no copyright in it. We, however, fancy there is, and he is very anxious for us to copy it at once. To this we demurred, but he said he would give us an indemnity against any proceedings. This we have accepted, and made the copy. A friend now tells us that we are still liable for infringement if the picture should turn out to be a copyright one. Can you kindly tell us if that is the case, and oblige?—**F. AND J.**

Yes, you are still liable to action if the picture is copyright. The indemnity will not protect you from that, and you will have to take the consequences. If, however, the agreement is rightly drawn out and duly stamped you can recover any expenses you may be put to from the party who agreed to indemnify you in the matter—that is, of course, supposing he is in a position to pay them.

DISCOLOURED PRINTS.—Enclosed please find three prints that have been returned by a sitter. They were only sent out three months ago. They are on _____'s gaslight paper, and you will see that the lights have gone to a brownish colour. My printer tells me that she is sure they were well washed, but can that be true, as they have gone in this way?—**STAINS**.

What your printer tells you may be perfectly correct as regards

the washing given to the prints. The cause of the discoloration is that they were not thoroughly fixed before they were washed, so that the insoluble hypo silver compounds were not converted by the hyposulphite of soda into the soluble condition.

LICENSEE.—It must not be taken for granted that all patents are sealed are valid. If many of them were contested in a court of law they would be found invalid, and it is not impossible that the one, the specification of which you enclose a copy, would be so. As you have taken a licence to work under the patent cannot now contest its validity. In taking the licence you have practically admitted that. Considering the subject from a business point of view, we should say that you had better help in sustaining the patent rather than attempt to upset it.

ACTION FOR PAYMENT.—Some months ago I received an order from a firm here to copy some plans and cannot get payment. They say they did not give the order for them. The order was written on their usual memorandum forms and signed by the then manager, who has since left. They say that they will not be answerable for what he did. Can I recover?—**A. A.**

If the order was written on the firm's usual forms and signed by the general manager you will recover the debt in the County Court. The fact that the former manager has left makes no difference.

THE BALHAM CAMERA CLUB will hold its second annual exhibition on Saturday, February 20, 1909.

THE CANVASSING FRAUD IN THE LIVERPOOL DISTRICT.—We are glad to see the "Liverpool Echo" giving publicity to the fraudulent methods of the enlargement canvassers who are at work in the neighbourhood of New Ferry and Port Sunlight. A correspondent writes: "In a case which came under my observation the canvasser promised most emphatically that if a photograph was given him he would have an enlargement taken from it and charge absolutely nothing. This marvellous offer and the exceedingly 'taking' manners of the tout so influenced a young lady of the house that she parted with a photograph. One can imagine her surprise when a week or two later another man appeared with a copy of the enlargement (wretchedly executed, by the way), and insisted that he would give the enlargement, providing a frame was purchased for 12s. 6d. This unexpected proposal being received with indignation, he so terrorised the young lady with threats of proceedings that she was induced to part with a sum of money to settle the matter. If this sort of thing constitutes an indictable offence, I trust the police will prevent such extortion from people who can ill-afford to lose money in this way. Here is the best way of dealing with the above-named knavish trick. When the bland-spoken representative of 'The High Art Company'—or whatever they choose to call themselves—visits you with his specious offer, thank him heartily (writes 'D. C. R.') and tender him a photograph you do not value. When subsequently the 'artist' brings you the enlargement give him nothing for his trouble, but the reminder that his picture and expensive frame dodge is as old as the hills, and has been exposed over and over again. If everyone acted thus the swindle would soon cease."

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SUMMARY.

Some of the obstacles in the way of the two-colour method of stereoscopic projection are dealt with in an editorial article. (P. 154.)

For the making of three-colour carbon prints, Messrs. Edgar Clifton and A. E. Wells have patented the use of supplementary dye-baths in conjunction with a telescopic method of observing the three constituent images before they are finally and permanently assembled. (P. 163.)

Other patents are for a stereoscopic camera, which obviates the necessity to reverse the negatives, and a camera for photography by carrier-pigeon. (P. 164.)

Mr. Snowden Ward, in some notes on "Current Photographic Matters in America," gives an instance of the kind of enterprise which an English technical worker emigrating to the States or Canada would possess. He quotes the advice of a New York professional to photographers who think they can do better in America. (P. 155.)

At the Royal Photographic Society on Tuesday evening Mr. E. A. Salt, in a valuable paper, showed the speeds and efficiencies of commercial photographic shutters as measured by an apparatus of his own design and construction. He also described a very simple method of shutter-speed measurement devised by Mr. W. H. Smith. (P. 167.)

Two members of the staff of the Canadian Survey have described the method adopted for the determination of heights in plotting from photographs. (P. 158.)

An American worker advises the making of magnesium ribbon into a coarse net for convenience in burning. (P. 159.)

In the correspondence column, "Cinematograph Profits," "Conditions in South Africa," and the "Thames" colour-plate are referred to by our readers. (P. 169.)

The photo-chemical and photographic section of the forthcoming Congress of Applied Chemistry has already secured promises of several papers. The hon. secretary of the photo-chemical committee is Mr. Chapman Jones. (P. 154.)

Reviews of the exhibitions now being held at Birmingham, Edinburgh, and South London appear on Page 150.

Preliminary particulars of the meeting of the Photographic Convention, to be held at Canterbury from July 5 to 10, under the presidency of Mr. Snowden Ward, are given on Page 159.

The first two volumes of a comprehensive and descriptive work on the animal kingdom is now in course of publication in Germany. Some examples of the illustrations and notes on the volume are given on Page 156.

EX CATHEDRA.

"Copyright Property."

In a literary magazine the other day we came upon the phrase "copyright property" used in the course of an article on the relics of a writer whose centenary was the subject of illustration by photography. The expression was evidently intended to suggest that certain articles being the property of a certain person, the right to photograph them or to issue copies of such photographs was the possession solely of that person. Of course, there is nothing in copyright law to justify this implication. Actually the person enjoys the sole right because he takes care to prevent any one from producing a photographic copy, but if by some means or other such a copy is made, the Copyright Act does not on that account dispossess the photographer of proprietorship in his work. Conditions resembling these are not likely to occur in practice, but correction of a phrase likely to mislead may perhaps be pardoned.

* * *

Anastatic Photography.

According to a report of the Royal Dublin Society given in "Nature," Playertype seems to have been rediscovered by E. E. Fournier-d'Albe. It is described as a new process of contact photography, but the only new feature about it appears to be the second application of the same Playertype method of printing to the production of the positive. The negative is produced in the usual way by laying a plate film down on the subject and exposing the back of the plate. The result is said to be a "faint negative, much fogged." This negative is developed "with a view to the utmost hardness," which must be a rather difficult operation. A positive is then made from the negative by applying the same principle, and the result is said to be a good reproduction of the original. If still foggy, two more reversals will give a final result "in bold black and white, perfectly free from fog, and free from defects inseparable from all work done with a lens."

* * *

A New Stereoscopic Idea.

The imagination of the inventor seems to be inexhaustible in matters pertaining to stereoscopy, and our "Patents Column" often contains abstracts that suggest more imagination than practical knowledge. Of late there have been several patents concerning the production of a pair of stereoscopic images that overlap one another. The object of these has not yet become manifest, but we fear the results will have much the same fate as Dr. Smee's photographs in "binocular perspective," which anticipated the idea of these patents half a century or more ago. A quite recent patent develops a somewhat newer idea. In this case it is proposed to make two pictures on quite different scales with lenses of unequal focal length. This,

of course, involves the use of complicated special apparatus both for taking and viewing, and the only advantage claimed is that the results will show much better detail. It is not quite clear why they should do so, for good lenses will produce all the detail that can reasonably be required on the usual small equal-sized images. The advantage seems to be problematical, while the disadvantages are fairly obvious. In one of the proposed forms of camera the lenses are at unequal distances from the subject. This may mean differences in both depth and perspective. In another form the lenses are equi-distant from the subject, but then two plates have to be used. The viewing apparatus is of necessity more complex than the ordinary stereoscope, and it may be considered a matter of doubt whether those who find difficulty in combining ordinary equal size pictures will not find even greater difficulties in the case of unequal pictures.

* * *

The Congress of Applied Chemistry.

The first meeting of this International Congress to be held in London, has been fixed for May 27 to June 2, under the presidency of Sir William Ramsay,

F.R.S. The inaugural meeting in the Albert Hall is to be presided over by the Prince of Wales. In the photo-chemistry and photography section the president of the English Committee is Sir Wm. Abney, the vice-president Sir H. Trueman Wood, the hon. secretary Mr. Chapman Jones, and the committee, Messrs. Geo. E. Brown, James Cadett, E. Howard Farmer, Dr. C. E. Kenneth Mees, Prof. R. Meldola, F.R.S., A. J. Newton, E. Sanger-Shepherd, John Spiller, Sir Joseph W. Swan, F.R.S., Prof. J. M. Thomson, F.R.S., General J. Waterhouse, I.A. The following communications have been promised:—Dr. C. E. Kenneth Mees, Report on "The Present Condition of Sensitometry"; Mr. A. J. Newton, Report on "The Present Condition of Etching Methods"; Dr. S. E. Shepard, Report on "Colloid Chemistry in Relation to Photography"; Mr. C. W. Gamble, "A Note on Gelatine"; Mr. A. D. Cowper, B.Sc., "Photographic Methods as Applied to the Spectrophotometry of the Luminous Discharge"; Dr. Lüppo-Cramer, "On the Latent Image as Produced by Light, Röntgen Rays, Radium Rays," etc.; Prof. Dr. Coehn, "On the Photo-chemical Preparation of Sulphuric Acid."

THE COLOUR METHOD OF STEREOSCOPIC PROJECTION.

THE slides shown at the R.P.S. last week in illustration of the method of stereoscopic projection, described by Dr. König in our issue of November 6, 1908, suggested many interesting problems, and rendered it very evident that there is plenty of scope for further experiments. Some of the pictures could not be combined by the audience, others showed relief of a most exaggerated type, and in several cases a very unpleasant effect was produced by the appearance of the combined solid image a long way in front of the screen. All these defects are common in ordinary stereoscopic slides when the mounting and trimming is at fault, and it may be of interest to try and trace the source of these troubles in the lantern images.

Assume that the right-hand one of the two stereo images is printed in green and seen through a red screen placed in front of the right eye, while the left-hand picture is printed in red and seen by the left eye through a green screen. The two pictures are bound in rough register and projected together upon the screen, and it is obvious that the adjustment of this register, or want of register, is the factor that takes the place of mounting and trim-

ming in the case of the ordinary slide. The picture cannot coincide in all parts. One must overlap the edge of the other, and the green right-hand picture may overlap the red either on the right or on the left. In other words, one picture must be displaced laterally with regard to the other, and a good deal must depend on the degree and direction of the overlap. Suppose the green picture to be displaced to the right, it is obvious that if the amount of overlap is too great, say over $2\frac{1}{2}$ inches, it will be impossible to combine the pictures in the eye. This means that the overlap existent in the actual slide must not be magnified by the lantern to a greater amount than $2\frac{1}{2}$ inches. Assuming this amount of overlap not to be exceeded, then the combined solid image should appear to be situated behind the lantern screen. Suppose, however, we alter the register so that the green image overlaps the red on the left. The amount of overlap on the screen can then not affect the power of combining the images, for there is practically no limit to the amount of convergency that we can give to the visual axes, but the combined image must then appear to be in front of the screen. Where the images exactly register on the slide the resulting combined image points must appear to be in the plane of the lantern screen, and so, by adjusting the amount and direction of the overlap, we can get the same control over the final result that we exercise in trimming an ordinary stereoscopic print. If, however, we wish to keep the whole picture behind the screen, then all the green image must be to the right of the red one, and this may lead to an excessive amount of overlap if the lantern gives too much enlargement. It thus appears that the distance of the lantern from the screen is a matter to be taken into consideration when the best possible effect is to be obtained. A more difficult problem is the avoidance of exaggerated relief. This is a common defect in slide representing near objects, because it is generally impossible to mount such slides with a sufficiently small amount of separation. The result is of necessity observed under too small an angle of convergence. In the case of the projected lantern images it is obvious that they must always be observed under a very small angle of convergence; unless, of course, the images are crossed so that the green image is well to the left of the right one which condition, as already pointed out, will introduce other objectionable features. It seems evident then that the only satisfactory way of avoiding distortion is to make the negatives under a small angle of convergency which means that objects very near the camera must be avoided. It would appear likely that long focus lenses might be usefully employed in making slides of this type but without actual trial it is difficult to say whether they would be beneficial or not.

Another method of getting over the trouble of exaggeration would be to reduce the size of the projected image, and bring the audience nearer the screen; but this would be a rather unsatisfactory expedient. It is worth remembering that sometimes in ordinary stereoscopy on very near objects, the only proper separation for the mounted prints is practically nil, if exaggeration is to be avoided. This means that it is impossible to effect the mounting at all with ordinary prints, but the colour method renders correct mounting possible. Some of the slides shown at the lecture were practically low-power photomicrographs, and under the conditions of viewing they showed enormous exaggeration. It should, however, be possible to produce a slide of a similar subject that, when viewed in the hand, would be free from this defect. It would be interesting to experiment in this direction, and it might be found that the colour method gets over a difficulty that is sometimes rather a serious one with ordinary methods of working.

CURRENT PHOTOGRAPHIC MATTERS IN AMERICA.

A Cinematograph Trust.

THE closing of over five hundred cinematographic exhibitions in New York, as mentioned in my last note, has led to a curious result, which throws an interesting side-light on the extent of what is known here as the "moving picture" business. A trust, or syndicate, has been formed to take over the businesses of this class in New York city, to reduce the number of shows, reduce total expenditure, and (incidentally) comply with the demands of the Mayor and the fire department. The trust is capitalised at £3,000,000, and is intended to manufacture films as well as to control and conduct exhibitions. As there are already at least two or three motion-picture concerns with capitalisation running into millions of dollars each, there is some speculation as to whether all are to be included, or, if not, which are to be left out, and what they will do about it.

The Mayor's objections to the exhibitions have been on the ground of public danger and public morals. Most of the houses closed in Christmas week have been allowed to re-open, temporarily and conditionally. They can all, of course, satisfy the censor of morals by withdrawing such films as are risky, but many of them cannot arrange matters so as to satisfy the fire department. Many, perhaps most, of the exhibitions are held in stores, or shops, which are long, narrow rooms, of 100 ft. to 120 ft. by 20 ft. to 40 ft., with only one entrance. Generally, the screen is at the further end, and the lantern close to the door, so that in case of fire or panic the only exit leads past the centre of trouble. Some of the shows are in old-fashioned lecture-halls, with the main entrance under the middle of the gallery, so that the exit is immediately under the cause of any difficulty that may arise.

Danger of Inflammable Film.

The extent of the business is so great that daily papers discuss its interests editorially almost as if they were affairs of State, and within the last few days they have been calling upon inventors to produce a non-inflammable film. Their text has been a fire which took place in Omaha last week, when an errand-boy who was carrying a handful of loose film ran against a man with a lighted cigar. The films flared up, were snuffed, and the result was that in a very short time films to the value of £30,000 were destroyed, and the building was damaged to the extent of £10,000. Such an important paper as the "Albany Evening Journal" heads its editorial "A Need of the Time," when appealing for the non-inflammable film; and the extent of a film-fire that is possible in a city of some 130,000 inhabitants away in the centre of the United States goes to show the importance of the industry. Another interesting fact is that there are two active weekly newspapers devoted to the moving-picture business, and apparently they are much better supported than the two weeklies that deal with photography as a whole.

Should Photographers Emigrate?

In England I am often asked for advice by men and women who think of emigrating to the United States to seek positions as operators, printers, retouchers, or receptionists. My general advice is like that of "Punch" to those about to marry: "Don't." As a rule, the man who cannot succeed as a photographer in Britain, will find it a still harder fight in America. Recently I have been talking over this matter with some of the best men in New York, and the advice they give can be fairly summed up in the words of one of them, himself an Englishman, who has been established here for twenty years and has made a good "pile." He says: "If you know a young fellow of twenty-two to twenty-five, who is a good photo-

grapher, healthy and strong, ready to do anything, and to stick to it through disappointment and hard knocks, send him along. I would give such a fellow a good job any day; but I can't engage him in England, because the alien contract law is so strict. A man of thirty should hesitate, however good he is; and a man of thirty-five should not come at all, unless he has some people he knows quite well to come to. A man of thirty-five or upwards, who is not so successful in his own country as to want to stay there, will nine times out of ten break his heart here."

Old Country versus New.

One of my friends here, from England many years ago, says: "I came here and had an awful uphill time for a while, but at last had exactly a thousand dollars in the bank, and seven hundred to pay for a trip to the old home. When I got there, my best friend, who started with nothing at the same time as I did, had saved a thousand pounds, and not worked nearly so hard. He had shorter hours, took summer holidays, and worked in a way that he could enjoy; while I had been fighting every minute, working hard and living hard; and he had saved just five times as much as I had."

Chances in the Newest Places.

This same friend tells how, a few years ago, he urged his young son to go afield in search of adventure and profit. The lad was an expert all-round photographer, and set off with a companion of similar stamp and training. They investigated several towns and cities in the Eastern and Middle States, then crossed into Canada and took one of the railway lines to "rail-head," the furthest point it reached. There they found that tickets could be obtained for stage-waggons, going further West, and at the final waggon-terminus, as there was no photographer, they rigged up a dark-room and began a business with out-door and "at home" work. Soon they were able to rent a house and store, and before long, finding that much of their work was being sent 1,500 miles to be reproduced in half-tone, they induced their parents to invest about £1,600 to set them up fully in photographic and photo-mechanical work. In the very few years that they have been there, the railway has gone through their little town, the town has grown considerably, and the boys have "made good," saving enough to buy the freehold of their premises. They had the inestimable advantages of good training, youth, energy, and parents' financial backing, which enabled them to search at leisure for an opening, and to capitalise the business when capital became necessary.

The American Convention

of The Photographers' Association of America is to be held in Rochester, a fortnight later than our own P.C.U.K., from July 19-24. To complete their arrangements, the officers have just spent a week in Rochester, where they have been entertained by the Rochester members of the Association, and by the manufacturers. The visit closed on Friday, January 15, with a dinner to the Committee, at The Rochester Club. The Rochester Chamber of Commerce has taken a very active, helpful part in arranging for the Convention, and is rejoicing in the idea that it will bring to the city some 3,000 visitors, who will be influential in spreading the fame of a city which aims at being one of the great leaders in many lines of manufacture.

Caricatures at the Little Galleries.

True to its principle of attempting to show photographers all that they ought to see—and not merely photography—the Photo-Secession devoted its January exhibition to caricatures by Marius de Zayas. Wonderfully clever and bold, they may perhaps best be imagined by British readers if they think of the

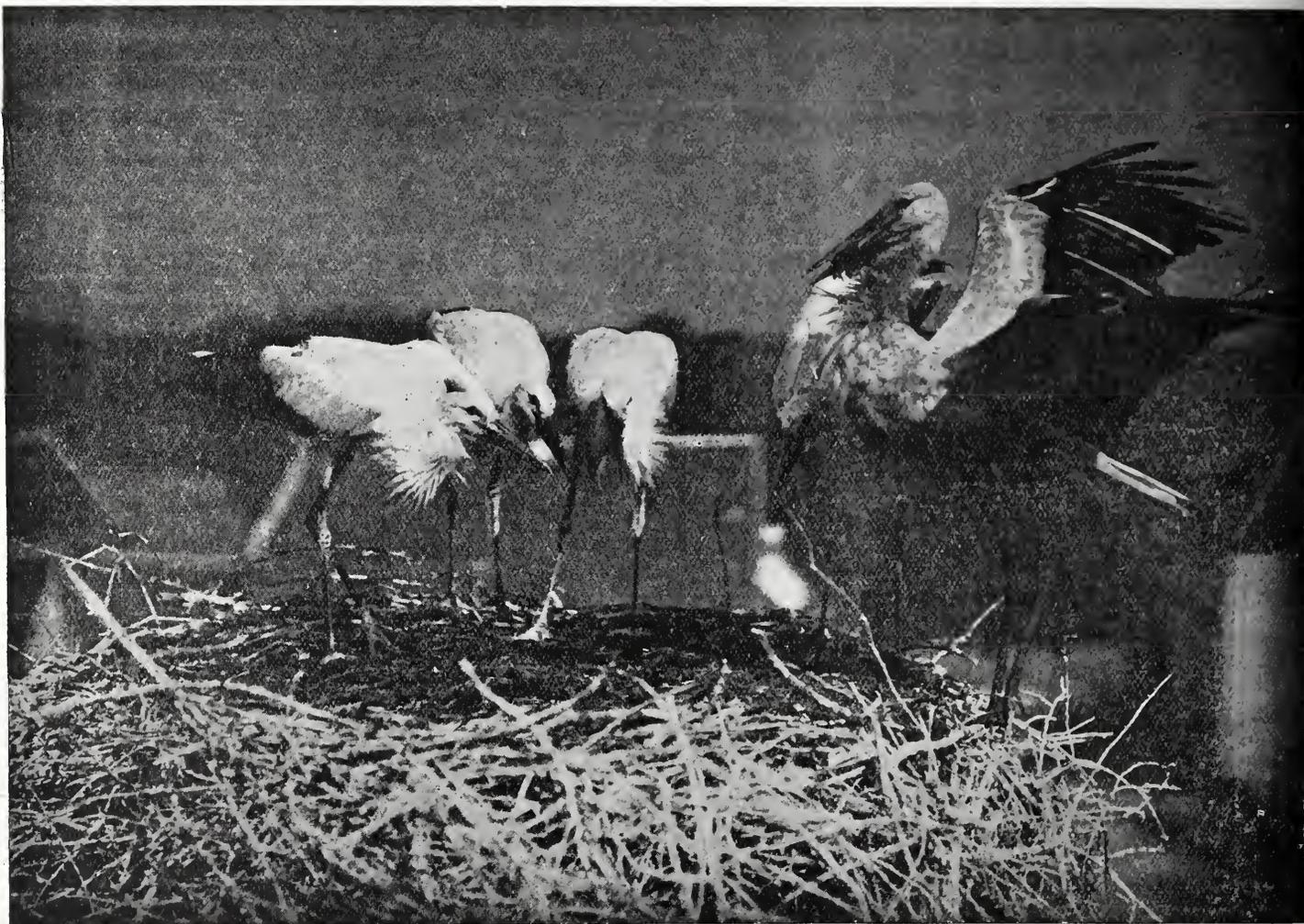
work of S. H. Sime, denuded of much of its detail, and done in black-and-white on grey or brown boards. Exactly what lesson is intended for photographers, I don't know. They may learn that an immense power of character drawing can be secured without detail; and, perhaps, too, that power may be

used kindly or cruelly. W. T. Stead has said that a character sketch should show a man as he appears to himself at his best and not as he seems to his enemies at his worst, and this is a good rule for portraiture, even when it broadens to caricature.
H. SNOWDEN WARR

PHOTOGRAPHIC PICTURES OF THE ANIMAL WORLD.

Of the many branches of science to which photography has rendered service perhaps none has more directly benefited, in the estimation of the public, than that of zoology. The natural history of animals, tame and wild, has interested everybody from the cradle: zoology, as an abstract science, burdened with Latin names, only a very few of us. It was not easy to read the writings of zoologists, who apparently took the view that as soon as their subject was made interesting to Mr. John Smith and his son Master Jack, it ceased to have a scientific value. But when photography arrived to serve the laudable purpose of gilding the zoological pill a large public has been found to take an interest in the habits and life-histories

graphic instruction provided by the photographic illustration. The days of our youth the salient features of the members of the animal kingdom were impressed, in silhouette fashion, upon our minds by verses which crudely described birds and beasts which were never likely to see out of a zoo. Now we have such as Mr. Kearton to introduce us to the fur and feathered folk to be met if we know where to look for them, in our own country. In this, as in most other branches of education, it is made more difficult for the student to form a wrong impression, and at the same time there is opportunity afforded to cultivate the student's own power of observation.



Stork's Nest, with Four Young. By M. Auerbach, Leopoldshafen a. Rh.

of the animal kingdom which all the specimens in all the museums would never have developed in them, for the quite obvious reason that it is a good deal easier to interest oneself in the ways and doings of, say, the water rat, than in the most perfect specimen of the *arvicola amphibious* in the Natural History Museum at South Kensington. Your writer on natural history nowadays has no cause to be less instructive or less scientific, but he is at the immense advantage of being able, by aid of the camera, to make the dry bones of the text-book supply the living subject—or at any rate the next thing to it. And so we have had books of natural history adapted for the reading of the non-scientific person and even of the child of tender years solely on account of the

In point of date we, in this country, have led the way in the popularisation of natural history by means of photography, and the Christmas catalogues and booksellers' shelves bear witness to the popularity of photographic natural history as the subject of a gift book. But it must be confessed that German writers, even though they may have been later in realising the advantages of this method of study, have in the end undertaken their labour with a degree of patience and thoroughness which is quite characteristic of writers and publishers in Germany. The infinite capacity of taking pains is, perhaps, the most distinguishing feature of the Teutonic type of genius, with the result, as readers of photographic text-books know, that the comprehensive treatises of Eder, Valenta



Silver Gull. By Steenhuizen, Wossenaar.

subject and has provided a text-book of reference which tells the student everything that is worth knowing on its subject.

So much by way of introduction to a volume, or, rather, a series of volumes, which does in a systematic way what the many admirable books in this country have done individually in the domain of the photographic record of animal life. Under the title "Lebensbilder aus der Tierwelt"* publication has commenced (and has already taken the form of two large volumes) of a systematic record of animal life, illustrated, with not a single exception, by photographs, in the majority of cases obtained of the animal in its natural surroundings. The series is to be completed in two further volumes, the third dealing with amphibious animals, reptiles, and fishes, and the fourth with invertebrate animals. The two volumes before us supply sufficient proof that the whole series will represent a most comprehensive treatment on modern lines of the animal kingdom. The illustrations have many of them been taken specially for the work, or have been accumulated by the publishers by means of a competition which has been held yearly for the past few years in Germany in order to secure pictures by isolated workers in this department of photography. The editor of the volume is himself a natural history photographer of long experience, some of the most excellent illustrations in the books are from his camera, and a considerable portion of the text is written by him. For the rest a number of writers and photographers have contributed on subjects which they have made specially their own, and we see in the volumes photographs familiar to English readers of Mr. Douglas English and Mr. R. B. Lodge. The liberality of illustration applies not only to the animals themselves, but also to their habitats. A total of nearly 2,000 photographs in all has been accumulated for the purposes of the publication, and, as is pointed out in a circular describing the volumes, their appearance has already supplied a stimulus to this form of nature study, and has provided a form of sport which is no less exciting than that of the hunter, but is without objection from the humanitarian standpoint. As a fair example of the 250 illustrations which accompany each of the two volumes we have selected three by Herr Meerwarth and his colleagues, a paper by one of whom, Herr Steckel, we translated in abridged form some



Young Fox. By H. Meerwarth, Beddingen b. Braunschweig.

and other German writers have no counterpart for inclusiveness of material and arrangement of information in any language, and he same holds good of almost every department of science and technology; the great book in England is the work of an individualist usually describing his original work, but the great book in Germany is the work of someone who has assimilated the whole

weeks ago. It gave a description of the long focus types of camera such as the author and others have found necessary in the photography of many timid subjects.

* "Lebensbilder aus der Tierwelt," edited by H. Meerwarth, published by R. Voigtlander, Leipsic. Two volumes 9½ by 7, each about 600 pages, with many illustrations and supplementary plates. Pt. I., Mammals. Pt. II., Birds. Each 14 marks.

THE DETERMINATION OF HEIGHTS IN PLOTTING FROM PHOTOGRAPHS.

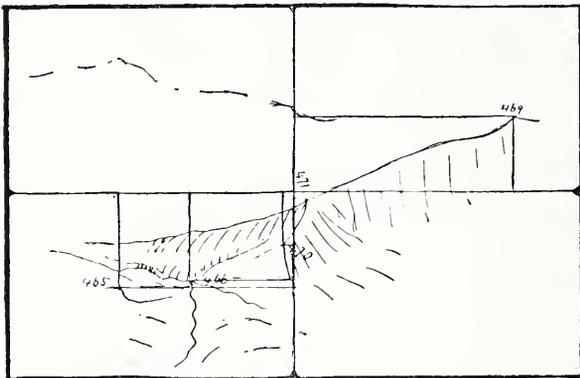
[The following description of the methods adopted in the Canadian Survey in reading off heights from photographs is contributed to the "Archiv für Photogrammetrie."]

In the mountainous portion of Western Canada the photographic method of surveying is adopted by the Geological Survey. The instruments used include transits for the triangulation, and a smaller pattern for use with the camera. The camera is a modified form of the Deville pattern in which the camera box is racked back to the plate. The standard size of plate used is 4½ in. by 6½ in., and for plotting, the pictures are enlarged two diameters.

After the triangulation is completed and laid on the map sheet, camera stations are added and the work of plotting begins. To make a contoured map the determination of the heights of points along the ridges and bottom of slopes is essential. These are selected from the pictures and their position on the ground plan

This is a simple instrument, consisting of a swinging arm transparent celluloid attached to a fixed arm projecting from a base. This base is a bar on which are two slides. The outer one is a flat rule with spring clips under which the strips of paper are held. This rule is set at the focal length of the picture, measured from the centre around which the swinging arm turns. An inner slide is provided with a scale of the map in feet. It has also an adjustment so that it can be shifted across the bar.

When the swinging arm is at right angles to the outer rule parallel to the base bar the scale on the other slide is adjusted so that the height of the station under the ruled line on the swinging arm can be read. A permanent mark should be made on the outer rule for



From Sta. A 6.

Fig. 1.

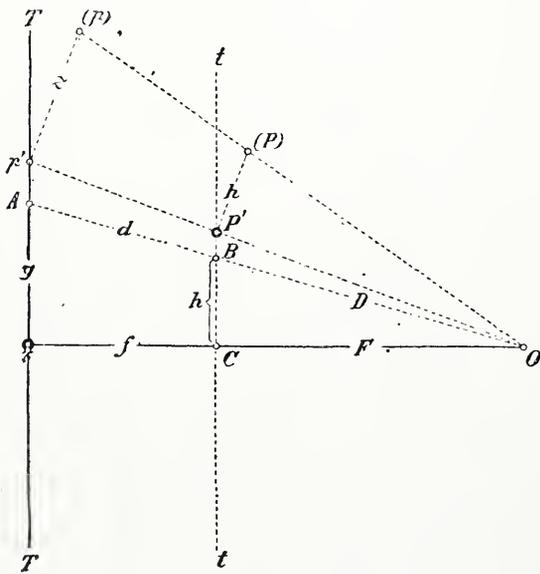


Fig. 3.

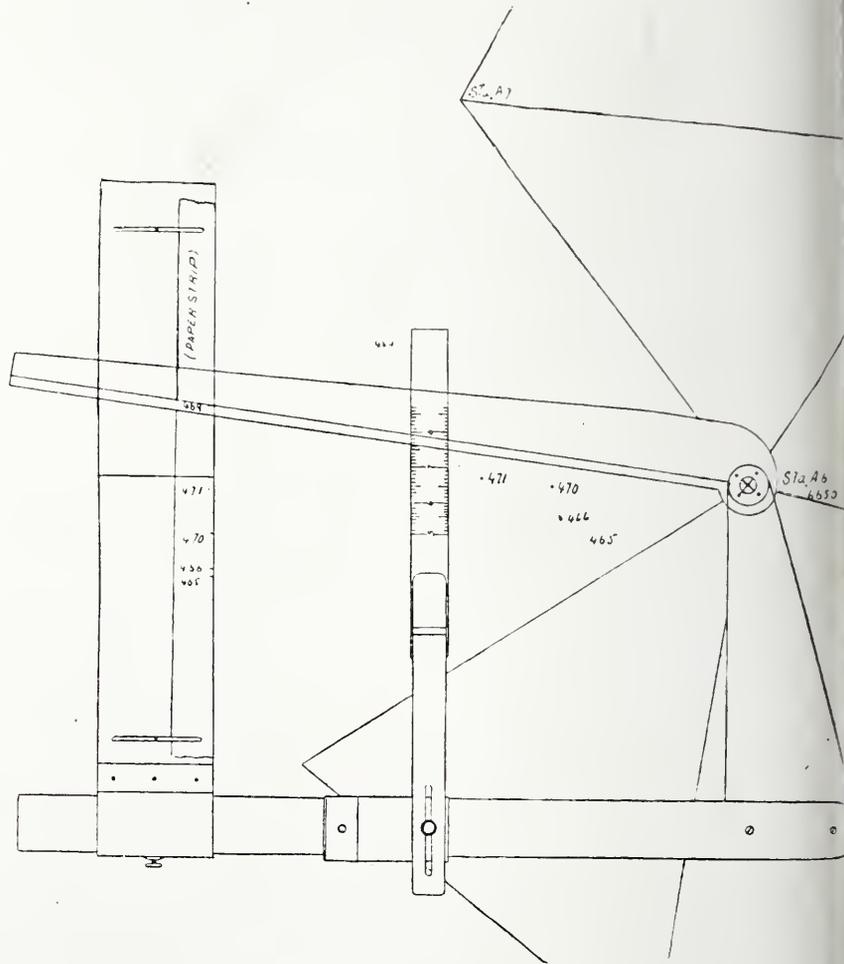


Fig. 2.

plotted in the usual way by intersection. If the pictures are clear and from well selected points a great number may be chosen that may be seen from two stations.

The determination of the heights of these points represents considerable time and trouble. To facilitate the computation, Mr. Matheson has devised an instrument to do most of the work.

In the picture the principal lines representing the centre and the horizontal plans are marked by notches or points on the frame of the picture. The projection of the selected points on the principal lines of the picture is transferred to strips of paper, those on the horizontal line being used to plot their position on the map and those on the vertical line transferred to the outer arm of the computer.

position of the swinging arm to represent the principal point in the picture.

The instrument should be made true so that the scale will give the same reading when moved along the bar.

The computer is used by placing it on the map with the centre of the swinging arm above the station point and the edge of the outer arm or rule on the trace of the picture plane, or if the bearing of the centre of the picture is plotted, the permanent mark on the outer bar representing the centre of the picture should come above the line of bearing.

The sketch shows the computer placed in position to determine heights for points shown in a picture from Sta. A6. The points numbered in the sketch are plotted on the map and their pro

s on the vertical line transferred to the strip of paper shown
ched to the outer bar or rule. The swinging arm is moved to
1 of the marks on the strip of paper representing the position
ve or below the horizon, and the slide which carries the scale is
1 moved up to each position, as plotted on the map. The height
ach point is then read from the scale under the ruled line on the
ging arm.

1 the sketch the station is given the height of 6,650ft., which
1 on the scale. Point No. 469 is to be determined. The
e carrying the scale is moved so that the edge of the scale
hes the point on the map showing the position of 469, and the
ging arm is brought to the mark on the edge of the paper strip
esponding to the ordinate of the picture point No. 469 above
horizon. The scale now reads 7,910ft., the height of the point.
operation for each of the other points in the picture is quickly
e, and the degree of closeness to which the heights can be read
ends on the fineness of the graduation of the scale, and also the
e on which the map is being plotted.

D. B. DOWLING.
H. MATHESON.

* * *

he following note is appended by the "Archiv für Photogram-
rie":—The theoretical basis for the above-described apparatus
s follows: Let T T be the image plane at the distance f (distance
he image) from the station O, with the chief point Ω , and let
e the situation of a point fixed photogrammetrically, then the
tive height above the station is known from the values of the
inates, z , from the similar triangles, $O P^1 (P)$ and $O p^1 (p)$.

$$h : z = D : d \quad h = \frac{D}{d} z \quad (1).$$

ough the point P let fall a perpendicular, tt , on $O \Omega$, draw
n Ω the z ordinates and join $O A$. The distance, $B C$, on
ives the required relative height, since the triangles $O C B$ and
A are similar, and therefore

whence $C B : z = D : d$,
 $C B = \frac{D}{d} z \quad (2).$

m equations (1) and (2) $C B = h$. The instrument is fitted at
T with a scale, to which a paper strip, fastened with the x
inates marked on it, is fastened. tt represents a movable
ided scale, and $O A$ is provided with an arm, which is pivotted
O. If the zero point of the scale is at C, then from the inclina-
t of the edge of the scale the relative height, h , can be read off.
ails for the construction of apparatus based on the above prin-
e have been available in Austria for years past.

MAGNESIUM RIBBON SHEETS.

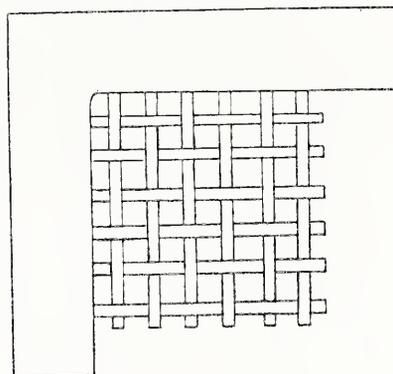
G. W. B.," writing in the "Camera," recommends a method
using magnesium ribbon for enlarging or other photo-illuminating
poses, which we do not recollect to have seen suggested before
ctly in this form. Writing of magnesium ribbon as an illuminant
says:—

The light has the great disadvantage, from a photographic stand-
nt, of emanating from a single point and so casting harsh shadows,
dering it unfit for use in ordinary portraiture. In addition, it is
sumed rather slowly and requires long posing with the attendant
of movement. Its chief advantages are: It is absolutely fire-
of, it keeps indefinitely, and is affected but little, if at all, by
side influences, such as dampness, which soon destroys most flash
ders. In addition, it is as nearly smokeless as can be desired.
ese good qualities should be sufficient to keep it in the "armamen-
um" of the amateur who wishes to be prepared to meet any and
conditions. Since its use is out of question as an illuminant for
traiture of the regular kind, it occurred to me to see if I could
a way to overcome its other fault, that of slow burning. When
picture to be taken is such that the light is close to the face of
model the amount necessary is but an inch or so, which burns in
aw seconds and requires no special precautions; but when the light
istant, say twelve or fifteen feet from the subject, one must use
times as much as a yard of ribbon, which, burned as one long
ce, would take several minutes.

After some experimenting I hit upon the following solution,
hich, if it does not give the ribbon the speed of a flash sheet, at

least makes it practicable for quite a number of effects. The elimina-
tion of its chief disadvantage, that of slowness, together with the
fact that it burns as quietly as a match or candle, and is entirely safe
and free from the puff of fire and smoke that accompany flash-sheets
and powders, should help to give it some popularity.

"Out of thin tin or sheet aluminium two frames were made,
shaped like a carpenter's square. This is the entire apparatus. After
determining the amount of ribbon to be employed it is torn into short
lengths, and these are woven together into a net with meshes about
 $\frac{1}{2}$ inch wide. The number of pieces into which a given length must
be divided is equal to double the square root of its length in inches.



Thus a piece of 36 inches long would make twelve pieces each of
3 inches. The free ends on two adjoining sides are then fastened in
the tin frame by pasting a strip of paper over them and the other
frame clamped on top. The lower free corner can now be lit, and
the whole will burn like a piece of paper and about as fast, giving
a very intense light. The figure will make the arrangement clear.
The most convenient way to light the ribbon, which does not readily
ignite from a match, is to put a bit of cotton soaked in alcohol in a
small dish, and after lighting push it under the ribbon. To prevent
the burning mass from dropping out of its frame the latter is best
suspended at an angle of about 45 degrees by any convenient means,
and not left to hang vertically."

PHOTOGRAPHIC CONVENTION OF THE UNITED KINGDOM.

PRELIMINARY NOTICE OF THE ARRANGEMENTS FOR JULY 5 TO 10.

A PRELIMINARY circular announcing the proceedings of the Con-
vention which will meet at Canterbury from July 5 to 10, under the
Presidency of Mr. H. Snowden Ward, F.R.P.S., has now been
issued by the Honorary General Secretary and Treasurer of the
Convention, Mr. F. A. Bridge, East Lodge, Dalston Lane, London,
N.E., from whom copies may be obtained on application.

PROGRAMME.

Monday, July 5. Morning and Afternoon—Conducted parties
to places of interest in and around the City. Evening at 8—A
few words of welcome by the Mayor of Canterbury. The President,
H. Snowden Ward, Esq., F.R.P.S., will deliver his inaugural
address, after which the Annual General Meeting will be held.

Tuesday, July 6. Excursion—A driving tour through the
villages of Bridge, Patixbourne, Bekesbourne, Littlebourne, Wing-
ham, Ickham, Wickhambreux, Fordwich and Sturry. Evening at
8.30—A lecture by F. Bennett-Goldney, Esq., F.S.A., on "Canter-
bury and its history," followed by a meeting of the new Council.

Wednesday, July 7. Morning at 11—Visit to the Cathedral;
Official Reception by the Rev. Canon Moore, D.D., on behalf of the
Dean and Chapter. Afternoon, 3 to 5—The Right Worshipful F.
Bennett-Goldney, Esq., Mayor of Canterbury, and the Mayoress,
will give a garden party at his residence, "Abbots Barton," at
which the official Convention Group will be taken. Evening at 7—
The Annual Dinner will take place at the County Hotel, followed
by a smoking concert, under the auspices of the Canterbury Chamber
of Commerce.

Thursday, July 8. Excursion to Rochester. Evening at 8.30—
A paper by Mr. C. Welborne Piper, and a paper by Mr. C. H.
Bothamley, F.C.S., F.I.C., on "Some Aspects of Photographic
Record Work."

Friday, July 9. Excursion to Rye and Winchelsea. Evening

at 8.30—a paper by Captain Owen Wheeler on “High-power Tele-photography,” and a lecture by Mr. F. Martin Duncan on “Colour Photography applied to Natural Science.”

Saturday, July 10. Excursion to Maidstone.

GENERAL ARRANGEMENTS.

Place of Meeting.—The headquarters of the Convention during the week will be St. George's Hall (St. George's Gate). Here the Exhibition and the Evening Meetings will be held, and a large dark-room (for changing only) will be available to members at all reasonable times during the meeting.

Exhibitions.—The usual Trade Exhibition of Pictures and Apparatus will be arranged for. There will also be a special Exhibit of Survey and Record Photography.

N.B.—On Wednesday and Thursday, July 7 and 8, the Canterbury Camera Club will hold its Annual Photographic Exhibition.

Canterbury Cathedral.—The usual fee for photographing in the enclosed parts of Canterbury Cathedral is 5s. per day. The Dean and Chapter, however, have kindly granted special facilities for members of Convention at a nominal charge.

Excursions.—The Excursions will be inexpensive; ample time will be allowed for photography; and every effort will be made to obtain permission (where necessary) to enable the members to photograph the various objects of interest in the localities visited.

Reception Committee.—The Mayor and several other members of the Corporation, the Committee of the Canterbury Chamber of Commerce, and the Canterbury Camera Club are taking great interest in the Meeting, and are doing their best to obtain as many facilities as possible for the members during their visit.

Accommodation.—For further particulars, list of hotels and apartments, dark-rooms, dealers, etc., etc., see the official illustrated handbook, which will be issued to members as soon as possible.

During the Convention week, the Seventh Exhibition of the Canterbury Camera Club will be held. The judges will be Mr. H. Snowden Ward and Mr. F. J. Mortimer. Members of the Convention are invited to exhibit.

Full particulars and entry forms may be obtained from the Exhibition Secretary, B. J. Fisk-Moore, St. George's Gate, Canterbury.

Exhibitions.

SOUTH LONDON PHOTOGRAPHIC SOCIETY.

THE annual exhibition of this active society is again housed in the South London Art Gallery in the Peckham Road, and very well indeed the Hanging Committee have used the materials at their disposal. On a series of panels covered with arras cloth they have displayed the 393 exhibits which form the pictorial classes. Scientific and technical work—and, shame to say, the invitation section—are relegated to a somewhat dark statuary gallery, where they consort with a stall of the publications of Messrs. Hazell, Watson, and Viney and a screen of very excellent enlargements on “Wellington” papers.

This year the division of the members' classes into subjects is dropped, and therefore we miss the strong class of architecture which has invariably been a feature of the South London; yet it is to be doubted if the usual amount of good work of this kind can be discovered scattered throughout the members' work.

Dr. A. R. F. Evershed, the President of the society, sends a number of pictures, the best of which is undoubtedly “The Tramp” (No. 53), to which a gold medal and bronze plaque are awarded. Apparently the exhibitor has used throughout a lens giving diffused definition, the softness of which is all to the good of the medalled picture, but tends to feebleness in the case of most of the others. “Vanity” (No. 31) is an instance. It represents a girl and a very blank space. Mr. E. R. Bull, who has usually been a strong exhibitor of architectural work, also this year has a mannerism in the shape of a grain or fabric effect in his prints—in most cases somewhat too pronounced. A number of members have chosen their subjects in Trafalgar Square, but we fail to find one example which comes near to some of the big impressions which Mr. A. H. Blake has obtained here with his camera, nor to the strong yet dainty work which the late Mr. W. J. Warren exhibited perhaps ten years ago.

Mr. R. Jamieson, in “The Guardian of the Square” (No. 62), his guardian lion so close to the edge of the picture that the lines which occupy the strongest part of the composition are missing in evidence. The same mistake can be seen in “The Sentinel” (No. 130), where the subject is Hyde Park Corner. One of the pictures which is technically first-rate is “A Chester Row” (No. 70) by W. E. Murray, but it would have gained by losing a good deal of the subject on the left-hand side. No. 78, by E. Pady, shows a flight of steps in Trafalgar Square; while they are well rendered, the dwarfed appearance of the National Gallery on the top of the picture makes one wonder whether this is really a happy selection. A landscape, “Off to the Fishing Grounds” (No. 90), by E. W. Taylor, has plenty of go and motion in it, but gets no award. “The Keston Pass” (No. 101), by F. R. Hatch, is another good piece of work, showing the photographer's appreciation of tone values in different planes of the landscape. Near to it is an awful example of multiple-mounting (No. 105), whilst No. 106, immediately below, a print which in its own tones and in the very nice mounting in light greys, quite bears out the title of its producer, H. E. Goode, “Soft in her sombre livery came still evening on.” A very striking and sound piece of work is No. 114, “Park Lane,” by E. Pady, has evidently seized on a piece of naturally beautiful lighting. The work of Gideon Clark is mostly in very light, delicate, sometimes “washy” tones which generally are well suited to the subject, though we think that this year's photographs do not come up to the previous work which Mr. Clark has shown. Of his exhibits, we think the one most after his accustomed manner, namely, “Adeed” (No. 336), which has “bigness” and dignity, and receives a bronze plaque in the open class, and we do not care at all for the view of six posts and some distant detail which is called “No. 192—An Impression” (No. 192).

In the open classes one exhibitor who has made the most of a simple subject under naturally beautiful lighting is H. Feathers in “The Gabled Cottage” (No. 195). Among other well-known exhibitors in this class are B. Ward Thompson—we like best his “Corner in Robin Hood's Town” (No. 207)—Aubrey Harris, Mr. Mrs. Bracewell, J. C. Warburg, Miss A. B. Warburg, J. M. Whitehead, and R. Dührkoop. Miss Edith L. Willis shows quite a *de force* in “The Snowstorm” (No. 228), and we thank Mr. Aubrey Harris for the delicious humour of “The Darning Lesson” (No. 231), which, however, goes without an award. But perhaps the exhibitor whose work we like best is Mrs. E. Peake, whose “Seeing the World” (No. 260) is a fine example of massed tones. We hardly think that this is a piece of straightforward photography, but whatever the means taken to produce the result, they are at least hidden: the print would appear to be in platinotype. In “The Spell” (No. 266), to which the silver plaque is awarded, the photographer has probably had less control, but for a good deal of effect the models must be thanked. J. Hepburn shows one picture, “The Lesson” (No. 289), a beautiful example of both composition and technique, with all the perfection of an engraving, but gets no award. Another model who has stood the photograph good stead is that of “The Drinker” (No. 292) by A. W. Whitehead. J. C. Warburg, in “The Rabbit Shop” (No. 302), seems to re-echo a picture of Mr. Eustace Calland's, “The Doctor's Shop.” Both are delicate vignettes of a quaint shop-front. The work of J. Whitehead is represented by three examples, the best of which is “A Silent Guide” (No. 321), poignant in its suggestion of solitude.

The awards made by the judges, Messrs. F. J. Mortimer, E. Holding, A. H. Blake, and E. J. Wall were as follows:—

MEMBERS' CLASSES.—Gold medal and bronze plaque, No. 53, “The Tramp,” Dr. A. R. F. Evershed.

Bronze plaques: No. 27, “Beatrice,” P. Bale Rider; No. 75, “Chantry Stairway,” E. R. Bull; No. 76, “In Liseux,” P. Bale Rider; No. 94, “Westward Bound,” H. Crieghton Beckett; No. 106, “Park Lane,” E. Pady; No. 118, “Off Greenwich,” E. W. Taylor; No. 128, “Unto the Haven Where They Would be,” Gideon Clark.

Commended: No. 2, “Miss Disdain,” Miss M. A. Craigie-Halket; No. 41, “Wild Rose,” C. Hemstead; No. 57, “Staple Inn,” Gideon Clark; No. 70, “A Chester Row,” W. E. Murray; No. 78, “Steps, Trafalgar Square,” E. Pady; No. 171, “Spring,” Dr. A. R. F. Evershed; No. 173a, “St. Paul's,” F. W. Berry; No. 177, “The Tide,” Gideon Clark; No. 178, “A. L. C.—Profile,” Dr. A. R. F. Evershed; No. 184, “The National Gallery,” E. Pady; No. 192, “Springtime,” J. S. Dunn.

CLASSES.—Silver Plaques: No. 266, "The Spell," Mrs. E. No. 285, "Mother and Child," R. Dührkoop.
 Bronze plaques: No. 205, "Staple Inn on the Night of Decem-1908," H. G. Firmin; No. 228, "The Snowstorm"; No. 278, "Screeching Revolution," A. W. Ward; No. 297, "Across the Beverley Minster," C. H. Hewitt; No. 321, "A Silent Guide," Whitehead; No. 336, "Aberdeen (the Upper Dock)," Gideon

commended: No. 203, "Christchurch Priory," E. Pady; No. 207, "Corner in Robin Hood's Town," B. Ward Thompson; No. 220, "Ch Parade," Miss Agnes B. Warburg; No. 227, "At the Old Gate," Aubrey Harris; No. 249, "The Village Smithy," J. n; No. 253, "Chain Harrowing," Mrs. C. Maud; No. 263, "Woman of Sorrow," Dr. A. R. F. Evershed; No. 304, "Con-10n," R. Dührkoop; No. 309, "A Stranger in the Village," n Blake; No. 365, "Sunshine and Shadow on a Cottage Wall," 1atherstone.

SCIENTIFIC AND TECHNICAL, CLASS G.—Bronze plaques: No. 407, e photographs illustrating the life history of a kingfisher, Alfred

commended: No. 410, Four stereo radiographic transparencies, Rodman, M.D.; No. 412, Four Autochrome slides, H. G. Drake-1man.

MEMBERS' LANTERN SLIDES.—Bronze plaques: No. 7, Various, n Clark; No. 9, London Views, H. Creighton Beckett.

commended: No. 6, Architectural, E. R. Bull; No. 8, Various, n Clark; No. 11, Various, F. W. Berry.

OPEN CLASS, LANTERN SLIDES.—Bronze plaques: No. 27, Miscel-1as, S. Nemirowsky; No. 38, W. A. J. Hensler.

commended: No. 21, Studies of the Song Thrush, Alfred Taylor; 1, Architecture, G. J. T. Walford; No. 36, T. Archer; No. 39, r Studies, F. A. Tinker.

EDINBURGH PHOTOGRAPHIC SOCIETY.

annual exhibition of the Edinburgh Photographic Society was ed in the Society's Rooms, 38, Castle Street, Edinburgh, on day, February 20. The exhibition is this year an open one, a late exhibition for members only having been held in the autumn. hus dividing their activities into two parts, the Hanging Com- ee have been enabled to do much greater justice to the works itted. The result is a most interesting collection of photo- hs. In Class A (portrait and figure studies) medals have been ded to W. S. Webster for a portrait (No. 5), to J. McKissack very fine Dutch study, "At the Harbour, Volendam" (No. 48), to John Hepburn for "A Village Smithy" (No. 50). Mr. ster's portrait is a characteristic study of Sir George Reid, late dent of the Royal Scottish Academy. The pose is natural unconventional, and the picture well deserves the award given . The same may be said of Mr. McKissack's Dutch study, h, in addition to showing excellent technical work, is well com- and full of atmosphere. Mr. Hepburn's "Smithy" is a strong of work, executed in broad masses, and showing a very striking entration of light, but it would have been improved had the out- of the horse's head not been so entirely lost in the gloom of the y. It is entirely free from the "staginess" of his other pictures, e of which, "The Village Fiddler" (No. 4), is awarded hon- ion. Hon. mention is also made of work by John Moffat (two res), Kenneth Bishop, James Hamilton, and B. Ward Thomp- . Mr. Moffat's pictures are both oil prints of great beauty and technical excellence, one a portrait of Mr. John McWhirter, (No. 6), and the other, "Now waiting patient the sweet hour st," a charming portrayal of an old lady absolutely simple and ified. It might well have been granted the higher award. In ion to these two pictures mentioned, Mr. Moffat also shows is class a well-composed group, "Her First Lesson." Other x worthy of mention are two portraits (Nos. 31 and 35) by Porter ins, "My Old Dutch" (No. 38) by G. L. A. Blair, three figure cts (Nos. 47, 53, and 54), cleverly executed, though slightly trical, by R. Forbes, and a couple of good portraits (Nos. 16 26) by Charles Croke. A very fine portrait, a direct 20 by 24 , is also shown not for competition by W. Croke.

the landscape section two medals are given—one to A. Edding- for a very beautiful study of birches (No. 62), executed in oil, which, though slightly marred by a lack of firmness in the

treatment of the upper branches, stands out as one of the best land- scapes in the room. It is run very close by "A Summer Cloud," another fine bromoil, also by Mr. Eddington, a splendid sweep of sand, sea, and sky, very simple and full of breadth and atmosphere, yet does not seem to have caught the fancy of the judges. The other medal is awarded to B. Ward Thompson for a fine representa- tion of mountains and clouds, "Here comes a roller up the glen." There is a rich tone and quality about the print, but the beauty of the sky seems to have been obtained at the expense of the mountain side, which is much overprinted. Mr. Thompson has three other good prints, notably "Since Clouds Dispersed" (No. 123), which in many respects is superior to his medalled print. Hon. mention is also made of a fine bromoil of W. C. S. Fergusson, "The Estuary" (No. 55), and two good pictures by Mr. McKissack, "The Beguinage- Gateway" (No. 103) and "The Fishers' Harbour, Ostend" (No. 113).

A very striking picture is "The Proclamation," by John Moffat (No. 63), a fine and in many ways a great representation of an historic event. Pictorial representations of such scenes are so often dull and dreary in their ugliness, and of no interest to any but those who can recognise themselves or their friends in the crowd, that it is refreshing to find someone who has subordinated such ideas and dwelt rather on the massing of his lights and shadows and the giving of dignity to a great historic event. There is no niggling or undue care over details, but a real sense of breadth and design. This is one of a number of oil prints in the exhibition, and emphasises the fact that in the hands of a good worker it is a process capable of great things. Good work is also shown by Blair Matheson, W. J. Croall, J. A. Angus, and R. Marshall. The judges were Mr. J. Campbell Noble, R.S.A., Mr. Robert Barns, A.R.S.A., and Mr. Archibald Cochrane.

The colour section is poor, and no awards were made, while in the lantern section medals were given to W. A. Taylor and W. A. I. Hensler, and hon. mention was made of slides by R. Marshall and P. Carlyle.

BIRMINGHAM PHOTOGRAPHIC SOCIETY.

On Monday evening, February 22, the 24th annual exhibition of the Birmingham Photographic Society was opened by Dr. J. Hall Edwards, in the fine suite of galleries in New Street, again lent by the Royal Society of Artists. The President, Mr. Harold Ho-1croft, M.A., welcomed Dr. Hall Edwards's return to active work in the interests of the society, after the terrible suffering he had endured from the constant use of X-rays for surgical purposes.

A general review of the exhibition produces the impression that it is scarcely equal to some of its predecessors, especially as the sizes of the photographs hung seem rather smaller than usual. A more careful examination proves, however, that the general average is very high, but no one worker stands out very boldly from the others. The popularity of the newer processes of oil-printing is shown by the large number of photographs in this medium. To some extent this has produced a falling off in several exhibitors' work, as some of them have deserted methods they have mastered and are familiar with, in favour of the new process, which is as yet unfamiliar to most. No doubt before the next exhibition comes round the flexibility of the new process will enable them to leave their former successes far behind. The oil prints prove that the process has a great future before it, but many examples show the faults of its qualities; its chief characteristic seems to be rich, luscious shadows, and the ease with which these are obtained has led to piling on the ink to such an extent as some- times to destroy the aerial perspective. The collection of large landscapes by the late Horsley Hinton gives distinction to the grouping, and as they are all very large they form good centres of interest. The impression left on the mind after seeing them once more after an interval of some years, is that although they were epoch-making in their day, and exercised a remarkable influence on photographers, they are already being left behind. This shows that photography is not a dead thing but a living and moving force.

The judges, Messrs. F. J. Mortimer, F.R.P.S., and W. J. Wain-1wright, A.R.W.S., evidently had a difficult task, if we judge by the rather lavish awards.

In the Members' Class A, Mrs. Barton receives a medal for No. 4,

a portrait of W. Nevelle, Esq. In this case we do not agree with the judges' decision, as No. 1, "John Tunstall, M.D.," seems to us much more satisfactory in every way, and in spite of its slovenly mounting, free from technical defects which seriously injure No. 4. W. A. Clark is awarded a medal for No. 11, "In Old Caudebec," a very pleasant rendering of sunshine and old buildings, but a slight darkening of the pavement in the immediate foreground would have increased the sunny effect. No. 13, "The Sea of Steps," the well-known steps to the chapter-house at Wells, is a decidedly good rendering of a difficult subject, but the light through the arch at the top of the steps might be brightened with great advantage. No. 16, "Good Morning," is a very dainty little "bit" of sunshine and creepers on a cottage wall.

J. Cruwys Richards is one of the converts to oil printing, and shows two remarkably vigorous heads (Nos. 20 and 22) of an old man, but he has not yet acquired the mastery over the new method that he has long had over his old love, multiple gum, as we see in No. 19, "Erin Disconsolate," one of his strongest works. Harold Baker, who after a long interval again exhibits, has evidently caught the oil fever very badly, as he sends no fewer than thirty-two, mostly bromoils, all architecture and landscape subjects. He has been, perhaps, most successful in rendering the effect of sunshine on old plaster in "Cowl Street, Evesham," No. 36, and in grey misty effects in "Morning, Whitby," No. 40, and "Grey Avonspeace," No. 42.

Dr. Hall Edwards shows an excellent portrait, Dr. Hill-Norris, the inventor of the first dry plate (No. 56). P. Bale Rider receives a medal for "Portrait Study" (No. 59), but we much prefer his "In Rouen" (No. 58). In spite of some technical defects peculiar to oil printing it is very strong and vigorous.

W. T. Greatbatch does not do himself justice this year; he shows three portraits of the same lady gathering flowers, with the face against the sky, an effect almost impossible to render successfully by photography. P. F. Storrs has a good group of Dutch pictures, one of which, "Eels" (No. 71), secures an award. Mrs. Arbutnot has deserted her former vein of delicate, dainty studies, and her work suffers in consequence and has become quite ordinary in character. "Portrait of the Archbishop of Canterbury" (No. 76) fails to do justice to the distinguished sitter. Lewis Lloyd, the indefatigable honorary secretary, receives a well-earned award for "In a Liverpool Dock" (No. 77), in which the rigging of the boats gives distance to the buildings beyond. "Geoffrey" (No. 79) is a charming boy's head by H. Kenway.

"St. Martin's in the Fields" (No. 82), by R. S. Clarkson, which receives an Hon. Mention, is a good example of the many pictures to be secured in London. R. W. Rennie is another convert to oil, and shows several portraits in this medium which, however, betray haste in their production; the best, "Little Miss Muffett" (No. 94), receives a medal. Thomas Clarke obtains a well deserved medal for "Homeward Bound" (No. 97), a string of donkeys crossing the sands at Tangier. It is full of a delicate sense of light. W. Howard Coley does not show quite as good work this year as before; some of his large oil prints are of quite an unpleasant colour and overpower their good qualities. C. R. M. Parr, one of the pioneers of oil printing, shows a fine strong print of woods in driving rain, "Now is the Winter of our Discontent" (No. 114); A. E. Baylis in his four oil prints shows fine mezzotint quality; "Bruges" (No. 124) takes an Hon. Mention.

The Novices' Section shows quite a lot of really good work.

In the Open section there is a goodly number of fine things, the judges having given seven medals and sixteen certificates. James Cawwood receives a medal for "Reverie" (No. 188), a dark print of yellow tone of Whitby. R. J. Delf in "Sunshine in Old Whitby" (No. 241), has a very charming rendering of sunshine on broken pavement, which gains a medal. One of the finest and strongest pictures in the whole exhibition, "G. A. Storey, Esq.," R.A., by Bertram Park (No. 257), received a medal. It is one of the finest oil prints we have ever seen and is run very close by "Naomi" (No. 263), by the same worker; the flesh tones are exquisitely managed. J. M. Whitehead sends several of his well-known moorland studies, which, beautiful as they are, are becoming a little monotonous. Mrs. Barton receives a certificate for her "Morning" (No. 295), one of the most completely satisfactory and charming things she has produced.

The Foreign section is decidedly small this year, no doubt to so much of the best work being reserved for Dresden. "Linen Chest" (No. 22), by Dr. L. L. Klientjes, is a beautiful work with a figure at a cupboard, quite a "Dutch" subject.

The Autochrome section show little if any advance on last year. The local societies continue to show decided progress, the award going to Walsall.

The lantern slides are pronounced the strongest and best ever had by the Birmingham Society.

The exhibition remains open till March 6, and local photographers cannot fail to learn much from the many fine photographs.

The list of awards is as follows:—

MEMBERS' SECTION: MEDALS.—Mrs. G. A. Barton, "W. Nevelle, Esq.," W. A. Clark, "In Old Caudebec"; P. F. Storrs, "Eels"; H. W. Rennie, "Little Miss Muffett"; Thomas Clarke, "Homeward Bound"; W. J. Harrison, "In Rye Harbour".

MEMBERS' SECTION: CERTIFICATES.—P. B. Rider, "Beatrice"; Mary C. Eames, "Who said Pensions?"; R. S. Clarkson, "St. Martin's in the Fields"; Thomas Clarke, "Scarborough Pier"; Lewis Lloyd, "In a Liverpool Dock"; C. R. M. Parr, "Now is the Winter of our Discontent"; A. E. Baylis, F.R.I., "Bruges"; B. F. Crewdson, "Noel Siabod"; B. F. Crewdson, "Seascale."

MEMBERS' SECTION C (BEGINNERS): MEDALS.—H. Ryland, "Primitive Bridge"; H. E. Wilmot, "The Wave."

CERTIFICATES.—F. S. Worsley, "The Windmill"; T. H. Duff, "Old Dutch."

OPEN SECTION: MEDALS.—James Gale, "Low Tide on the East Coast"; R. J. Delf, "Sunshine in Old Whitby"; Bertram Park, "G. A. Storey, R.A."; A. W. Ward, "Mad, Screeching Revolution"; J. M. Whitehead, "A Silent Guide"; Mrs. Ambrose Rennie, "In the Market"; James Cawwood, "Reverie."

OPEN SECTION: CERTIFICATES.—A. T. Bartlett, "Threading the Needle"; W. Pringle, "Street Scene, Chioggia"; C. F. Grindley, "The Woodcutter"; J. C. Warburg, "Notre Dame de Valenciennes"; Miss Margaret Venables, "Dreams of the Days that Were"; C. Hewitt, "On the Arun"; W. Chater Lea, "A Normandy Interior"; Kenneth F. Bishop, "It Won't go Wight"; W. Chater Lea, "What Shall we put Next?"; J. C. Warburg, "Cutting Out"; J. Hamilton, "Daisy"; Mrs. Barton, "Morning"; Mr. and Mrs. Bracewell, "The Serenade"; Dr. Evershed, "The White Hull"; Norman Blake, "A Stranger in the Village"; J. C. Warburg, "White Domes."

OPEN SECTION: FOREIGN.—"The New Born," Martin Kaufmann (medal); "The Linen Chest," Dr. L. L. Klientjes (medal); "Japanese Study," G. Mautner (medal); "Sparkling Ice," A. E. Mann; "Prague," G. Mautner; "Village in Winter," Harany Gyorgy; "Portrait Study," E. Muller.

COLOUR SECTION: MEDALS.—"An Indian Spinner" (Autochrome), J. C. Warburg; "Autumn" (Autochrome), A. Renfrew; "Butterfly" (colour print), J. D. Johnstone. Certificates.—"Orange Stall" (Autochrome), J. C. Warburg; "An Autumn Afternoon" (Autochrome), W. H. Coley; "River Scene" (Autochrome), P. W. Gibb; "Oranges and Bananas" (colour print), E. Burder.

LOCAL SOCIETY COMPETITION.—Medal for best set of eight prints, Walsall; medal for best print in sets, Birmingham Technical School, Walsall.

CERTIFICATES.—Handsworth, A. E. Cope; Bournville, W. Davison; Small Heath, B. Brotherton; Erdington, T. A. Sanderson; Brierley Hill, A. Gibbons; King's Heath and Moseley, W. H. Hamman; Walsall, Mrs. W. Bullock; Worcester, F. H. Horniblow; Aston, A. E. Law; Bournville and District, W. Frith; Technical School, T. Fairfield.

LANTERN SLIDES: MEDALS.—T. Carlyle, "Speed"; L. Lloyd, "The Iron Horse"; J. E. Hall, "The Crypt, Aquilon"; W. Clark, "The Shadow"; A. G. Thistleton, "The Daisy Chain." Certificates.—W. A. Clark (2), C. McKenna, W. A. Hensler, A. Thistleton, R. Hancock, E. Welburn, E. Bull, R. W. Berry, Claypole, J. D. Berwick.

SCIENTIFIC SECTION: MEDALS.—"Life History of Heron," G. Booth; "Life History of Owl," A. Taylor. Certificates.—Radiographs, J. Hall-Edwards; Fungi (6 slides), R. Hancock.

SURVEY SECTION.—1st, Thos. Clarke; 2nd, G. W. Wood, Junior.

Patent News.

process patents—applications and specifications—are treated in Photo Mechanical Notes.

The following applications for patents have been received between January 8 and 13:—

CINEMATOGRAPHS.—No. 3,048. Improvements in and relating to combined spools and casings for cinematograph films. Frank Ernest Butcher and Francis William Baker, 322, High Holborn, London.

WINDOW CARDS.—No. 3,244. Photographic show cards, window tickets, price tickets, menus, invitation cards, and the like. Henry Thomas George and Charles Natkiel, 18, Edwards Road, Walthamstow, London.

SHUTTERS.—No. 3,349. Improvements in photographic shutters. Arthur Dawkins and George Evans, Prudential Buildings, Corporation Street, Birmingham.

CINEMATOGRAPHS.—No. 3,443. Improvements in apparatus for photographing and exhibiting cinematograph and mutoscopic pictures. Henry William Hamblin Palmer, 52, Stephen's Road, Tunbridge Wells.

LENSES.—No. 3,444. Improvements in the process of producing lenses of uniform subsidence. Carl Zeiss, 29, Margaret Street, Regent Street, London.

COLOUR-SCREEN.—No. 3,601. Manufacture of a screen for colour cinematography. Carl Späth, Birkbeck Bank Chambers, Southampton Buildings, London.

DEVELOPING.—No. 3,632. Improved method of placing photographic plates in developing, fixing, or washing tanks in the dark-room. Sidney Herbert Nathan, 50, Harrington Gardens, London.

COMPLETE SPECIFICATIONS ACCEPTED.
The specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

date in brackets is that of application in this country; or in brackets in the case of patents granted under the International Convention

THREE-COLOUR CARBON PRINTS.—No. 23,615, 1907 (October 25, 1907). The invention relates to improvements in the methods of colour photography, consisting in superimposing transparent photographs or photographic elements so that the assemblage gives more or less natural colour effects, the superimposed photographs or photographic elements being mounted together so as to form a transparency, or being mounted for viewing by reflected light. The invention is directed to obtaining in a completed heliochrome a truer colour effect than is (in most cases) practicable by merely superimposing the usual developed reliefs or so-called "colour carbon" transparencies as obtained by the ordinary and well-known methods. With this end in view, the principal improvements consist, firstly, in a system of temporary reconstitution of the colour effect with over-staining if required so as to produce a heliochrome while the element is on a temporary support; and secondly, of viewing the heliochrome under conditions which obviate the disturbing influence of the thickness of the supports and their separation, separation being necessary if the colour elements are wet.

The following description applies to a three-colour photograph, but it will be understood that the invention is equally applicable to two-colour and four-colour work.

We make individual components of the composite heliochrome, the various photographic elements or the various individual photographs as relief in coloured gelatine, by what is commonly known as the "carbon" process. In order, however, to obtain a truer effect than would be obtained by merely superimposing the usual developed reliefs, we adjust or regulate the tints of the elements in the following manner:—

To increase the intensity of any one transparency, we soak it in a solution of a dye of similar colour or tint and rinse away the excess of soluble dye. To locally increase the intensity of any one transparency, we apply locally a solution of a dye having a similar colour or tint, either by means of a brush or mop or by means of a spray

apparatus, air-brush apparatus, or aerograph. After such local treatment the excess of soluble dye must be rinsed away.

In other cases we alter or modify the tints of the "carbon" reliefs by treatment with dyes of a different colour. Thus the yellow relief may be tinged with a red or orange or blue dye, the blue relief or element may be treated with a solution of yellow dye to render it greener, and again the red relief may be rendered more purple by treatment with a blue or violet dye.

It will be understood that there are many soluble colour dyes which would be suitable for such general, or local, treatment, and also that the strength of the dye solutions is widely variable under different conditions, but the following may be taken as typical examples:—

As the blue dye.

Induline blue,
Lyons blue, or
Hoffmann's violet (blue shade).

As the yellow dye.

Naphthol yellow, or
Berberine.

As the orange dye.

Chrysoidine, or
Aurine.

As the red dye.

Alizarine (with alumed reliefs),
Cochineal red (or carmine with ammonia), or
Magdala red.

Approximately, the strength of the dye solutions would be 25 parts of the dye per 1,000 parts by weight. Ordinarily the solvent would be water, but a variable amount of alcohol may be added, which need, however, seldom, if ever, exceed one-half.

Treatment with dyes is not an operation of the nature of ordinary retouching, but part of the system of temporary reconstitution of the colour effect, so as to produce a heliochrome while each element is on its temporary support, and of viewing the temporarily constituted heliochrome under conditions which eliminate the disturbing influence of the thickness of the supports and their separation. In order to attain this end in viewing the temporarily constituted heliochrome we proceed as follows:—The constituent elements having been developed, as usual, and each being on a plate of glass previously waxed (or French-chalked), and, if considered desirable, also collodionised, the reliefs are arranged one over the other, i.e., are superimposed, in a composite frame consisting of a sufficient number of carriers (for a three-colour photograph three carriers would be provided) arranged over each other and provided with adjustments controlled by convenient handles for bringing the several photographs exactly in register, since, as the adjustment has ordinarily to be made while the reliefs are damp or wet, the plates in that case must not be in absolute contact.

If a thin, flexible celluloid film is used as support of the colour element, it must be strained in its frame. In case celluloid is used the collodion coating must be omitted.

The separation when the reliefs are damp or wet, the fact that the substance of the glass intervenes, and the distance between the eyes of an observer, all tend to render the assembled images confused or out of register. In order to obviate this inconvenience and to enable the effect of the colour combination to be properly judged, we prefer to view the temporary combination by a telescope adjusted at a convenient distance. Inspection having taken place, any required adjustment of the colours is made as specified above, and further inspection followed by colour adjustment may be repeated as often as may be considered necessary.

In the telescopic axis we may interpose such reflectors as are desirable for shortening the range, and in practice we prefer to bring the eyepiece (which is preferably of the type known as a diagonal eyepiece) of the telescope near to the registering frame, so that the observer shall have the adjusting handles of the frame immediately before him. The colour elements, when finally adjusted for tint and colour depth, may then be successively transferred to a prepared paper by any proceeding well known to colour printers by the "carbon" process, but we prefer to use a thin translucent paper or a film of celluloid or the like, prepared or surfaced with gelatine after the manner of "double transfer paper," as the permanent support of the assembled "carbon" colour elements, as by this course the obtaining of register is facilitated.

The thin translucent paper or celluloid bearing all the carbon colour elements may be stripped from the final glass plate or other temporary support when all is dry, so as to yield a transparent heliochrome, or while the assemblage is on the glass or other support it may be backed up with one thickness of paper or more to form a thin or thick support in the manner well known to carbon printers.

To facilitate the exact registering of the constituent parts of the composite heliochrome we adjust two objective crosses or more, or an equivalent such as black crossing lines on a white disc, in the scene so that the images of the cross lines come conveniently to the margins or corners of the negative plates. The register marks are photographically produced, and therefore all mechanical inaccuracies in making them are entirely obviated.—Edgar Clifton, 3, Beaufort Villas, London Road, Enfield, and Arthur Ernest Wells, 73, New Cavendish Street, London, W.

STEREOSCOPIC CAMERAS.—No. 2,142. 1908 (January 30, 1908).—The invention consists of an optical device applicable to the lenses of stereoscopic cameras for the purpose of avoiding the necessity to reverse the negatives.

It relates to the application of two tetrahedra respectively to the two lenses of a stereoscopic camera in such manner that their faces, inclined at 45 deg. to the perpendicular faces, have the effect of reflecting the images towards the lens, whilst simultaneously inverting them in the vertical and the lateral direction, so that the double

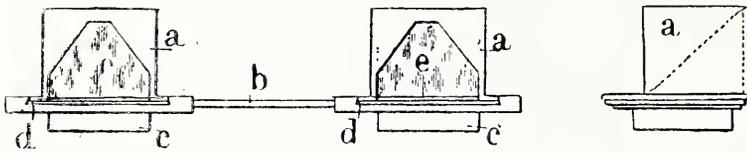


Fig. 1.

Fig. 2.

inversion effected by the lenses restores the two images to their exact position.

By the application of these two tetrahedra (since the images become reversed in the two senses) the negative obtained on the plate is rectified both in the lateral and in the vertical direction, and consequently the two images of this negative occupy their exact respective positions—that is to say, the images produced on the negative do not present any inversion. Consequently the necessity for subsequent transposition of the images is avoided.

The device comprises two tetrahedra adapted to be mounted respectively opposite the two lenses of the photographic apparatus. Each tetrahedron is contained within an envelope or case *a* open on the two sides corresponding to the entrance and exit of the light rays. These two envelopes or casings *a* are adjustably mounted upon a plate *b* presenting two tubulures *c* capable of adapting themselves to the two tubular casings containing the objectives of the apparatus. These two casings *a* may, for example, slide in recesses *d* in the plate *b*, as is shown in Fig. 1. This movability of the two casings *a* permits of the regulation of the position of the luminous pencils emerging from the two tetrahedra with respect to

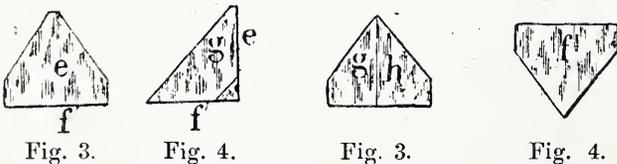


Fig. 3.

Fig. 4.

Fig. 3.

Fig. 4.

the optical axes of the objectives. Each tetrahedron presents two mutually perpendicular faces, *e*, *f*, and two other faces, *g*, *h*, each inclined at an angle of 45 deg. to the two preceding faces, as is shown in Figs. 3 to 6. The two tetrahedra are mounted in their envelopes *a* in such manner that the faces *f*, for example, are parallel to the objectives of the apparatus. The faces *e* then constitute the entrance faces of the light rays. The special disposition of the inclined faces, *g*, *h*, has for effect to reflect the images while simultaneously reversing them, both in the vertical and in the lateral direction.

The instrument is mounted upon the stereoscopic camera, as shown in Fig. 7. In this case the apparatus must be held in making an exposure in a position perpendicular to the directions of the object to be photographed. The light rays coming from this object enter the faces *e* of the two tetrahedra, and thereupon reflected from the inclined faces *g*, *h*, emerge through the faces *f*,

and finally pass through the objectives of the camera. As above mentioned, the images reflected from the inclined faces *g*, *h*, are initially reversed in the vertical and also the lateral direction then they are again reversed in both directions by the lenses. The negative thus obtained, viewed in the stereoscope, will thus give

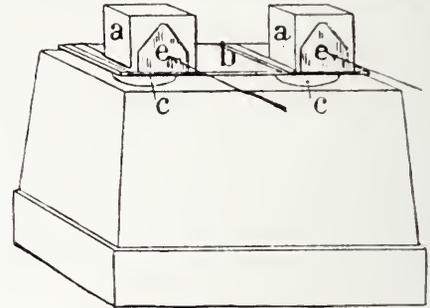


Fig. 7.

the stereoscopic effect on the condition that the glass face of the slide is turned towards that side on which are situated the eye pieces of the stereoscope. This negative thus presenting no inversion, permits of a positive being directly obtained, as in Autochrome photography.

In the case of ordinary photography positives are direct obtained in a single operation from this negative without the necessity of inverting the two images. It is true that these mirrors will have the effect of producing an inversion of the images; such inversion, however, is only in the lateral sense, i.e., the right and left hand portions will become interchanged. In order to rectify this inversion, therefore, it is only necessary, in printing the positive to place the sensitised surface against the back of the negative instead of against the front, and there is no objection to this method in the case of thin negatives, such as films. The adoption of these mirrors or prisms is, however, purely optional.—Jules Richard, 25, Rue Melingue, Paris.

DAYLIGHT DEVELOPING APPARATUS.—No. 23,148, 1908 (October 19, 1908). The invention consists of a box or chamber for the development of plates, etc., the essential feature being that the vessel receiving the developing or fixing fluid (which vessel is provided opposite sides with red windows) is composed of two parts capable of being drawn out and connected in a light-tight manner. Between these parts the aperture for the insertion and withdrawal of plates is arranged. Alfred Hamburger, 117 Burggasse, Vienna and Heinrich Imhof, 206 Hernalser Hauptstrasse, Vienna.

CARRIER-PIGEON CAMERA.—No. 13,128, 1908 (June 20, 1907). The invention relates to a method of and means for taking photographs of landscapes, and it consists essentially in attaching to a bird (say a carrier pigeon) a photographic camera provided with means for actuating the shutter and causing the bird to direct its flight over the landscape to be photographed. The carrier pigeon is taken to a place from which in its homeward flight it passes over the landscape of which the photograph is to be taken. As the speed of the pigeon is known, the time within which the landscape will be above the desired place can be determined with sufficient accuracy. According to the time thus determined, a shutter mechanism is so adjusted as to effect the exposure at the proper time. As an example of such mechanism, an air bag may be provided which, by slowly discharging the air, releases a lever controlling the shutter mechanism.

Drawings and description are given of the mechanism for the release of the shutter after a stated interval of time. Julius Neubronner, Cronberg, Taunus, Germany.

CINEMATOGRAPH MECHANISM.—No. 23,274, 1908 (October 31, 1908). The invention relates to the Maltese-cross feed mechanism, whereby the cross and feed drum can be rotated independently of the driving action by rotation of their bearing frame. Alfred Dussek and Duskes Kinematographen und Film-Fabriken, 46 Friedrichstrasse, Berlin.

CINEMATOGRAPH MECHANISM.—No. 23,811, 1908 (November 6, 1908). The invention provides means whereby the film is allowed to pass freely past the aperture without positive engagement with guides. This is effected by utilising the normal elasticity of the film, the latter being so bent during a portion of its passage that the elastic reaction causes it to bear smoothly against a guide surface having

erture for the passage of the light. The requisite bending he film is produced by means of the guiding device (rollers, e-plate, or the like), past which the film travels to the aper- d guide way. Alfred Duskes and Duskes Kinematographen Film-Fabriken, 46 Friedrichstrasse, Berlin.

ATOGRAPH-PHONOGRAPH.—No. 23,276, 1908 (October 31, 1908)). ording to the invention, the method of securing synchronism he actions of a cinematographic machine and sound-recording aine working in conjunction but mechanically unconnected each other, is by causing a visual sign moving synchronously one of the machines to be projected in the form of a shadow mage to a sign moving synchronously with the other machine, by so controlling the action of one of the machines that the tions of the signs preserve a predetermined relation to each r. Alfred Duskes and Duskes Kinematographen und Film- riken, 46 Friedrichstrasse, Berlin.

New Trade Names.

E. ALBERT AND Co. COLLODION EMULSION (DEVICE).— 308,899. Chemical substances used in photography, photo- phic plates, and sensitised films. Eugen Albert, trading as E. Albert and Co., Schwabingerlandstrasse 55, Munich, Ger- ay, Doctor of Natural Science. December 16, 1908.

WORLD IN MOTION (DEVICE).—No. 308,983. Cinematograph s bearing taken photographs. Weisker Bros., 4, 6, 8, and 10, de Street, Liverpool, cinematograph specialists. December 19, 1908.

New Apparatus, &c.

Sinclair "Efficient" Dark-room Lamp. Sold by James A. Sinclair and Co., Ltd., 54, Haymarket, London, S.W.

el and ingenious as are the almost innumerable patterns of oom lamp few constructors of this essential item in the rapher's equipment have realised the fact that novelty or ity *per se* is a less desirable quantity than efficiency in one o points which are very largely disregarded. For the lamp i has just been placed on the market by Mr. Sinclair's firm y be justly claimed that its virtues are precisely those of



cal usefulness even though it exhibits no essential departure a type of lamp which has been made in various forms. The of its good features, however, is that the lamp is of ample the illuminating area of the front being 11in. by 9½in., and of each of the side windows 7in by 6in. Thus, in addition e working bench getting a full illumination, the shelves and spaces in the dark-room, which frequently are inconveniently are in this case well lighted. The size, again, allows of an ervoir of ample capacity being used without the chance of eating or the necessity of frequently refilling. The burner, ver, is one of the well-known duplex pattern supplied with

large table lamps, and is adjustable from the outside and provided with a lever extinguisher. The next feature for which the lamp should be commended is the excellent way in which all leakage of white light is provided against. The grooves for the light-filters are provided with a double cover, and, further, are made broad enough to take even the thickest filters or safe-lights, which again are much further than usual from the lamp itself and so are better insured against danger by heat. The cut-off of white light is equally thoroughly done in the case of the chimney.

Although such a recital as the above of these characteristics of the lamp cannot show it to be a revolution in this class of apparatus, the step in advance which the makers have actually taken is in giving first-rate attention to the apparently minor points which make a dark-room lamp really satisfactory in use.

Complete with two fabric-filters, one yellow and one red, for each window (six filters in all), burner and glass chimney, the lamp is sold at 21s. If supplied for the electric light a duplex switch is provided, by means of which the light may be obtained either outside or inside the lantern, as desired. In the oil lantern white light is immediately accessible by opening one of the side doors, which is hinged to the lamp body for this purpose.

The Thornton-Pickard Three-Bar "Imperial" Set. Made by the Thornton-Pickard Manufacturing Co., Ltd., Altrincham.

The half-plate "Imperial" set issued by the Thornton-Pickard Co. during the past year or two at an inclusive price of 70s. has been the recipient of much favourable appreciation, our own among the number, and anyone who has handled or used the camera will confirm us in describing it as an instrument *de luxe* at a popular price. In the instrument to be issued during the present season the Thornton-Pickard Co. have made a small modification which is not, however, without its importance. It consists in the addition to the front of three brass bars which, apart from strengthening the bearings of the lens panel, give an extra handsome appearance to the instrument, and on this latter account alone should enhance



it in the dealers' eyes since appearance, as everyone knows, goes a considerable way towards effecting a sale. However, there is more in the three-bar feature than is suggested in either of the above two reasons for its adoption. The Thornton-Pickard Co. have registered the three-bar design of front and have thus associated it with the reputation of their many other descriptions of camera and other photographic apparatus, and the present model of the "Imperial" set in no way belies the good opinions which its predecessors have obtained for it, whilst the three brass bars, far from having the sinister association which this material when taking a spherical form may have for many people, provide an outward and visible sign of the excellence of the manufacture.

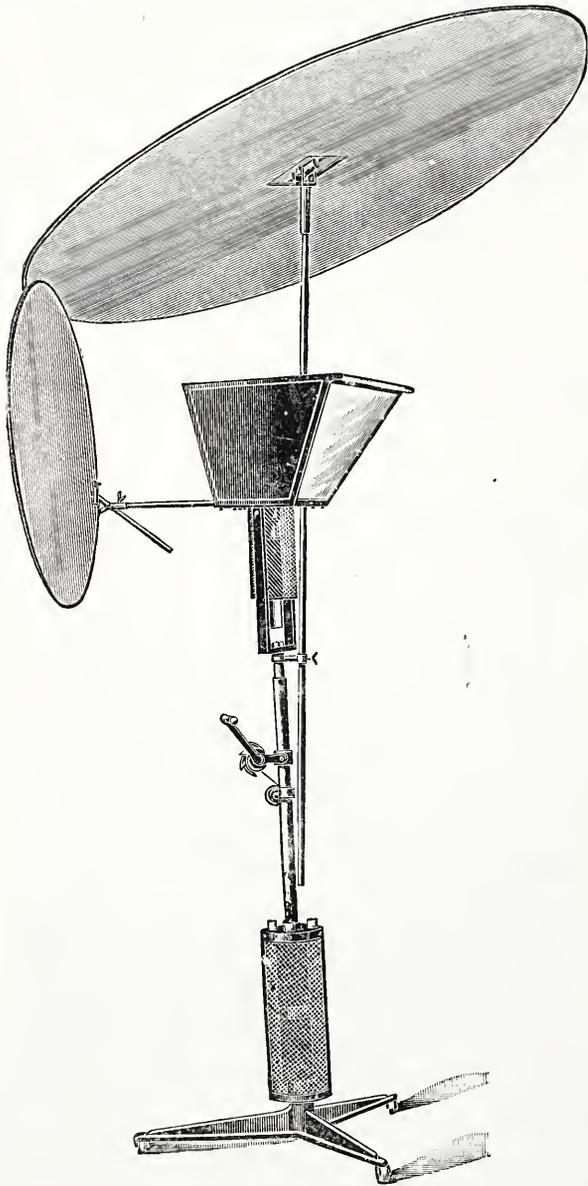
In short, the Thornton-Pickard Co. would advise intending pur-

chasers to ask their dealer for the 70s. camera set with the three brass bars, a set many features of which we have dwelt upon in previous notices, and which we find most fully described on pages 41 to 45 of the catalogue obtainable on application to the company.

The prices of the outfit thus modified remain the same, namely, 70s. with Thornton-Pickard "Rectoplanat," 75s. with Beck "Symmetrical," and 80s. with Thornton-Pickard "Pantoplanat," in each case with one dark-slide, three-fold tripod, and Thornton-Pickard time and instantaneous shutter with speed indicator.

The "Regina" Studio Arc Lamp. Sold by Marples, Leach, and Co., Ltd., Adnil Buildings, Artillery Lane, Bishopsgate Street Without, London, E.C.

In this new artificial light for the studio which is just being introduced to photographers, photo-printers, and photo-engravers, the principle adopted is a further development of the enclosed arc. The arc is not merely placed in a glass cylinder resting on a circular plate and covered more or less completely above, but is contained in a glass chamber of dome or bell shape which is fastened by an air-



tight lute to a circular metal platform, which latter, bell, carbons and all, forms part of the rod and connected levers serving for the adjustment of the arc. This form of construction gives a very compact lamp, but the distinct and distinguishing feature of the "Regina" lamp is the perfect enclosure of the arc and the highly actinic light thus produced even without a great span between the carbons. The glass cover of the arc forms a chamber which the air can enter or escape from only by the valve for the purpose.

The lamp is constructed to work with four ampères of current giving a light of great visual power, which is used whilst posing and focussing the sitter, but for the actual exposure use is made of a "foot contact," by which the arc is caused to take its full

current of ten ampères and to give the full power of light. Pressing with the foot upon the "foot contact" instantly makes this chamber in the light, although the gain is chiefly in the actinic rays and the light therefore does not "jump up" to such an extent as to disturb the sitter. The "foot contact" may be attached to any convenient length of flexible connection and thus brought close to the camera. The general appearance of the lamp is shown in the drawing, in which are seen the two reflecting screens recommended by the makers as specially suited for the lamp, but not indispensable, the lamp being adaptable to any system of screens, used with an arc of high intensity. The comparatively small size of the lamp and the absence of loose parts fit it excellently for taking about for such work as portraiture at large gatherings or at a sitter's home.

The lamp is supplied for voltages from 110 to 220, and for direct or alternating current. As regards the cost of using it as a studio light the following figures from an illustrated prospectus issued by Messrs. Marples, Leach may be quoted.

The working costs of the "Regina" studio lamp are as follows on the basis that for every operation, grouping, etc., 10 minutes are reckoned, which for portraits is quite sufficient:

Current consumption per hour, 220 volts, 4 amps. = .880 K.W. at 2d. = 1.76d. per hour.

Increased current consumption during exposure, 220 volts, 16 amps. = 3.520 at 2d. = 7.04d. per hour.

Cost of carbons for 50 hours, 1 No. 40 carbon at 2d. per hour .04d.

1 No. 83 Arc enclosure globe for 100 hours at 1s. 3d. per hour .15d.

Cost for One Exposure.

Current consumption in 10 min. ... ..	.29
" " " during exposure for 10 sec. ¹ ... ..	.01
Cost of carbon for 10 min. ... ..	.007
Globe replacement for 10 min. ... ..	.02

Expenses for exposure .327
(less than one-third of a per cent.)

This circular should be consulted for some general hints in the use of the lamp, some examples of portraiture done with it, and the full list of prices, from which latter, we understand, discounts are offered to bona-fide professional photographers. The lamp is evidently one which embodies most careful design and excellent workmanship, and we hope very shortly to report more particularly as to the photographic intensity of the light. Meanwhile, Messrs. Marples, Leach have the lamp on exhibition in their showroom in Artillery Lane, close to Liverpool Street Station.

New Materials, &c.

MOUNTING PAPERS.—Messrs. F. E. Jones and Co., 22, Gray's Inn Road, London, W.C., have prepared a sample book of art papers suitable for mounts, folders, etc., and obtainable in thick or thin quality at a uniform moderate price of 4s. and 8s. per ream respectively. The sample pieces are of fair size—up to 8½ inches—and thus allow of their effect with prints of various sizes and colours being readily judged. Colour and texture in some instances are excellent, and the selection is a most useful one for the professional who wants tasteful mounting for prints of every kind. The "Studio" papers, which are rather cheaper, require the same comment. They also are for mounts and folders. "Folio" covers are of a "matter" description, "Linen" boards a pleasant class of paper, and "Vellum" boards still another desirable mounting material. Messrs. Jones further increase the usefulness of their portfolio by including specimens of tissues and endpapers. The whole volume is a most valuable guide to the photographer, to whom it should be worth many times the price charged for it. Yet Messrs. Jones offer to refund the money if the portfolio is returned, or to credit the sum on an order of 5s. worth of mounting materials being placed. "And that," as the Gilbert and Sullivan ballad runs, "is like to happen soon."

¹ The exposure does not occupy ten seconds, but this period is reckoned as the time the higher current is in use.

CATALOGUES AND TRADE NOTICES.

MILD PHOTOGRAPHY.—The current issue of the "Prism," the Sch and Lomb magazine sent by Messrs. Staley for one penny ap, is devoted to the portraiture, mostly outdoors, of Iren.

BARGAINS AT FALLOWFIELDS.—A long list of apparatus and materials now being offered by Messrs. Fallowfield at very great reductions on the list prices reaches us from 146, Charing Cross Rd, W. The list includes a variety of dry-plates and printing frames, storage boxes and cases, printing frames, dark-room lamps, trays, washing and fixing apparatus, chemicals, cameras and accessories, photo-button and ferrotype accessories, enlargers, camera cases, tripods, lenses, shutters, albums, and mounts, of which latter an additional closely printed list describes a very extensive series of lines obtainable at a great reduction.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, FEBRUARY 26.

Green Photographic Art Club. "Suggestions on the Placing of Objects in Pictorial Photography." Alfred A. Longden.
 Chester Photographic Society. Competition Slides.
 Beside Camera Club. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.

MONDAY, MARCH 1.

Waldy Photographic Society. Dutch Lantern Pictures. A. E. Staley & Co.
 Hampton Camera Club. Lecture Competition.
 Westminster and District Photographic Society. "Church Interiors." L. W. Morgan.
 Borough and District Photographic Society. "Genre Work." T. Lee Syms.
 Photographic Society. Midland Photographic Federation Prints and Slides in View.
 Ford Photographic Society. Members' Slides.
 Wood and Forest Hill Photographic Society. "Ozobrome." Demonstrated.
 Stone and District Camera Club. Demonstration on Some Form of Printing. Hamilton Smith.
 Ward Photographic Society. "Working-up Portrait Enlargements." P. Weiss.
 Oington Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.

TUESDAY, MARCH 2.

Photographic Society. "The Application of Photography to Scientific Research." F. Martin-Duncan.
 Photographic Society. "Toning and Colouring Lantern Slides." H. B. Buckley.
 Brick Camera Club. Round Table Evening.
 Bay Photographic Society, Y.M.C.A. "What Can be Done with a Hand Camera." C. P. Goerz.
 Bay Photographic Society. Annual Meeting.
 King Park Camera Club, Govan. "Wellington and Ward's Specialities—C.P. and Lantern Slides." Harry Wade.
 Law Nat. Field Club (Photo. Sec.) "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.

WEDNESDAY, MARCH 3.

Photographic Society. "Development of P.O.P." J. Pilkington.
 burgh Photographic Society. "Various Methods of Colour Photography." Victor L. Alexander.
 High Polytechnic Photographic Society. "The Ancient Abbeys and Churches of Essex." C. Forbes.
 von Camera Club. French Lantern Pictures. A. E. Staley & Co.
 Middlesex Photographic Society. Competitions.
 Camera Club. "A Picture by the Carbon Process." John H. Gash.
 Camera Club. "Demonstration of the New Contact Lantern Plate." W. H. Gash and Wainwright.
 pool and Fyde Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.

THURSDAY, MARCH 4.

School of Photo-Engraving, Bolt Court. "Three colour Printing." J. R. Liddell.
 Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
 pool Amateur Photographic Association. "Painters as Story-tellers." E. Lambault Dibdin.
 Camera Club. Dutch Lantern Pictures. A. E. Staley & Co.
 Photographic Society. Midland Photographic Federation Prints and Slides in View.
 y, Farsley, Calverley, and Bramley Photographic Society. "Camping." R. Marston.
 Photographic Art Club. Informal Meeting.
 Stone and Institute Camera Club. "Demonstration on the Autochrome Plate." E. Clement.
 end-on-Sea Photographic Society. "A Tour in Holland and Brittany." Phonsé Cary.
 thian Photographic Association. "In and Around Glasgow Cathedral." Illustrated. James Jack.

ROYAL PHOTOGRAPHIC SOCIETY.

Meeting held Tuesday, February 23, the Rev. F. C. Lambert, M.A., in the chair.

Paper on "Some Points in Photographic Shutters and a Simple Tester Popularly Explained" was read by Mr. E. A. Salt. The lecturer prefaced his remarks by giving a brief and discursive

review of the different types of commercial shutters obtainable—namely, the roller-blind, diaphragm, iris, and focal-plane. He discussed the action of these shutters in reference to the range of speeds obtainable, ability to give constant speeds under differing climatic conditions, and, lastly, the efficiency or effective duration of exposure as compared with the total duration. In this connection he showed, by means of diagrams, the high efficiency of the roller-blind shutter, and, among diaphragm shutters, of the Staley "Compound," the efficiency of which was almost 100 per cent. In the matter of focal-plane shutters, the efficiency of which was usually assumed to be ideal, he suggested that under certain conditions, for example, with a large aperture lens and the blind at a distance from the plate which was adopted in practice in the case of at least one shutter, the efficiency might be appreciably diminished over portions of the plate on either side of the centre. He alluded to some of the remarkable statements made by writers on shutters. One, extolling a certain shutter, estimated its efficiency at fifteen times that of a good diaphragm shutter, equivalent, at a moderate computation, to five times perfection.

The chief portion of the paper, however, dealt with the shutter-testing apparatus which the lecturer had devised and himself constructed. It embodied the principle for the measurements of shutter speeds described by Sir William Abney, in which the image of an illuminated slit is caused to fall on a plate rotating at a known speed. In the apparatus devised by Mr. Salt this method was carried out in a greatly simplified way. The plate was secured on a horizontal table, mounted upon a gramophone motor, the image being received through a horizontally mounted lens by means of a mirror placed at an angle of 45 degrees to the lens axis. Illumination of a vertical strip of ground-glass was supplied by means of an incandescent burner, a carrier for the shutter being placed immediately next the slit of light on the side towards the camera. It was found that the motor would rotate with regularity at two revolutions per second, which allowed of exposures up to 1-100th of a second being measured with accuracy, the total angular size of the image being read off on a protractor. The diagrams obtained with the apparatus showed at the same time the period of effective action of the shutter, and a number of very interesting results obtained with shutters of various types working over a range of speeds was shown.

Mr. Salt also described and exhibited a very simple piece of apparatus for the measurement of shutter speeds devised by Mr. W. H. Smith, of the Platinotype Company. It consisted simply of a board above a small aperture, in which was placed vertically a glass tube, through which a current of air could be blown. Held in the aperture of the board by a light spring was a very thin plate of mica, to the under side of which a tiny brush, saturated with aniline colour, was fixed. Below the brush, but just out of contact with it, a drum was caused to revolve at a constant known speed. The measurement of the shutter speed was made simply by laying the shutter upon the aperture in the board, turning the current of air upon it, and immediately releasing. The mirror-plate was thus depressed and the brush caused to remain in contact with the revolving drum whilst the shutter remained open. A record of the distance traversed by the drum during this time was thus obtained, and the speed of the shutter ascertained by a very simple calculation.

After some discussion the meeting was brought to a conclusion by Mr. C. P. Butler showing a series of absorption spectra by Professor Lowell, which pointed to the possible existence of chlorophyll on the more distant planets, Mars, Jupiter, and Uranus. Confirmation was needed, as spectra of specimens of chlorophyll prepared in the laboratory were not exactly similar, but the observation pointed to the existence of vegetable life upon these planets.

CROYDON CAMERA CLUB.—The session would never be complete without a demonstration on transparencies for enlarged negatives by Mr. F. W. Hicks, who knows how to make an evening, avowedly for the benefit of the newer members, interesting to all. Metol was the developer preferred, and a soft negative sought. Daylight in the lecturer's opinions gave far superior results to those obtained with the enlarging lantern.

In the inevitable discussion which followed on the relative merits of carbon *versus* dry-plates for the transparency, a majority of the best workers considered the latter the best, all things being taken into account, although it was recognised that a closer reproduction of gradation was possible when carbon was the intervening medium.

Reticulation had troubled many, whilst others never experienced a sign of it, though in no case had the precaution of collodionising the tissue been adopted, and procedure appeared much the same. The president, Mr. J. M. Sellors, invariably squeegeed the tissue on plain glass, but used a little hydrochloric acid in the water; he secured perfect adhesion, and no reticulation. A dry-plate, however, permitted more modification than the carbon process. Dr. Mees, in answer to a question, said that grain in an enlarged negative might to a great extent be softened or diffused by making the transparency on a fine grain plate.

HACKNEY PHOTOGRAPHIC SOCIETY.—At the meeting on the 16th inst., Mr. W. L. F. Wastell gave a most instructive lecture on the "Bromoil" process. He advised the use of amidol for developing the bromide print. Exposure should be so adjusted as to allow the print to be developed to finality. But although the best result was only obtained from a perfect print, yet a very good one could often be got from a print that was not perfect, the oil print obtainable from it being a great improvement on the original. In an example shown by the lecturer, a print quite useless as a bromide print was made to yield a very satisfactory oil print. After development the bromide print should be thoroughly fixed and washed, as traces of hypo left in the film would be injurious to the success of the after process. As to the choice of bromide paper, many otherwise excellent makes were unsuitable for bromoil, and it was therefore necessary to select the right kind. He had been most successful with Messrs. Griffin's special "Bromoil" paper. Mr. Wastell then described and demonstrated the process through all the stages from the bromide print to the finished oil print, and gave many useful hints as to the choice of brushes, pigments, etc., and their use.

EDINBURGH PHOTOGRAPHIC SOCIETY DINNER.—The eighth annual dinner in connection with the Edinburgh Photographic Society was held in the Carlton Hotel, Edinburgh, on February 18, under the chairmanship of Mr. J. F. Duthie, president of the Society. Upwards of 60 ladies and gentlemen were present, the company including Mr. Campbell Noble, P.S.A., Mr. Hippolyte J. Blanc, R.S.A., Mr. Robert Burns, A.R.S.A., Mr. Archibald Cochrane, Councillor M'Arthy, Mr. F. P. Moffat, and Mr. J. D. Brown, who had charge of the arrangements.

The judges at the exhibition—Messrs. Campbell Noble, Burns, and Cochrane—who were the guests of the evening, were toasted on the call of the chairman. Mr. Duthie said the proper kind of photographic exhibition was one where pictures of merit were chosen and awards of equal merit given. If they wanted to get a good exhibition numerically, the principal thing was to get good judges—and this year they had been exceptionally fortunate in that respect. Mr. A. J. Watson, Glasgow, proposed "The Edinburgh Photographic Society," and Mr. Blanc, R.S.A., in the course of his reply, referred to the many practical difficulties which faced amateur photographers in the early days of the development of the art. On Friday evenings he used to prepare his half-dozen plates. His camera was like a trunk. He had it still. He had the boldness once to mount to the top of Ben Lomond with it. Sadly enough, when he got there he could see nothing. If he might be allowed a joke, he viewed the mist but missed the view. In those days, he said, men put their hearts into the work, and the evolution of the chemistry and the art of photography were to them special studies. Some would say that photography was not an art, but he was not of that opinion. He appealed to all intelligent citizens, and asked if the Society was not one which should be encouraged. It was easier to knock down than it was to build up, and he advised the members to disregard those who were disposed to dissociate themselves from the Society.

A NEW DEVELOPER AND A COMPETITION.—A new developer suitable for plates, papers, and lantern slides is just being introduced by the Brugg Chemical Works, Limited, Brugg, Switzerland. It is known as Pyramidol, may be used repeatedly, and resembles hydroquinone, without, however, the tendency to inertness at low temperature possessed by hydroquinone. Moreover, Pyramidol is used in much weaker solution. A book of articles and formulæ for the new developer is sent free by the makers on application, and it contains also particulars of the competition in which about £125 will be given in prizes.

Commercial & Legal Intelligence

LEGAL NOTICES.—It is intended to pay a dividend in the case of Edgar Wilkinson, photographer, carrying on business at 1 Arcade, Norwich, and residing at 218, College Road, 1 Norwich. The last day for receiving proofs by Mr. E. H. Havelock, trustee, 4, Charterhouse Square, E.C., is March 2.

A first and final dividend of 6½d. in the pound is to be paid in the case of William Haddon, publisher and picture postcard dealer, 6, Bradley Street, Burnt Tree, Tipton, Staffordshire.

A meeting of creditors in the case of William Henry B. B. photographer, etc., of Station Road, Featherstone, Yorkshire held at the Official Receiver's office, Wakefield, on February 18. The gross liabilities were £192 and the deficiency £125. Bankruptcy was ascribed his failure to want of capital and losses on house purchase contracts. No resolution was passed, and the estate was left in the hands of the Official Receiver as trustee. The public examination is fixed for March 4.

A MANCHESTER BANKRUPTCY.—At the Lancashire Chancery Court sitting in Manchester on February 18, Vice-Chancellor Leigh-Jones had before him the debenture holders' action *Rajar, 1907, Limited v. Muenzer, Limited*. The defendant company, as already mentioned in our columns, was formed by a Mr. Max Muenzer, who carried on a number of photographic businesses in Manchester and elsewhere, and whose affairs have been recently investigated in the Bankruptcy Court. Mr. Acton appeared for the trustee in bankruptcy, and Mr. Cunliffe for *Rajar, Limited*.

Mr. Cunliffe stated that a receiver was originally appointed on his application *ex parte*, and had been continued pending the hearing of an application by the trustee in bankruptcy to set aside an assignment of assets by Mr. Muenzer to the company. There was a long inquiry before his Honour Judge Parry as to whether *Rajar, Limited*, had been guilty of conspiracy and fraud with a view to defeat the creditors. His Honour Judge Parry found that there had been no fraudulent conspiracy, though *Rajar, Limited*, had been indiscreet and their representative had acted improperly in remaining upon the committee of inspection at the time when he was taking the debentures which formed the subject of the present proceedings. However, the Judge acquitted the company from any charge of conspiracy. He (Mr. Cunliffe) suggested that his Honour should make certain findings of fact with a view to assist the Vice-Chancellor in dealing with the matter, and Judge Parry accordingly found that there was no evidence that the company (*Muenzer, Limited*) had any property or assets which were property assigned by the bankrupt, which was now the property of the trustee; that the company was a sham erected by Muenzer for the purpose of avoiding the payment of his creditors; and that the trustee's title related back to July 3, 1908, and he was entitled to recover all property of the bankrupt at the date of the assignment to *Muenzer, Limited*, and all property created in the course of trading. His Honour expressed the view that the receiver should hand over to the trustee all the property in his possession, and then the trustee should bring before him all bona fide claims against the company.

Mr. Cunliffe added that in addition to the plaintiffs there were two gentlemen who claimed to have debentures. Judge Parry's decision left it open to his clients to put in a claim with respect to subsequently acquired property so far as they did not represent assets transferred by Muenzer.

Mr. Acton said he agreed. Judge Parry was desirous it should be mentioned that it was not a judgment, but merely a finding of fact which he hoped would be of assistance to the Vice-Chancellor. The Vice-Chancellor: So they are.

Mr. Cunliffe said his clients were quite willing to withdraw from the receiver.

Mr. Grierson, the receiver, who was present in Court, stated that he had neither paid nor received anything, but the books had been kept together. Money had come in and been used for the payment of wages and so on. There had been no claims against the bailiffs in possession.

The Vice-Chancellor directed that the receiver be discharged from passing his accounts, and remarked that he was quite satisfied that Judge Parry should deal with cases of this sort.

News and Notes.

PHOTOGRAPHIC SOCIETY.—The secretary is now Mr. H. Sheard, St. Edward Street, Leek. The meeting-place is the Leek Club.

WAX-TOWN TOPICS, the very live organ of the Oberg Camera Club, New York, has changed its title to "Photographic Topics." The current issue contains "Twelve and Don'ts," by Mr. Alfred Stieglitz.

ROUGH POLYTECHNIC PHOTOGRAPHIC SOCIETY.—This society, which has its headquarters at 103, Borough Road, S.E., is holding a special exhibition of members' work on March 25, 26, and 27. Mr. C. Tilney has consented to officiate as judge, and Mr. A. J. Day will give a lecture each evening, entitled "A tour through the world," which will be illustrated with eighty Autochrome lantern slides.

FRIDAY LABOUR.—A return has been presented to Parliament containing reports from His Majesty's representatives abroad as to the position in foreign countries respecting a weekly rest day. From the reports it appears that in Italy the weekly rest can be given to photographers in photographic shops on a day other than Sunday, and a system of rotation. In the canton of Zurich, in Switzerland, photographic establishments are allowed to be opened between 10 and 12 o'clock on Sundays in summer, and for a longer period in winter. Assistants in these every third Sunday at least must be entirely free.

PHOTOGRAPHIC REGISTRATION OF SOUNDS.—Dayton C. Miller, in a paper before the Baltimore Physical Society, U.S.A., writes:—"In making large scale records, showing the details accurately, of sound waves having frequencies ranging from 500 to 10,000, the phonograph and oscillograph methods seem unsuitable. The new direct mechanical method has given satisfactory results: a small steel cylinder, 1 mm. in diameter, is arranged to receive motion, with a minimum of reaction effects, which is proportional to the displacement of a sensitive diaphragm. A minute diaphragm with its plane in the axis of the cylinder, reflects light through a special camera, and at a distance of 30 cm. gives waves 15 cm. in length which show great detail."

FALLOWFIELD SMOKER.—Even in the large hall of the Inns Court Hotel, which this year was the scene of the Fallowfield Smoker, the accommodation was none too great, a tribute to the success of good programmes which the entrepreneurs of the Charing Cross Road have provided on past occasions. Mr. F. W. Hindley, in the chair, was supported by many familiar figures in the photographic trade, and the numerous company remained until a late hour, entertained by an excellent programme of music, recitals, and other amusements of hand. The whole proceedings, in the hands of Mr. Hindley, secretary, and Mr. J. C. Preece, assistant secretary, went off with enjoyable smoothness, and served to emphasise the vigour and activity of the firm of Fallowfield.

SMITH AND Co., commercial photographers, 159, Stroud Green, London, N., advise us they have removed to more convenient premises at 18, Marquis Road, Stroud Green.

"PUSHAXE" COMPETITION.—From Messrs. Fuerst Bros., 17, Abchurch Lane, London, E.C., we have received the list of winners in the competition organised in connection with the "Pushaxe" single-solution universal developer. Messrs. William Grove and Walter Barnett acted as judges. The plate and printing used by each competitor follow the name in each case:—

I. (landscape or general subject, instantaneous exposure).—First prize, £30, A. Rose, 60, Bartholomew Road, Camden Town, N.; second prize, £15, Thomas Fletcher, 177, Beresford Street, Camberwell, S.E.; third prize, £4, H. Selby, 912, Tottenham Road, Lower Tottenham, Imperial Isochrom, Kodak velvet.

II. (best studio negative portrait, any exposure).—First prize, £25, Henrick Hofman, 8, Westwick Gardens, Shepherd's Bush, W.; second prize, £10, Winter Sons, 12A, Springbridge Road, Ealing, Imperial special sensitized Kodak matt; third prize, £3, George R. Henderson, 162, Tottenham Street, Hebburn-on-Tyne, Mawson and Swan, Rotograph.

III. (copy of an oil painting, time exposure).—First prize,

£20, Edgar G. Lee, 17, Eldon Square, Newcastle-on-Tyne, Wratten and Wainwright isochromatic, Birmingham Photo Company's Criterion bromide; second prize, £5, Herbert A. Game, 17, Pembroke Place, Bayswater, W., Edwards's ortho. snapshot, Velox special portrait; third prize, £2, John Maddison, R.D.S., 149, Grange Road East, Middlesbrough, Barnet ortho., Paget self-toning.

Class IV. (lantern slide plain).—First prize, £1, Edgar G. Lee, 17, Eldon Square, Newcastle-on-Tyne, Edwards's iso instantaneous, Mawson lantern plate.

Correspondence.

* * We do not undertake responsibility for the opinions expressed by our correspondents.

* * Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

A DISCLAIMER FROM MESSRS. RAINES AND CO.

To the Editors.

Gentlemen,—It has been brought to our knowledge that a Stockton-on-Tees firm of polish manufacturers, with a name only slightly different from our own, is offering enlargements to users of its product, in return for a certain number of coupons—obtainable, of course, from the wrapping of the product in question.

May we therefore beg the hospitality of your columns to announce to your readers that we are in no way connected with the scheme? We make this request, because some years ago, when the same firm was running a competition, we received a certain number of entries, thus proving that the similarity of the two names was confusing to the postal authorities.—Thanking you in anticipation, we are, Gentlemen, yours faithfully,

RAINES AND CO.

Photographic Works, Ealing, London, W.

February 17, 1909.

SOUTH AFRICA AND PHOTOGRAPHIC ASSISTANTS.

To the Editors.

Gentlemen,—Just a few words to my fellow assistants. Trade in this colony is in a most deplorable state, and is likely to remain so for the next ten years at least. Competition is very keen, wages very low indeed, living is also very dear, and the climate somewhat trying. The prospects are very remote. You are required to do the same amount of work as in England for comparatively less money. Hours are about the same. If you ever do come out here, do not accept an agreement which binds you down in any way. You may not like your employer and the class of work, and perhaps you will want to get away. I advise any assistant (retoucher or operator) not to accept an engagement for less than £20 per month at least, which is equivalent to £8 per month in England. See that your passage is paid out to the colony, and also passage home, if you are to stay here for a lengthy period. This is usually allowed, but have it in black and white. There are lots of good men here being paid most ridiculous wages, so little that they will probably never get back to Old England again.

Photographers are closing their businesses in every direction. Talking of undue restriction in agreements, you have only to glance at a few. You would find ample evidence of the unfairness of the employer. I may mention that all new processes, not forgetting colour photography, we never come in touch with here, only by reading the articles in the "B.J." We just retouch and operate; we go back, not forward. There is no room for printers. Colonials can do all that is required in that direction, and at low wages.

Concluding, I must thank the "B.J." for this space I have occupied. I hope soon to be back in good Old England, where I can follow the profession and enjoy it.—Yours truly,

F. COLLETT.

Cape Town.

CINEMATOGRAPH PROFITS—£7,000 FOR A NEGATIVE.

To the Editors.

Gentlemen,—That one half of the world does not know how the other half lives is wonderfully true of the photographic world. The photographer whose work sells at high prices cannot understand how the man who sells "stickybacks" can make a living, and the cheap man, who relies on a large number of sitters daily, cannot understand how the man who gets only two or three sitters daily can

make enough to pay the rent; yet all seem to go on from year to year, notwithstanding the ever-present grumble of bad business.

But what would anyone unconnected with the cinematograph business say to paying £7,000 for one film? Yet the film of the Burns-Johnson prize fight has just changed hands at that figure, and even this marvellous figure only represents the rights for Great Britain. If we take account of the sale of the rights of this one film for the whole world we get a figure that is almost unbelievable, and this for one single negative film.

These enormous figures take one's breath away. They seem so utterly impossible, and it seems so absolutely impossible to make a profit on such a transaction, after taking into consideration the comparative short life of such a film, that one can hardly believe it is a sound business proposition. Yet not only is the idea sound but extremely profitable, so profitable, in fact, that not only were people willing to give £7,000 for one spool of films, but the rush to buy was so great that at least two would-be purchasers journeyed all the way to Marseilles to meet the boat from America, so that their offers might be considered first.

Before me as I write are two telegrams, and a reply. In them we read the answer to our riddle. The first telegram is from the purchasers of the film to the manager of a music-hall, and it reads: "What is your best offer for sole rights to use Burns-Johnson film in ——— for ONE WEEK?" The reply was: "We offer £100 for rights for one week." But this offer was not accepted, for in the second telegram I read: "Cannot accept less than £200. Wire if you accept."

Think what this means: £200 for one week's hire of a film, which only runs a few minutes. If we multiply £200 by the number of music-halls at which this film will be shown we see where the profit comes in, even after paying £7,000 for the film. After seeing these figures, who dare say that there is no money in photography?

Cinematography is the photographer's legitimate business, but it is only considered by a very few of us. These figures, which the writer can vouch for, show that there is a lot of money to be made from this side of the business, a business which is rapidly increasing, and one that is not overcrowded. The work may be difficult and hard, but with prizes such as the above it is well worth consideration.

Cinematograph halls are springing up all over the country, and good films are in great demand. Many people have made, and are making, fortunes, both by running these halls and hiring films. At present there seems to be more prizes than blanks. Why not enter for a prize?

ENTRE NOUS.

THE "THAMES" COLOUR PLATE.

To the Editors.

Gentlemen,—After reading the letters in the "B.J." of February 19 re the "Thames" plate from Dr. Mebes and Dr. Schultz-Hencke, I feel constrained, in common fairness, to ask you to favour me with the insertion of my experiences with the plate under similar conditions to those referred to in the paragraph from "New York Herald" of January 3, and which evidently were due to a reporter's error.

In the first place, may I say that I have not the slightest interest in the "Thames" plate, except to welcome any good colour plate? My only reason for writing is to try and correct or prevent an injustice being done to the "Thames" plate through such an unfortunate mistake. I am engaged in obtaining colour photographs as records in connection with surgical research, and you will quite understand that unless a result is trustworthily correct in colour rendering it is of no value to us.

As soon as the "Thames" plates were placed on the market I obtained a box of four from one of the local dealers. A plate from this box was exposed on a pathological specimen of unique interest. This specimen was one in which certain delicate features needed very accurate rendering to be of any real value. The exposure was calculated on a basis of $\frac{1}{8}$ of the exposure necessary for an Autochrome. The result was a most remarkably colour correct and very transparent record. It was shown at a pathological meeting in this city, later in London, and on every hand it was spoken of in the highest terms, and not by men who were themselves photographers, but often by surgeons, who simply looked for an accurate rendering, and very critical even at that.

Now I do not even suggest that I could not have obtained an equally good result on an Autochrome plate. As a matter of fact,

I have many equally good results on that magnificent triumphant photography, the Lumière Autochrome plate. It is only common fairness to a firm, who have been the victims of an unfortunate journalist's mistake, to stand up and point out that, "in my hands I have obtained satisfactory results in the 'Thames' plates, and similar conditions to those mentioned in the 'New York Herald' unfortunate paragraphs." One does not doubt for a moment that Dr. Mebes' plates were Autochromes, and not "Thames" plates. I have only one regret, and that is, that at the present time my colleagues has gone abroad and taken the plate with him, if necessary I can substantiate my remarks by showing him the plate in question. When in London a few weeks ago I showed the plate at the Royal Photographic Society, and also at the College of Surgeons, to a few who were interested.—Faithfully

S. E. BOTTOMLEY, F.R.S.

27, Oakwood Avenue, Roundhay, Leeds.

February 22, 1909.

To the Editors.

Gentlemen,—We have read the letters in your issue of February 19 from Dr. Mebes and Professor Dankmar Schultz-Hencke. The letter from the "New York Herald" was kindly sent to us by a member of the Council of the Royal Photographic Society, and as the result of the experiment in Professor Virchow's laboratory only corroborates what has been done under more difficult conditions in this country, we saw no reason to doubt its accuracy.

Although we shall not trouble you again in the matter, we say that we have sent to Berlin for the fullest report of Professor Schultz-Hencke's lecture at the War Academy, and if any of our readers feel sufficient curiosity to read it they can do so at our office.—Yours faithfully,

THE THAMES COLOUR PLATE CO.

(Oliver S. Dawbarn)

Answers to Correspondents.

PAINTING REGISTERED:—

T. B. Allanson, Esplanade Cottage, Bridlington. *Painting (Oil) of Loss of the Boats at Flamborough, Yorkshire.*

PHOTOGRAPHS REGISTERED:—

Wm. Warrington, 38, Church Street, Liverpool. *Two Photographs of Bobby and Two Photographs of Group, Bobby Andrews, Vincent Walker, White.*

F. G. Steggle, Stanley House, Midsomer Norton, near Bath. *Photograph, L. C. Ellis & Frays: Group of Policemen and others Stationed there during the*

T. A. A. Morrison, Scotsman Buildings, 23, North Bridge Street, Edinburgh. *Group of Mr. Harold Bennet C. C., Unionist Candidate for South Edinburgh.*

F. A. FISCHER (Genoa).—Mr. J. W. Beaufort, Easy Row and Beaufort Studio, New Street, Birmingham, who can supply in quantities at short notice. The best book on the subject is "Photography" by W. Ethelbert Henry (Daubarn and Ward, Ltd., 1s.).

VIGIL.—1. If you have no connection among photographers and newspapers, you will obviously have to spend money in advertising offers to photographers and advising newspapers that you can supply. This and office outlay will be your chief first cost. You had better get prices and figure it out for yourself. 2. In the newspapers you will find listed in Willing's "Press Guide," many have their own men; others handle outside photographers who work chiefly. 3. Yes. Application to the police and other authorities. 4. Travel the newspapers. 5. Ten shillings and upwards. 6. Usually it is not.

MENFAB.—1. You cannot have a better formula for an Autochrome bath. 2. It is not all easy to say what is the cause in the case of a negative, but it looks as though there was a large flare over part of the plate. Try using a larger stop, and see if you get rid of the trouble. 3. In the case of the stop, a long lens would most probably avoid the distortion. If you care to examine the lens we will examine it.

E. K.—You had best get "Magnesium Light Photography," by Mortimer (Dawbarn and Ward, Ltd., 1s.).

PHOTOGRAPHS OF PUMPKINS.—I photographed a private garden last summer with pumpkins grown by the "One and All" Club. The negative was offered for sale to them for publication, but they did not require it. I see they have reproduced it in their magazine. Can I claim?—C. E.

If you register the copyright in your photograph you can

n further publication, but you cannot recover for copies prior to registration.

1. Certainly they can if the subject is not one that is orthochromatic methods. You want the gradation and to be as correct as possible. The same materials and as are used in ordinary photography are suited to stereo but you must aim at rather softer results. 2. This seems suitable focus. If the lenses are good ones the results be just as perfect as those produced in a bigger camera. We should not consider it necessary. 4. We know the camera to be a thoroughly good one, but have not seen it.

DRD.—We can only advise you to apply to one or other of the enlarging firms doing club work. They might be able to supply you with specimens of circulars, etc.

—In the circumstances you name we advise you to select a lens of the folding focal-plane type. If second-hand, the lens is likely to be any the worse. Your best course is to look up the makers given under "Cameras, Hand," in the "Almanac," 1909.

GRAPHOSCOPE FOR AUTOCHROMES.—I have lately been viewing autochrome transparencies (quarter-plate size) with a single lens, about 4¼ in. in diameter, and have been struck by a decidedly stereoscopic effect, and also by the apparently life-like of the picture when it is looked at by the eye at some distance from the lens; and I should like to get or to make an apparatus of the kind which would show my Autochromes under the best conditions. I should be much obliged if you could tell me in your next number the size and focus of the lens which would be likely to give the best result, and whether you know of any firm which makes a speciality of this kind of apparatus.—J. M. J.

—I find that the best effect is obtained with a reading lens of 4¼ in. diameter, and the focal length of such a lens is just about 12 in. Some stereoscopes are made with eye-pieces that can be turned through 180 deg., and when so turned the apparatus is equivalent to a graphoscope, and has the same effect as is produced upon ordinary single pictures. This would probably be of your purpose, otherwise we think you cannot do better than use a reading lens. You can, of course, buy a graphoscope complete fitted for viewing single pictures from any optician.

(Belfast).—By no means as good.

DR.—Kindly give a quick-acting developer for focal-plane autochromes (one solution) from 1-90 sec. upwards, also for stand development.—SNAPS.

—A pyro-metol developer is as good as any, say the formula given in the Imperial Company's Handbook. For stand development use a Kodinal or any clean developer, with some extra sulphite, and it will answer well.

INTENSIFICATION.—In the "B.J." of the 29th ult. you have answered my question about intensifying negatives. I tried the solutions (chromium and amidol) and yesterday tried the intensifier. I tried first on a cut film by a well-known maker, of the kind that I generally use. This bleached and darkened perfectly. Then in the same solution I put another film of the same subject taken on the same occasion. This would not bleach. I used some fresh chromium solution in another dish and transferred the film to it. Still no result. Another film was put into the same lot of solution. No result; and just as I was going to give it up it suddenly bleached. Two other films acted like this, and although I kept them in the chromium solution for four or five hours they appeared to be quite unchanged. I even tried to warm the solution without avail. Can you tell me the cause?—J. E. G.

—A formula recommended in our previous answer can only be used once, and must be mixed immediately before use. Films can be troublesome with A. Try the B formula and repeat if necessary, but do not keep the solution ready mixed. It is best to keep a 4 per cent. solution of bichromate and a 2 per cent. solution of hydrochloric acid and mix equal parts immediately before use. You should then have no trouble.

PRINTING.—(1) Can you tell me the cause of the dark spots on the enclosed sulphide-toned bromide prints? Sometimes

they appear during development, but more often in the bleach. I have tried several makes of paper and have also changed the developer from M.Q. to a made up one, but cannot get rid of the difficulty. I use sulphite of soda, alum, and acetic acid in fixing bath, rinse prints between developing and fixing, and well wash afterwards. I might add that I use porcelain dishes which are constantly cleaned with acid. (2) How many cabinet prints could with safety be fixed in hypo, 2 lb.; water, 70 oz?—"CLAREMONT."

(1) If the stains appear during development it would seem that they must be due to something in the bromide paper. Possibly it is handled too much before use, or else becomes contaminated by contact with the negatives. Try cleaning the latter and varnish them if they are not already varnished. (2) Your fixing bath is much too strong. Instead of 2 lb. in 70 oz. we should use 1 lb. in 80 oz. It is impossible to say how many prints can be fixed with safety. We should throw away the bath as soon as it became discoloured, but washing between development and fixing will keep it clear for a long time. If you allow 1 lb. of hypo. per gross of prints you will be on the safe side without being unduly extravagant, considering the price of hypo.

F. W. D.—So far as we can see, your only course is to practise a very quick manipulation of the ball. Perhaps the makers of the shutter can advise you further.

CINEMATOGRAPH.—I am writing to you, for I think you are the most likely people who could inform me on the following matter. I am desirous of becoming a cinematograph operator, and am at a loss who to apply to for a situation. If you could enlighten me I should be obliged, for I am not aware of any cinematograph periodical being published. I am seventeen years of age.—A. L. GRUNWELL.

Better apply to one or two of the cinematograph firms such as those advertising in the "Kinetograph," published at 1d. weekly, by E. T. Heron and Co. 9, Tottenham Street, Tottenham Court Road, London, W.

TONING BLUE PRINTS.—Can you tell me a method of toning ferro-prussiate (blue prints) like the enclosed? I have heard that catechu and borax will tone them, but cannot get anything like the result here obtained. I have only recently become a subscriber to your valuable paper, and must say I am more than satisfied with the fare supplied every week. If you cannot inform me how to obtain the result, can you suggest any other simple way of toning blue prints?—FERRO-GALLIC.

We have obtained tones almost identical with that of the print you send by the borax and catechu method, but the process is slow and not at all certain. There is not a really satisfactory method of toning blue prints which can be worked in a regular way. A better plan would be to prepare a print on sepia paper and tone that by one of the commercial green toners on the market.

LARGE PHOTOGRAPHS.—Can you give me name and address of firm where I could obtain large photographs, say, 15 x 12 or larger, on hire or to purchase? I require a large assortment of subjects of all descriptions, as, for instance, tea-growing, etc., coffee-growing, biscuit manufacturing, fruit gathering, fruit packing in tins, etc., and such like subjects.—BELFAST.

Better write one or two large publishers of views such as Valentine, Dundee, Frith, Reigate, the Photochrome Company. If these cannot supply you we can only suggest that you insert a small advertisement stating your wants.

CINEMATOGRAPH.—(1) I should be greatly obliged if you would inform me of the most practical book on the manipulation of the cinematograph which has come under your notice. (2) Also from whom to hire up-to-date films for public exhibition.—F. PARKER.

(1) You should get the "A.B.C. of the Cinematograph," by Cecil M. Hepworth (Hazell, Watson, Viney, 1s.) (2) Messrs. Butcher and Sons, Camera House, St. Bride Street, E.C.

INTERIORS.—I have an offer to photograph the interior of a rather large music-hall. As I have had no experience in such a large place before should be very grateful for a little information. (1) I have to photograph the stage. There are two arc-lamps, one on each side. Would that be sufficient? (2) They also want a picture taken from the stage. The place is rather dark. Would it be best to get flash lamps? If so, how should I place them? I suppose magnesium ribbon would do. If so, how much should I require? How should I use it? I have to use a half-plate wide-angle lens. Should I require to use light for the gallery, bal-

cony, and pit, or would it be sufficient to only light up the pit?—**STAGE.**

(1) With the two arcs supplemented, say, by the usual stage lighting, you should be able to dispense with the other light for the stage, giving an exposure of, say, one minute at $f/16$ on an extra-rapid plate. The arcs alone will probably give too mixed a lighting. We think you should endeavour to secure the illumination ordinarily used on the stage. (2) For the view of the hall from the stage you will certainly require flashlight, best obtained by means of a flash powder laid in a thin train on either side of the proscenium, and, if possible, at a fair height. Difficult to advise you as to quantity, but with lens and plate as above $\frac{1}{2}$ to 1 oz. in all will probably not be excessive for a large hall with dark galleries. The powder is laid in a shallow metal trough and fired with a taper, taking care that the light does not fall direct on the lens.

PATENTS.—Some four or five months ago I invented and had made what has proved an extremely useful piece of apparatus. I have been giving it a thorough trial preparatory to putting on the market. Only this week I have been making inquiries as to patenting and selling, when to my disgust on opening a trade paper this morning I find a somewhat similar piece of apparatus put on sale by a photographic firm and labelled "fully protected." Now, my apparatus in detail is rather better in my idea, but I suppose the other people have properly "settled my hash." What I wish to ask you is, may I continue to use my apparatus, or must I come to some arrangement with the people who have beaten me by a head? I am feeling frightfully upset about it, and should be very glad of your kind advice.—"PIPPED."

It seems that you have been forestalled. If, however, you can prove prior use or publication of your invention previous to the lodging of the provisional specification by the other people, it will not interfere with you. If you cannot do that you will have to make some arrangement with the patentees or let your invention slide.

COPYRIGHT.—We want to know if it is compulsory to stamp or print the word "Copyright" on photographs we have made copyright? A photograph of ours is made copyright, but a print got into a publisher's hands not stamped or printed with the word copyright on, and the publisher holds he is not responsible and had a right to reproduce photographs not so stamped or printed.—**T. BENNETT AND SONS.**

The publisher is quite mistaken. There is no obligation to mark copies. He is in no way excused from the infringement.

AIR-BRUSH.—I am a middle-class operator-retoucher, but aspire to a better post. Do you consider that proficiency in the use of the air-brush is essential or of great use to one who wishes to include working up enlargements among his other qualifications? The price is high and I hesitate.—**ASPIRANT.**

Yes, air-brush work is so largely used now that you could not afford to be without it in doing good class work.

HYPHO RESIDUES.—Would you be good enough to let me know how to break down hypo? I use a great quantity, and consequently want to save the residue. When you put the reply in the "Journal" please let same be in full detail from taking the hypo out of the bath up to getting the residue dry ready to send to the refiners, and oblige **SYD DARBY.**

No elaborate details are necessary. All that has to be done is to add sulphide of potassium (liver of sulphur) to the used hypo until no further precipitate is thrown down. It is a good plan after some sulphide has been added to take out a little of the solution and pass it through a filter, and if a further addition of the sulphide to the clear solution produces no further turbidity, it will be known that all the silver has been precipitated. The whole is then allowed to stand for a few days for the sulphide to subside, when the clear portion is poured off and the residue dried. It is then ready for the refiner.

CARBON TROUBLE.—I should be pleased if you could advise me how to avoid the appearance of the crystal specks on enclosed carbon print. I use the matt opal glasses for support and take every care that it is perfectly clean before I flow the collodion over and leave it until it sets at the pouring off corner and appears matt at the opposite corner. One carbon worker advises the use of water which has been previously boiled, as he says the air bell's

from cold water cling to the collodion. I have tried this method and although better I cannot get absolutely free from the specks. I may also say that I take great care in squeegeeing the tissue over the **CRYSTALS.**

The trouble is not due to the cause you suspect. The spots are due to air-bubbles being enclosed between the tissue and the paper when the paper is applied, and this can be easily avoided. In future soak the picture on the glass in water for a few minutes, then bring the softened transfer in contact with it under the water, remove and squeegee together. Be careful to see that no small particles of air adhere to the tissue while in the latter water.

RIGHT TO PHOTOGRAPH.—Having recently taken photograph of an old mansion from the public highway, can you inform me whether the proprietor can legally restrain me from selling reproductions of the same, and also whether he could do so if he were a tenant, and not proprietor?—**R. J. CLOSE.**

He cannot do so in either case.

GLOSSY.—We believe Charles Tyler and England Bros. Appear Messrs. Butcher and Sons, Camera House, St. Bride Street, London. **D. ODENHEIMER (Philadelphia).**—The only drawings available in the patent specifications of the various cameras, and in relation to these you must bear in mind that you will be liable to prosecution if you construct the apparatus even for your own use. Do you wonder that makers should decline to supply you with drawings of their instruments?

Owing to pressure upon our space, several Answers to Correspondents are unavoidably held over.

THE SOUTH LONDON PHOTOGRAPHIC SOCIETY'S EXHIBITION opened on Saturday last, February 20, at the Art Gallery, Peckham Road, and will continue open daily from 2 to 10 (Sundays included) until March 20, admission free. An interesting feature of the exhibition is the series of lantern lectures announced, the subjects, as well as the names of the lecturers, being calculated to draw large audiences. These will begin at 8.15 in every instance, except the last on March 20, which will be at 9, being preceded by the distribution of the exhibition awards by Mr. C. T. Harris, J.P., C.C., at 8. The lectures are as follows:—

February 27.—"The Victoria Falls." J. F. East.

March 1.—"A Tour in Devon," illustrated with Autochrome slides. A. J. Woolway.

March 3.—"London, Ancient and Modern." H. Creighton Beckett.

March 4.—"The Thames, from the Source to the Sea," illustrated with Autochrome slides. J. McIntosh.

March 6.—"The South of Ireland and Killarney." C. H. O'Brien.

March 8.—"The Glorious West Country." Chas. R. Rowland.

March 10.—1908 affiliation prize slides.

March 13.—"Three Men in a Boat (Gee, Jay, and Cee)." Leo Clark.

March 15.—(1) "Phases of Fish Life"; (2) "Methods of Fish Photography." Francis Ward, M.D.

March 17.—"Seaside and other Children and Children's Growth." Victor Emmett.

March 18.—"An Idyllic Minster—Wells." E. W. Harvey.

March 20.—"A Chat on Architecture." Edgar R. Bull.

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SUMMARY.

The special Colonial and Foreign Issue of "The British Journal of Photography" will be published on the 26th inst. Elsewhere in this issue a list of the countries and towns, to which this number is sent direct, is given.

Mr. F. W. Speaight has originated and designed an improvement in London whereby the Horse Guards Parade will be remodelled and extended towards St. James's Park so as to form a great decorative scheme containing the statues of military characters in English history, many of which are scattered through London. Some illustrations of the proposed improvement appear on p. 177, and on p. 174 we point out how public work of this kind helps the photographer and raises the status of his calling.

Mr. Richard Thirsk, in an article on commercial conditions in Germany, comments upon the over-production from which German manufacturers are at present suffering. (P. 176.)

A great scheme for displaying news-photographs in public-houses is said to be afloat. (P. 185.)

Mr. Hall-Edwards has announced the possibility of photographing ordinary light through an opaque body. (P. 185.)

A method for the rapid finishing-off of oil or bromoil prints has been given by Professor A. Albert. (P. 173.)

Mr. C. H. Hewitt, in the "A.P.," has described how to produce a photogravure effect in Bromoil, and, in the Ilford "Scraps," Mr. Harold Baker has expressed his preference for ordinary printer's ink for Bromoil. (P. 183.)

"COLOUR PHOTOGRAPHY" SUPPLEMENT

The concluding portion of Baron von Hübl's paper on Autochrome plates gives the formulæ for compensating filters for use with arc lamps, Nernst light, and incandescent gaslight. (P. 17.)

Further experiments on the "Omnicolore" plate, by Dr. Scheffer, indicate that the method of mutual repulsion of two different inks described in the patent is not that employed in the manufacture. (P. 18.)

M. Cheron has designed a three-lens one-exposure camera of very portable form. It is intended for the making of transparencies, to be viewed in colour on the screen by the additive method of projection. (P. 20.)

A photo-micrograph, showing the structure of the "Aurora" mosaic filter-plate, is given on p. 23. The materials for preparing the plate are issued commercially.

Dr. J. H. Smith announces that he has worked out a sensitiser for each-out colours, which enables him to obtain a paper more rapid than P.O.P. (P. 23.)

EX CATHEDRA.

The "B.J." Colonial Issue.

It will be seen from the announcement in another page that our publishers—those "sordid men whom hope of gain allures"—are this year repeating their issue of a special Colonial and Foreign number of the "B.J.," and are placing the publication upon a basis which, from an advertiser's standpoint, is even more satisfactory than last year's. The list of photographers and photographic dealers the world over, to each of whom this "Colonial" issue of March 26 will be posted direct, now numbers, after removal of deadheads, and additions made within the past six months, a still larger total. In sending what will be doubtless a bulky issue to this large extra number, our publishers more than substantiate their claim that the issue is "special" in a specially commercial sense, an argument which will be endorsed by those who tested the *bona fides* of last year's number. Advertisers will have the advantage of following up their announcement of a year ago, in addition to addressing themselves to new buyers. The list of the places of the earth to which this issue will go should be sufficient indication that since the appearance of last year's number the staff of the "B.J.," despite minor interruptions such as the publication of a book called the "B.J. Almanac," have not rested from their task of creating a link between British manufacturers and buyers in every land.

* * *

Finishing Off Oil Prints.

The final stage, namely, the drying, in the making of the print by either the oil or Bromoil process requires some considerable time for its completion, since the oily pigment, which many workers apply fairly liberally, does not dry very quickly, and if handled in the mounting or trimming with insufficient care may be easily smudged and the print thereby ruined. Professor A. Albert, in a note in "Photographische Korrespondenz," describes the method which he has found satisfactory for bringing the print into a hard, dry state. The wet print is laid face up on a glass plate and secured to the latter by four strips of gummed paper, being then put aside to dry spontaneously, which it does within twelve or twenty-four hours. The surface is then freely dusted over with French chalk (talc), the excess removed with a soft brush or tuft of cotton wool, and the print then flowed over or painted with a solution of shellac in alcohol until there is no further repulsion of the shellac by the strong portions of the print. The veiling of the pigment by the French chalk is removed by this varnishing, and the varnish dries very quickly, the film being so thin that there is scarcely any effect upon the matt surface of the print. When the shellac coating is dry the surface may be given a thin coat of a very fine grain matt varnish, and, when this is dry, the print removed from the glass and

mounted. In this latter operation the print is first laid for about twenty minutes between wetted sheets of paper (filter paper), a good paste then applied to the back, and the print pressed into adhesion.

* * *

Colour Cinematography at the "Palace."

The admission into the programme of the Palace Theatre of Varieties of the Smith-Urban cinematograph pictures in natural colours marks another era in the application of photography to entertainment and instruction. The demonstrations at the house of the Urban Company, and more recently at the Royal Society of Arts, have shown the remarkable success of the method, and the eulogiums which technicians have passed upon the process have been repeated with added emphasis by the Press and public who have seen the projections from the auditorium of the handsome theatre in Cambridge Circus, which again leads the way in introducing to the public this latest triumph of the cinematograph.

* * *

Speaight Portraiture of "Fair Children."

We recently saw, at the studios of Messrs. Speaight, a few of the portraits of the children of English, Spanish, and German Royal Families, made by Mr. Richard Speaight for the forthcoming exhibition to be held during May, June, and July at 157, New Bond-street. For these portraits special sittings have been granted, and the exhibition, apart from offering a most interesting collection of portraits of future monarchs and other children of noble birth, will demonstrate with what great success Mr. Speaight has embraced the opportunity of portraying his sitters after his own inclination.

* * *

The Art of Scientific Research.

In "Nature" for February 18, 1909, there is a very interesting abridged report of an address by Dr. L. A. Bauer, the late President of the Philosophical Society of Washington, which address might be studied with profit by many of those who take an interest in photographic research. The subject is the "Meaning and Method of Scientific Research," and Dr. Bauer draws special attention to the fact that such important subjects as "discovery," "experiment," "investigation," and "observation" are completely neglected in the "Encyclopædia Britannica," and, apparently, in most other English works of reference. For a philosophic treatment, he says, he frequently gets more satisfaction out of the older encyclopædias than from our modern ones, and he especially commends Sehler's "Physikalisches Wörterbuch," published in 1824-45, in which twenty-eight pages are devoted to "observation" and forty-four to "experiment." There is nothing in the address directly bearing upon photographic research, but the general principles are, or should be, the same in research of all kinds, and the mistakes so often made are of the same nature. The blunder of thinking that "an established formula satisfying the observed phenomenon within certain limits represents a law of nature" is made just as often by photographic investigators as by others. The danger of neglecting what we are pleased to call "abnormal features" is as great in photographic problems as in the magnetic ones referred to by Dr. Bauer, and it is just as difficult to follow the law of observation which enjoins the use of "such a method or scheme of observing as will yield but one definite result." One of the maxims laid down by Dr. Bauer is that "it is as important to make research work known as to do it" is perhaps not so often disregarded by photographers, who may, indeed, sometimes be suspected of being so eager to publish that they fail to do the work properly. We

have often thought that it would be a very great thing if some one of our many clever modern investigators would stop his own researches for a time, in order to write a short treatise on the science of research for the benefit of less skilled investigators. If he could only teach us how to look for facts and how to recognise them when found, he would render a very great service.

* * *

Stops and Shutters.

Mr. E. A. Salt, in his lecture on shutters, drew attention to the fact that while with a blind shutter a reduction of the iris leaves the efficient exposure exactly the same, with an iris shutter the efficient exposure increases as the stops are reduced. This has an important bearing on the use of the stops, though that fact may not be quite apparent at first sight. So long as the efficient exposure remains the same the stops preserve their ordinary value, but if the efficient exposure changes then the stops change their value as regards intensity. Suppose we consider the case of an iris shutter working at an efficiency of one-third when set to a high speed. Assume its full aperture to be equivalent to $f/5.6$. Then with a lens aperture of $f/11$ the efficiency is increased to two-thirds, or is doubled. In the ordinary way a reduction of aperture from $f/5.6$ to $f/11$ reduces the intensity of the light to one-quarter, but as in this case it has doubled the shutter efficiency the light intensity is only halved. If this fact is not known it is certain that the photographer will assume that by opening out his lens stop from $f/11$ to $f/8$ he doubles the exposure, and probably not one in a hundred ever realises that it is necessary to open out to $f/5.6$. It will be noticed that this peculiarity of the iris has both advantages and disadvantages. If we want all the light we can get, it is disadvantageous not to be able to get more beyond the $f/5.6$ aperture. If, on the other hand, we want all the depth we can get, it is certainly an advantage in stopping down to $f/11$ only halves the light available at $f/5.6$. It must not be assumed that the aperture scale is upset in a similar proportion throughout. In the usual case $f/22$ will reduce the light available at $f/11$ to one-third, while $f/44$ will very approximately reduce the light available at $f/22$ to one-quarter. At the smallest apertures the stops regain their relative values, and the same variations only exist with the larger apertures.

MR. F. W. SPEAIGHT.

MR. F. W. SPEAIGHT, the senior director of Messrs. Speaight and the partner in that concern whose functions are appropriately described as in the nature of stage-management, has found a new field for his energy and architectural pursuits. It was only the other day that the Marble Arch was brought safely through its operation of excision from the Park, and Mr. Speaight's name thereby permanently associated with a great improvement in London: but his attention is directed to the opportunities of quite Imperial significance which have long been neglected in the Horse Guards Parade, where Mr. Speaight proposes to create one stroke a new decorative space and a Valhalla of military heroes. The scheme is ambitious, but there are probably fewer obstacles to its realisation than there were in the case of the Marble Arch improvement. The success of this latter scheme, upon which its author was very properly congratulated officially by the Professional Photographers' Association, can be ascribed to nothing else than the personality behind it, but it provides the very best example of the part a photographer can and, on grounds of public policy, should take in the affairs of his town. In the case of the great majority of men it will be found, if inquiries

shed deep enough, that the motive of public action is not merely altruistic. Commercial expediency actuates it, personal preference may prompt it, or it may even be done because conditions render it incumbent upon a person, and a decent way of avoiding it can be found. None of us expect to be accepted as philanthropists in these days, and we do a cynical public will quickly undeceive us. Our reason for gratitude, however, to Mr. Speaight—whose activities we have no object in attempting to discover—is that, as a director of a photographic establishment, he has earned recognition for his public work from the highest quarters, and has emerged victorious from a struggle which a committee would probably have preferred to shirk; and this in London, which in its hugeness is as hard to be taken to a state of appreciation as the giant in the fairy fables. One hears discussed at times the claims of photographers to be regarded as professional men, but how rarely does one observe a share taken in public affairs in a way which ranks the photographer with the professional classes in the public estimation. That recognition need not necessarily be obtained along the path of election to the local governing bodies. Indeed, nowadays that is the least profitable direction in which to seek it. But the success which has followed the many unofficial yet public services performed by Mr. Speaight during the past twenty years shows that there are plenty of opportunities for those who will see them, and that those who cleverly profit by them are not only helping themselves, but are incidentally raising the status of professional photography.

SOME HINTS ON BUSINESS NOVELTIES.

At the present being about the time when enterprising photographers are, or ought to be, casting about for such ideas which would be useful in their businesses during the coming season, and arranging matters accordingly, it may be opportune for us to make one or two suggestions as to the production of novelties, particularly in small country towns. Many photographers appear to have settled down to a groove, and continue supplying the cabinet silver prints of time immemorial varied by an occasional enlargement. It is true that many of them during the past few years have made a specialty of post-card portraits, midget, and such things, which have no doubt brought a certain amount of "grist to the mill," but it has been at the expense of the prices of other styles, and at the same time has lowered to a greater or less extent the status of the business.

The most desirable novelties to be introduced at the present time are such as would command an enhanced price for the work, and at the same time raise the reputation of the studio. This may frequently be done by making a feature of side-lines quite apart from the ordinary run of business. Many photographers in their price-lists quote cyanotype and carbon pictures at very much higher prices than those of their usual silver prints, and they are a good paying line. But, as a rule, this class of picture is not so prominently brought before customers as it might be in middle-class studios, the latter process in particular. Some, indeed, seem to discourage it rather than otherwise. In many of the highest class studios the majority of the work turned out is by one or other of these two processes—but that is by the way. It does not follow because a thing may not be quite new that it will not be a novelty when introduced. The carbon process is by no means a new one, but there are some applications of it that would be novelties if introduced in any middle-class portrait establishments, and might

figure as attractive and profitable side-lines in the window or show cases. We remember a few years back seeing in a north-western suburb a large show-case filled with portraits in quite a dozen distinct colours, such as bright green, vivid red, rich blue, bright crimson, and other colours. In the show-case was the simple announcement, "Photographs in all colours." It served its purpose, for whenever we passed during the few weeks the specimens were on view there were always people looking at them; the novelty of the colours called attention to the studio. The pictures were, of course, by the carbon process, as by any other it would be impossible to get some of the colours shown, or the same rich transparency in the shadows by any of the methods of doing bromide prints. We merely mention this case to illustrate how old things may be converted into novelties which attract attention.

With the carbon process, no matter what the colour may be, all the prints will be of the same uniform tint, which cannot be said of all colours depending upon toning. There is no other process of photography that can be applied to so many different purposes as can carbon. Some of them might prove a good side-line in many middle-class businesses. It may be remembered that a few years ago pictures on wood plaques with a gold or silver ground were exploited more or less as a secret process, under the name of "Metallines." They were merely carbon pictures transferred to the plaques. Since then gold and silver transfer papers have been introduced, and pictures on them would be novelties in many places. Photographs on watch-cases and similar things are done by the carbon process. Carbons on wood panels for decorative purposes are very effective, and what is more they can be French polished, and if the white polish be used the lights of the picture are but little, if at all, degraded. A few weeks ago we reviewed a material just put on the market ("Ivory"). Carbon prints developed on this by the single transfer process are very pretty as well as novel, as they can be seen equally well either by reflected light or as transparencies, and require no mounting whatever.

In connection with the above suggestions it should be remembered that the convenience in working of the carbon process is now far greater than it was some years ago. Makers supply the tissue in small quantities ready sensitised, so that no chemicals beyond a solution of common alum is required in the manipulation—warm water only being the developer. The spirit sensitiser introduced by the Autotype Company a couple or so years ago greatly aids in the working of the process, as it permits of small quantities of tissue being sensitised, dried, and made ready for printing upon in from a quarter to half-an-hour. It is simply applied to the surface with a Blanchard brush, one of which is supplied with each bottle of sensitiser. The Blanchard brush is simply a piece of glass—say a quarter-plate—with a piece of flannelette folded loosely over one end and secured by an indiarubber band. In use a little of the solution is put into a small dish or saucer, the brush dipped into it just to wet it, and then passed over the surface of the tissue, first lengthwise and then crosswise to equalise the coating. The tissue is then hung up to dry (in the dark, as a matter of course), which will take about twenty minutes to half-an-hour. In a warm place it will dry in a quarter of an hour or less. Any solution that may be left in the dish should be thrown away, and not returned to the stock bottle.

The method is very economical in use, as only just sufficient to evenly wet the surface of the tissue is required and no more. With the spirit sensitiser all the trouble of sensitising the tissue and the difficulty sometimes experienced in getting tissue dried in good condition are avoided, and the process is reduced to the greatest simplicity.

THE PHOTOGRAPHIC YEAR IN GERMANY.

THE year which has just closed will long be remembered in Germany as one of the blackest recorded in the annals of its history. This is the more striking when we remember that during the last decade or so the photographic manufacturers of this country, as also the professionals, have experienced a period of almost unexampled prosperity. In fact, this prosperity may truthfully be described as phenomenal when we recall the fact that it is only within comparatively recent years that Germany entered the lists as a serious competitor in the various photographic markets. From very small beginnings the nation has forged steadily ahead, continuously increasing its energies, and at the same time its output, until at the present time it has succeeded in making good much of the long start which other nations had on it; and, as far as Great Britain is concerned, Germany has become its most serious rival, with perhaps the single exception of the United States. Germans are now competing keenly with Englishmen in most of those markets which at one time the latter were almost justified in considering as a monopoly of their own. Wherever they have gone, the Germans have shown a spirit of enterprise and daring, and they have been rewarded with success. The various causes which have contributed to their unprecedented success form an interesting as well as highly instructive subject, with which I hope to deal on a future occasion. Meantime, I must confine myself within the limits of a brief review of the past year's working as it appears in the various reports now being published. Most of these go to prove that the success which the Germans have succeeded in winning for themselves is a fickle jade, and there is more than the suggestion of much rueful head-shaking over the methods hitherto employed in wooing her.

With only very few exceptions, the yearly reports of the various manufacturing concerns tell a tale of misfortune, and some of disaster. All of them indicate very conclusively that the prosperity of the German photographic industry has from various causes received a severe shock. Whether or not this check will be only temporary remains to be seen, though the outlook in the year just begun is not particularly sanguine, nor is it likely to improve so long as the war-cloud hangs threateningly in the Near East, keeping business in an unsatisfactory state of uncertain suspense. However that may be, there is assuredly much ground for believing that, after all, the often-repeated rumours circulating in Germany as well as abroad concerning the shaky condition of German finance are based upon more than an imaginary foundation. I have heard it repeatedly asserted on good authority that many of these businesses which sprang suddenly into existence during the booming days are not established upon the soundest or the most satisfactory commercial lines. And I have also heard it more than hinted that, unless there is an immediate change in the situation, some of these businesses will before long be compelled to submit to the inevitable. Some idea of the present condition may be gathered from the fact that few of the factories are working full time. A large number have been compelled to reduce their staffs, some of them retaining less than half of the employees they had little more than a year ago. This reduction has naturally been accompanied by evil results both for the workers and the employers. The former have no alternative but to join the large army of unemployed, thus helping to increase the difficulties of the great economic problem which German statesmen are trying vainly to solve; whereas the latter find public confidence in their various undertakings shattered, and in consequence public support so tardy that their shares are fast becoming a glut in the stock market. This means that a final appeal has to be made to the bankers, who become more and more the dictators in those concerns with which they are mixed up, until finally they wrest the power

out of the hands of the original proprietors, becoming, in all intents and purposes, the owners.

An army of investigators, among them university professors and others, are diligently studying to discover the various causes which are responsible for the present depression. Most of them are agreed in tracing it back to the money crisis in the United States early last year. That, doubtless, was not without effect on the conditions here; but, in my opinion, it is only a very small part of the cause. If German manufacturers had been on a sounder commercial footing, the money crisis in the United States could not have had any more effect upon them than it had upon England or France, for instance; certainly it never could have paralysed them, as it is said to have done. To hold to such an argument is almost tantamount to asserting that the financial ruin of the United States would mean the commercial ruin of Germany—an argument which reflects no great credit on Germany, or on any other country which could be so foolish as to permit itself to become so entirely dependent upon the fortunes of any other country. It is just possible that these investigators would come nearer to the truth if they permitted themselves to become a little more introspective and less prospective; if they sought for the cause at home instead of abroad. What Germany is suffering from just now in all departments of her manufacturing industries is nothing more nor less than the evil results following upon a period of over-production. Totally regardless of the possible or the probable demands of the market, she has gone on manufacturing at a rate out of all proportion to her capacity to dispose of her manufactures. The busy hive of workers was kept producing night and day, and all went well so long as the boom lasted. Now that the markets have been over-stocked, and the stock rooms filled to overflowing, which is the same as saying that much of the capital has been sunk in dead stock, a halt has been called for Germany. Until this mass of surplus stock has been disposed of, and part of the capital recovered, even a resumption only brings in a part of the sum originally laid out on it, and must necessarily remain at a standstill.

This over-production has been the means of bringing about another evil, equally great in itself, which I fear may be intended to damage German credit somewhat on the buying market itself. In order to get a return for their dead stock, German manufacturers have been at their wit's end to find purchasers for it. In their eagerness to secure these buyers they have entered into blind competition against each other, cutting prices under-selling, until prices have gone down so low that the none of them are able to get even a small margin of profit on their goods. In many instances the prices obtained can scarcely be considered to cover the cost of the material in the article, so that there is a deficit which must be paid for out of the manufacturer's capital. No profound economist is required to predict exactly how far business can be carried on by continually drawing upon the capital, or what the inevitable ending of such principles must be. And the unfortunate circumstance attending such a method is that, while these traders are ruining the markets for themselves, they are at the same time creating innumerable difficulties for others to overcome before trade can again settle down into more satisfactory channels.

There can be little doubt that in the end the German manufacturers will themselves be hardest hit as a consequence of the business methods they have adopted. Their extraordinary eagerness to get hold of the markets at any price has been frequently accompanied by a total disregard of the ordinary business precautions. They have not always been over-scrupulous in giving credit or to whom they gave it, and now the price they are paying for temporary success is an enormous sum of money.

ing out in bad debts, which in itself might well cripple business.

As the present economic crisis is general, applying equally to nearly all manufacturers, it naturally follows that, in consequence of the shortness of money in the country resulting from that the amateur photographic trade has dwindled away very considerably. Thus the manufacturers of photographic articles have been deprived of a source of home revenue which they had reasonably hoped would help to cover their losses abroad. For the same reason the studios in Germany have not been coming nearly as much material of late, and the proprietors of these latter have also suffered very badly. The people in the country have not the money to spend on what they term an article of luxury, and the general grumble among photographers that the past year was one of the very worst on record. Besides the money scarcity, there have been other influences at work, all of which have helped to make the lot of the photographer still harder. Direct and indirect taxes have gone up rapidly within the last few years, increasing very considerably the cost of living; and, what may even be worse than that, since it acts more directly, the numerous large stores established throughout the country have nearly all of them added to their manifold activities that of photography. They have departments for the supply of amateurs and also studios. These studios have become very popular with the people, possibly because they are convenient and cheap. Certainly it is not for the sake of the work turned out of them, which, so far as I have seen it, is certainly cheap and nasty. Prices in these store studios have been cut down to starvation point, doubtless be-

cause the warehouses are able to buy on more advantageous terms than the professional photographers. The latter find it hopeless to strive against these formidable competitors, and many take the gloomy view that ultimately the warehouses will ruin the whole of the photographic profession. At present the warehouses are bidding fair to accomplish this end. They have brought about an entirely new economic position in the profession, the working out of which may, unfortunately, go hard against photographers and their assistants, unless something unexpected happens to divert the new current. What that something may be short of legislation is a knotty problem to which no one has yet been able to suggest a reasonable solution.

Apart from this business crisis, the year that has just gone was not productive of anything of particular note. No outstanding inventions or discoveries have marked its progress in the field most directly associated with professional photography. In its scientific department German workers have been diligent in improving tele-photography, in which some progress has been made; and in that branch which they are making all their own, Röntgen photography, they have succeeded in bringing it to such a stage of perfection that instantaneous photographs may now be taken by it, and more wonderful still is the fact that by its means a photographic record can now be made of the beating of the heart. But all this means more to the medical and scientific world than to the photographic profession.

Much is expected from the exhibition to be held at Dresden. It is hoped that this event will rouse a new interest in the trade and the profession, giving to both a new impetus and new life.

RICHARD THIRSK.

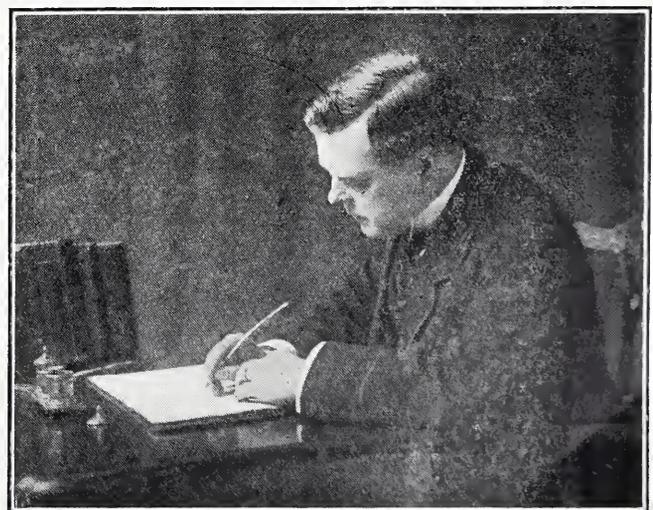
MR. F. W. SPEAIGHT'S SECOND SCHEME FOR AN IMPROVEMENT OF LONDON.

ABOUT the time these lines are being written there is being given, by Mr. F. W. Speaight, at the galleries of his firm, Messrs. Speaight, Ltd., 157, New Bond Street, a Press and private view of drawings and plans relating to an important

Speaight in 1905, and by him brought before two Governments, a Progressive and a Moderate London County Council, and the governing bodies of the City of Westminster, and the Boroughs of Marylebone and Paddington, and, as every Londoner knows, carried out in fact last year. It was immediately following



From a photograph showing the view from the Horse Guards Parade in the direction of the Park as it is at present.



Mr. F. W. Speaight.

suggested improvement of London upon which Mr. Speaight, assisted by Mr. C. E. Mallows, M.R.I.B.A., has been engaged for the past year. It will be within the recollection of many readers that the suggestion for the improvement of the junction of Park Lane, Oxford Street, and Edgware Road, by detaching the Marble Arch from the Park, was made by Mr.

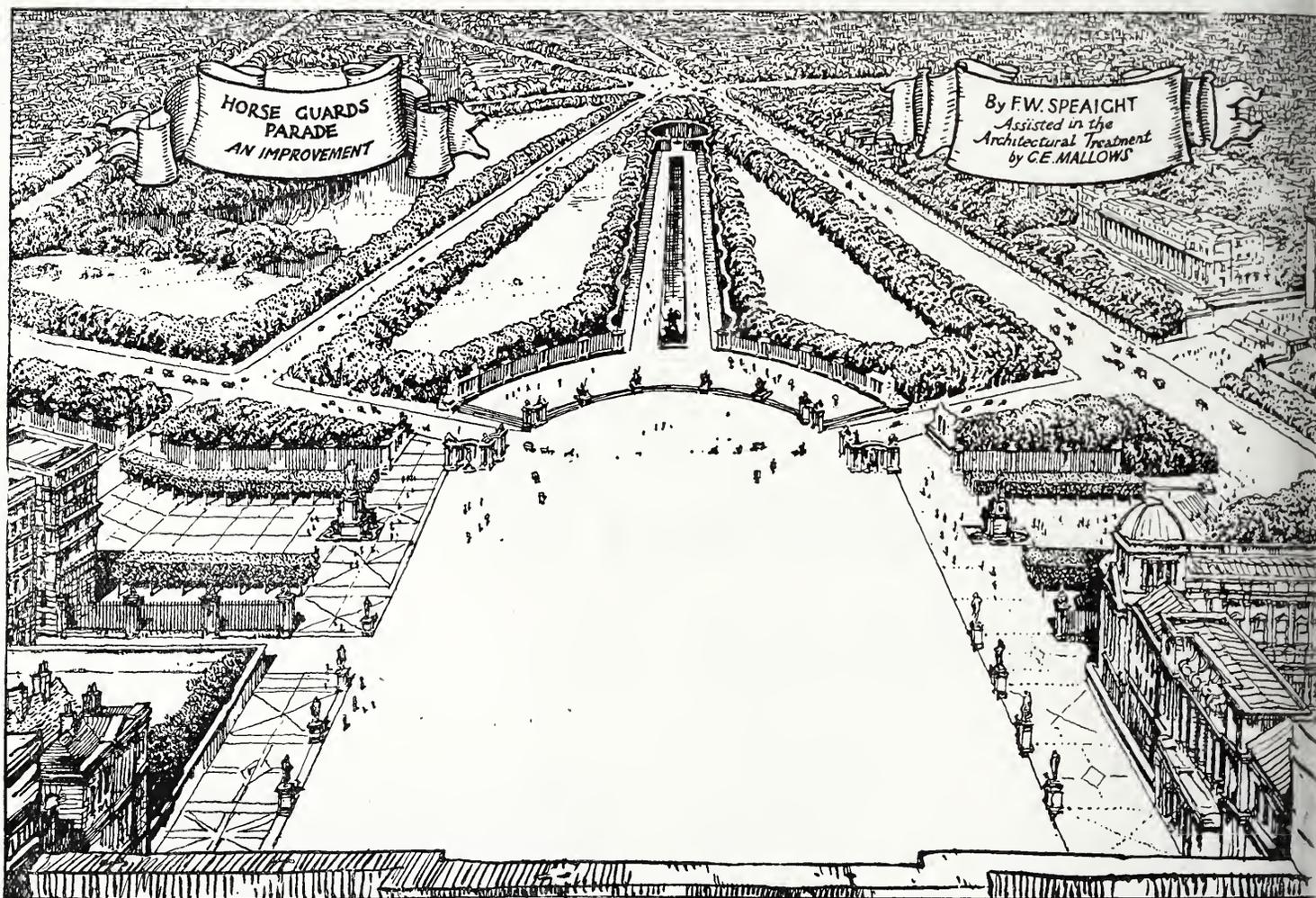
the completion of the Marble Arch improvement, and arising out of the congratulatory phrase of the Right Hon. John Burns—"There is more of the same work to be done"—that Mr. Speaight conceived the idea of this second improvement, which is, in a word, to give shape and beauty to the Horse Guards Parade, and to form, as an extension of it towards Buckingham

Palace, an allée in which may be placed the statues of British military heroes which are at present scattered about London, many in vortexes of traffic, where they can be inspected only at risk of sudden death by motor-car.

The drawing shows the Horse Guards Parade and its surroundings as they would appear if the proposed improvement were carried out. On the extreme right is the York Column, at the foot of Waterloo Place, with Carlton House Terrace next to it. The centre of the drawing contains the Parade ground remodelled into a *Place* of real form and design, and beyond it the canal extending from the apsidal end of the Parade to Marlborough Gate, and flanked by statues commemorative of famous military characters in the early history of England.

acquiring a public house or other property for an ordinary street widening."

Already artists and art critics, such as Mr. Hamo Throcroft and Mr. M. H. Spielmann, have expressed their commendation of Mr. Speaight's scheme, but perhaps the most convincing eulogium is that of Mr. E. F. Knight, the war correspondent who writes that the execution of the plan "would make of it one of the most beautiful and stately open places in the world cities. I think that there could be no more fitting a place which to bring together the now scattered statues of our military heroes. This British Valhalla under the open sky would command the attention of visitors to London and Londoners themselves to linger and admire; and to read the inscriptions on these monuments



The Horse Guards Parade.—A bird's-eye view, showing how it would appear if the suggested improvement were carried out.

In a book published yesterday Mr. Speaight dedicates this improvement "to his fellow-citizens in the hope that by its realisation, dignity may be added to the capital of the British Empire, and a suitable position allocated to the memorials of the soldiers who have fought their country's battles," and in a brief foreword points out that the suggested scheme "would endow London with an ornament of much magnificence. It would compare favourably with the Piazza del Popolo in Rome, the Siegesallee in Berlin, or, one might even say, the world-famous Place de la Concorde in Paris, thus giving to the greatest capital in the world a distinction hitherto denied it, and it would figure as a noble complement to the Victoria Memorial and the Mall immediately contiguous. The cost of the improvement amounts to £59,000 odd, a sum not in excess of that frequently paid in

erected in memory of those who fought gloriously England would be likely to inspire our own young men with a sense of the military duties which they owe to their fatherland."

The public work of Mr. Speaight since the time when a youth of eighteen he founded the Holborn Saturday League for the benefit of the working class, has been so various, and has been brought to such successful issues, that one may find sanguine of the present important improvement in the topography of London being carried out. It will be inevitably delayed in its passage through Government departments, but from the great publicity being accorded it in all sections of the Press, there would seem every reason to prophesy for it a speedier accomplishment than in the case of the Marble Arch

THE "PHOTO-SECESSION" held a "one-man" show of photographs, by Baron A. De Meyer, in their exhibition galleries at 291, Fifth Avenue, New York, from February 4 to 22. The collection,

though small, was representative of the Baron's well-known work in monochrome, and also included twelve colour transparencies of "still-life" subjects.

PHOTOGRAPHING ANIMALS UNDER WATER.

A recent report from the U.S.A. Bureau of Fisheries on "The Photography of Aquatic Animals in their Natural Environment," published in an abridged form in the "Scientific American," from which journal we obtain the following account of the method, described by its inventor, Professor Jacob Reighard, of the University of Michigan.—Eds., "B.J."]

It is difficult for operators to photograph submerged objects with a camera placed in the water, and to result in only partial success, and this but rarely. Failure is due to the fact that the photograph is made through the surface of contact of two media, water and air, of very different refractive indices. If this surface is not perfectly smooth the light from an object beneath it is, upon emergence, refracted unequally at different points of the surface, and cannot form a clear image on the ground glass.

Whether the water is smooth or rough, its surface reflects a part of the light which strikes it, and thus acts as a mirror. This reflected light makes it impossible, except under unusual conditions, to obtain photographs of submerged objects. To obtain such photographs the surface of the water must be smooth, and light reflected from the surface must not enter the camera.

The method with which submerged objects are to be photographed is to remain above the surface of the water, means must

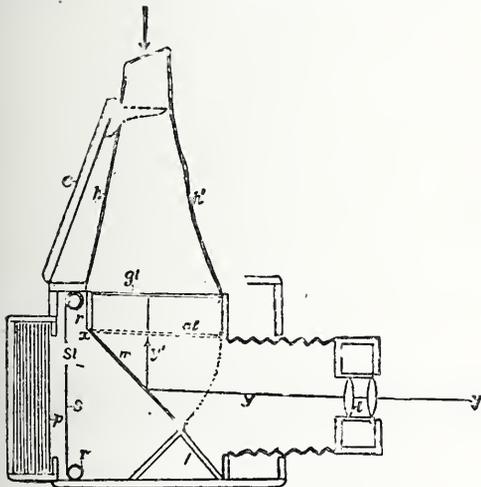
camera must be shifted until it does. The operator will see also the shadow of the screen. This should not fall on the object to be photographed. The screen should, if possible, be adjusted by slanting it or moving one of the poles so that the sun strikes it nearly edgewise, but yet does not strike that face of it which is toward the camera. If this adjustment is properly made, the shadow of the screen is a very narrow band, which lies beneath the screen and a little nearer the camera than its lower edge. The full sunlight then falls on the object, while the rays from distant objects, which would otherwise be reflected into the camera from the surface of the water, are cut off. If the sunlight is permitted to fall on that face of the screen which is toward the camera, it is reflected from the screen to the surface of the water and thence into the camera. A picture taken under these conditions may show, besides the object under the water, also the screen itself, although this image of the screen is usually so faint that it does not interfere with the use of the picture for scientific purposes.

When the screen has been properly set, the operator has merely to adjust the camera and make the exposure in the customary way. If the subjects are fish they will usually have been frightened away, but if the fish are engaged in nest building or in some other occupation that attracts them to a particular spot, they will, in most cases, return after a time varying from five minutes to an hour. The operator has merely to remain quiet until this happens. The photographer may focus his camera on the spot to which the fish is likely to return and then withdraw and operate the camera from a distance by pulling a string or pressing a bulb when the fish returns. The method is of most use in securing photographs of the nests and habits of fish in shallow water, yet the writer has succeeded by means of it in making some satisfactory photographs of fish on the nest.

If the surface of the water is not smooth it may be made so by a water-glass, which may be constructed as follows: A square frame is made of heavy galvanised iron, and measures 3½in. deep and 12in. on each side within. One of its edges (the top) is turned outward ¾in. and then downwards ½in. to form a lip. This stiffens the frame and tends to prevent water from sloping into it. The lower edge of the frame is turned outwards about ½in. to form a flat surface, against which the glass, 13in. square, is bedded in aquarium cement. After the glass is in position four trough-shaped pieces are soldered to the sides of the frame and to one another in the manner shown in the figure. The free edges of these pieces project inward beneath the lower surface of the glass and support it. Before the pieces are soldered into place cement is placed between them and the lower face of the glass. The whole border of the glass is thus bedded in cement on both surfaces and at the edge. To protect the glass when not in use a flat cover is provided, which fits against its lower face. Such a water-glass may be floated over the object to be photographed, and a screen set up independently of it, or the screen may be attached to the glass itself. For the latter purpose a piece of ½in. band iron may be bent to form the three sides of a rectangle, 8in. by 12in., and this may be rivetted as a bail to the inside of the frame, about 8in. from one side. The bail should turn on the rivets so that it may be depressed into the frame when not in use. A screen may be formed by raising the bail and tying a piece of black cloth from it to the opposite side of the frame. In shallow, running water it is desirable to support the water-glass from the bottom in order that it may not sink so much as to displace or distort the object to be photographed. It may be supported on four iron rods which run through metal sleeves soldered to the four corners of the frame. The rods may be fixed in any position in the sleeves by means of set screws, and may project upward far enough to support the upper edge of the screen.

The writer has used water-glasses of this type varying in size from 1 to 3 ft. square. The size most suitable for field photography is 2ft. square, since this may be transported by hand.

The method described is suited only to shallow water, where the camera may be supported from a firm substratum. In deeper water the unsteadiness of the boat would interfere with the manipulation



Ground glass; h, h', hood; l, lens; m, mirror in position during focusing; m', mirror, showing position during exposure; p, sensitive plate; r and r', rollers of focal plane shutter; s, the shutter; sl, slot in shutter; x, hinge on which mirror turns; y, y', ray of light traversing the lens and reflected from the mirror to the ground glass.

and (1) greatly to reduce the amount of reflected light entering the camera from the surface of the water, and (2) to render the surface of the water smooth. We may consider first the case in which the surface of the water is smooth, so that it is necessary only to minimise surface reflection.

The method to be described is best adapted to objects in water more than 2 or 3 ft. deep, and the best results are obtained when the water is less than a foot in depth and when the camera is one foot from the object. It can be focussed. Since the objects to be photographed are usually in motion, and since the surface of the water may at any time be roughened by a puff of wind, it is best to use a lens of a speed less than f8. The operator should first select the point from which the picture is to be taken. He should, of course, have the sun behind or to one side. If possible he should stand on the bank or on some fixed support which extends above the surface of the water.

If the operator is unable to find a fixed emergent support he may stand on the exposure while standing in the water. The camera may be held in the hand, or may be supported on a tripod which can be sunk to the bottom. As the legs of the tripod are likely to sink into the bottom they should be extended to their full length. Where the bottom is firm an elevated position may be obtained for the camera by using a tripod with legs some 10ft. long, such as dealers use in making pictures of large groups. In such tripods one may use a ladder by which the camera may be reached.

When the operator has placed his camera and roughly adjusted it, he should set up a screen to cut off the light reflected from the surface of the water into the camera. Any piece of dark fabric, blanket, shawl, or for small objects even a coat, may be used.

The screen is mirrored in the surface of the water. The object to be photographed should fall within the limits of this mirrored image as seen from the camera. If it does not, the screen or the

of a water-glass or screen. It might be possible, however, to construct a boat of which the water-glass and the screen should form constituent parts. The method described permits only of views at angles of from about 48 deg. to 90 deg. to the water's surface. Since it is not practicable to place the camera far above the water at these angles or to use screens of very large size, the pictures that may be taken are of near objects, and the field covered by them is of limited extent. If a water-glass is used, the camera must be near it, and the field is limited by its frame. The method is, however, the only one known to the writer for certain kinds of work.

A camera for submerged use, made after the ordinary type, must be securely closed before submerging it, in order to protect the lens and the plates from the action of the water. While the camera is under water it is not possible to remove the plates or plate-holder in order to substitute a ground glass for them. In subaquatic photography the objects to be photographed are all near, and if instantaneous work is to be done the lens must be very rapid. It is therefore important to be able to focus accurately on the ground glass under water, and this might be accomplished by using two identical cameras (twin camera) united so as to form one instrument. One of these contains the plates, and has a lens provided with a shutter. The other camera carries the ground glass. The same focussing mechanism operates both cameras, so that when a sharp image is formed on the ground glass of the one an identical image strikes the sensitive plate in the other when the shutter is operated. One of the cameras serves merely as a focussing finder of full size. A camera of this type, properly constructed of metal, could undoubtedly be used successfully under water, though it has the disadvantage of being unnecessarily cumbersome and expensive.

A 7 x 5 camera of the reflex type just described, with a magazine holder for twelve plates, was used by the writer to obtain submarine photographs at Tortugas, Fla., during the season of 1907.

The apparatus was carried to a boat, or, if it was to be operated near shore, to the shore. In working with the help of a boat the operator wades on or near the coral reef with his head and shoulders above the water. The boat, with an attendant on board, is anchored near. The operator, with the help of a water-glass, now seeks a favourable place for operations. As he moves about the reef the fish at first seek shelter in the dark recesses of the coral reef, but if he selects a favourable place and remains quiet they soon reappear. They are at first wary, but soon grow bolder, and after half an hour or so pay but little attention to him. There is a great difference in wariness among different species of fish. At first only one or two species appear, demoiselles and slippery-dicks usually, then the number of species gradually increases until the shyest butterfly-fish and parrots come within 6ft. or 8ft. of the operator. He then has the camera passed to him from the boat. It floats with the upper part of the hood protruding, and may be easily turned toward any point on the horizon, or even tilted so as to be pointed at a considerable angle upward or downward. The operator has now merely to direct the camera at the fish, while he focusses with his right hand. He must often wait some time before the fish come to the point selected or assume the desired attitude. Often they may be enticed by throwing in a bait of crushed sea urchins or pieces of crawfish. They are in constant motion, so that he must as constantly focus. He often misses a long-awaited opportunity because the fish moves on or takes a wrong attitude before he has had time to focus sharply; but when the favourable time comes he presses the release stem and the exposure is made. JACOB REIGHARD.

CANVASSING FRAUDS AT CARDIFF.—Three hundred and fifty photographs, of all kinds and all sizes, were displayed at the Cardiff Police Court on February 26. It was alleged that they were photographs sent to be enlarged, and never afterwards seen by their owners, and they had been found by the police in the house of Charles Hodge, who has traded in Cardiff as the Phoenix Portrait Company for some time, and who was charged with stealing moneys from a number of persons by means of a trick. The alleged offences had been committed in connection with what was known as the photographs enlargement business. Hodge called at the houses, and after securing a photograph, to be enlarged at a price fixed, and a deposit, was not seen again, nor were the photographs returned. The prisoner was remanded, bail being accepted, prisoner in £20. and two sureties in £20 each.

Photo-Mechanical Notes.

Half-Tone Blocks from Continuous-Tone Negatives.

WITH reference to the allusion recently made by a writer in this column to Dr. Albert's new process in the review of Klimm's "Jahrbuch," it has occurred to me that some abstract of the allusion on the "copying screen" by R. Russ would be of interest to our readers.

After going into the functions of the cross-line screen in ordinary screen-negative making to some extent, Herr Russ points out that it has been desired to print direct, without the aid of a dot matrix, on metal, but that there was not the same spreading action in colloid solution sensitised with bichromate that there is in iodine or bromide of silver films.

In 1893 Dr. Albert thought of obtaining this sideways action by a change of angle of the light falling on the plate, and therefore he constructed the first form of frame, which he called the "Walraster" (oscillating screen). This frame contained a cross-line screen, the negative, and the sensitised metal plate, and was held in two rings so arranged that it could be turned in two axial right angles to one another. If light falls upon the screen separately while the frame is at rest separate points only will be formed, but if the frame is turned sideways the points will become elongated, according to the direction in which the frame is turned. If it is turned in all directions the dots will spread sideways in all directions, and so ultimately join up. With a negative between the screen and the sensitised metal plate, a certain exposure will give isolated dots all over the plate while the screen is at rest. If we now move the frame we shall cause the joining-up to commence at first in the extreme shadows, and gradually throughout the lower tones to the middle tones, according to the length of the exposure and the density of the different parts of the negative, leaving isolated dots under the densest parts of the negative. Advantage is taken of this principle to vary the character of the reproduction in a similar way to that employed in ordinary half-tone negative-making, though in the latter case it is done by the use of shadow and high-light stops.

The movement of the frame can be exactly regulated in either or both directions, so that the shape of the dots may be varied. Power is provided by a small electric motor.

This form of apparatus has been in use for many years at some of the principal establishments in Germany for three- and four-colour reproduction work, but Herr Russ states that Dr. Albert has now improved upon it by constructing what he calls a "Drehrasche" that is, a revolving screen. In this form of apparatus the screen (opposite to the centre of which, at a suitable distance away, is the light source) remains in one plane. The frame moves during exposure in this plane by means of suitable direction rails, in eccentric circles, so that the motion is sideways, to and fro, or up and down. Each motion can be given independently, or the motions can be combined so that either a horizontal, a vertical, an elliptical, or a circular motion may be given. The principles which govern the sizes or shapes of the dots produced are the same as in the earlier frame. By varying the amount of time the frame is at rest and the time it is in motion, so will the dots be more or less joined up. It is thus quite easy to obtain dots of circular or square shape, those of elliptical shape, such as are obtained in the ordinary screen negative by slit stops.

The great advantage of the method is said to be the sharpness of the results, as the metal plate is in direct contact with the continuous-tone negative. This is particularly useful for oil painting in which the brush-marks must be shown, or for water-colour on rough paper or fabrics. It is also claimed that the colour rendering of a continuous-tone negative is better than that of a direct screen negative.*

Dr. Albert has now applied the process to chromo-lithography. It is clear that, by varying the exposure with the apparatus, he can make from the same negative several different kinds of prints, giving varying amounts of tone. It is said also that he has been able to overcome the objectionable screen pattern formed by printing screen

* This is probably only true in cases where the contrasts are excessive for screen negative making.—A. J. N.

a pictures one on top of the other, either by using a special n, or by peculiar use of the ordinary screens. connection with the process is used also the cold enamel method inting, which Dr. Albert calls "Drakotypie." In this a solution sin first covers the plate, which is then coated with the ordinary omated fish-glu solution. After printing development takes as usual, and leaves some of the resin coating visible, which, ft the plate is dried, is dissolved away by alcohol, since the ular resin resist used is not soluble in either benzole or turpen- the resist remaining where it is protected by the insoluble fish- on top. The glue may now be removed and a dot print remains ed of the resin resist. This resist is said to be equal, if not or, to the best enamels, and as there is no heating required, it les zinc to be used without the difficulties occasioned by the ng in the ordinary enamel process.

* * * * *
 The first account we have of this process, or a similar one, was contribution to the "Process Photogram" of 1901, page 115. his it was stated that the screen was placed between the plate the negative, and the light source moved instead of the frame. he "Process Photogram" for 1902, p. 129, there was a further nunication from apparently the same correspondent, in which ave a diagram showing the screen in this case placed above the tive and the negative itself in contact with the metal plate. or as I am aware, that is all that has been published here about process, and all that we have heard of it in England until the ent activity of Dr. Albert's agent in pushing the sale of the ess, which has now been taken up by one or two important firms.

A. J. NEWTON.

PHOTO-MECHANICAL PATENTS.

The following patents have been applied for:—
 PHOTO-ENGRAVING.—No. 3,194. Method for the production of photo-
 engraved printing rolls or printing bands. Eduard Mertens, 322
 High Holborn, London.
 PRINTING-PLATES.—No. 3,699. Process for preparing printing-plates.
 Hans Strecker-Aufermann, 72, Cannon Street, London.

Exhibitions.

QUEEN'S PARK AMATEUR PHOTOGRAPHIC ASSOCIATION.

Queen's Park Amateur Photographic Association (Glasgow) held its annual exhibition last week, when a strong collection of work met the judges, Messrs. Arch. Cochrane and J. E. Christie. A championship trophy was won by "Youth," the joint production of P. Mitchell and J. McClure. The classes included one for painting, the bronze plaque in this being won by J. Prentice. Bronze plaques were won by John Baird (2), Arch. Muir, P. Mitchell and J. McClure, P. Mitchell, S. W. Graham, J. McClure, H. W. Wilson. The loan section was a strong one, and included pictures by the late Horsley Hinton, Messrs. F. M. Sutcliffe, Geo. Hilderley, J. Digby Annan, G. L. A. Blair, Thos. Carlyle, A. W. Hill, Dan Dunlop, Mrs. R. Dunlop, J. M. Whitehead, Peter Orr, James Kissack, W. J. Hart, W. S. Crocket, and W. C. S. Ferguson.

MENNISTOUN AMATEUR PHOTOGRAPHIC ASSOCIATION.

Mennistoun Amateur Photographic Association (Glasgow) held its eighth annual exhibition in their rooms, when the quality of the work showed an improvement, but the quantity a decrease. Messrs. Arch. Cochrane and Dan Dunlop judged. In the open class bronze plaques were awarded Geo. Wackless ("Astonished," a delicate portrait) and R. Ure ("A Hillside Farm," a good "gum" example); highly commended, Thos. Carlyle and W. S. Crocket. In the class confined to associates of the Scottish Federation, the silver plaque was awarded (in a strong class) to Wm. C. S. Ferguson ("Eventide," a characteristic example of this worker's "oils"); bronze plaques to Mrs. Hamilton ("Daisy," a delicate child portrait) and Thos. Carlyle ("Westward Ho!" a breezy shipping picture); highly commended, W. S. Crocket and P. D. Nairn. The members' championship—the McGibbon challenge shield—was won by G. R. Johnstone; bronze plaques by W. Foulds, W. Ellis,

R. Stevenson, J. Paterson, and D. Rowan; and highly commended by D. Rowan (3), J. Paterson (2), W. Young (2), and D. McAulay. The Glasgow Photographic Art Circle panel, consisting of 30 selected pictures, was on exhibition, and there was also a loan collection of lantern slides.

FORTHCOMING EXHIBITIONS.

- February 20 to March 6.—Edinburgh Photographic Society. Exhibition Secs., Edinburgh Photographic Society, 38, Castle Street, Edinburgh.
- February 20 to March 20.—South London Photographic Society. Sec., H. Creighton Beckett, 44, Edith Road, Peckham, S.E.
- February 22 to March 6.—Birmingham Photographic Society. Sec., Lewis Lloyd, Church Road, Moseley, Birmingham.
- March 9 to 10.—G.E.R. Mechanics' Institution, Stratford, E. (Photographic Section). Sec., A. Woolford, 16, Grove Green Road, Leytonstone, N.E.
- March 11 to 13.—Coventry Photographic Club. Entries close March 5. Sec., W. R. Harris, 17, Allesley Old Road, Coventry.
- March 17 to 20.—Nottingham Camera Club. Sec., E. L. Kent, 3, Radcliffe Mount, West Bridgford, Notts.
- March 22 to 25.—Cripplegate Photographic Society. Sec., H. S. Cuming, 234, North End Road, Kensington, W.
- March 30 to April 3.—Sheffield Photographic Society. Entries close March 13. Sec., H. Merrill, 22, Harboard Road, Woodseats, Sheffield.
- March 31 and April 1.—Shropshire Camera Club. Entries close March 20. Sec., Harry W. Hughes, Kingsland, Shrewsbury.
- April 10 to 17.—Midlothian Photographic Association. Entries close March 31. Sec., B. Sherratt, 8, Castle Terrace, Edinburgh.
- April 27 to May 1.—Maidstone and Institute Camera Club. Sec., J. Harris, 23, Knight rider Street, Maidstone.
- April 29 to May 17.—Photo Club de Paris. Entries close March 15. Secretary General, Photo Club, 44, Rue des Mathurins, Paris.

Patent News.

Process patents—applications and specifications—are treated in Photo Mechanical Notes."

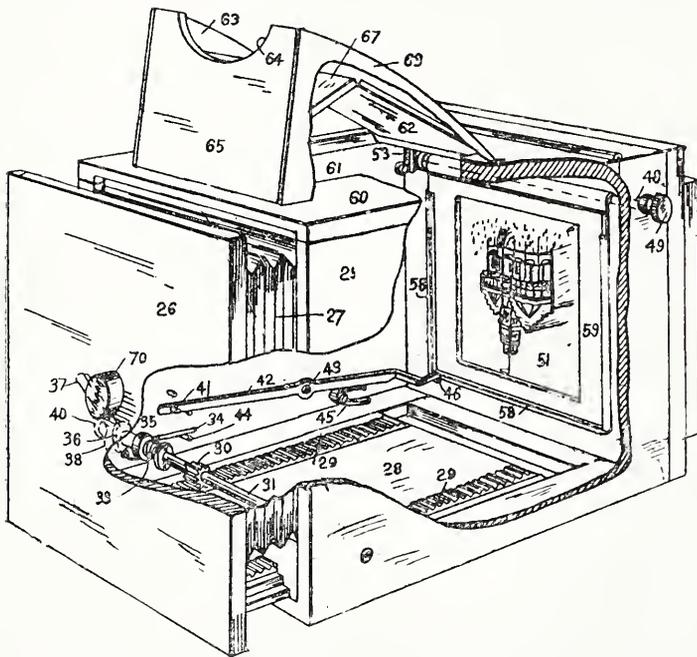
- The following applications for patents have been received between February 15 and February 20:—
- CINEMATOGRAPHS.—No. 3,721. Improvements in the arrangement of cinematograph curtains. Harry Stanley Marks, 56, Ludgate Hill, London.
- CINEMATOGRAPHS.—No. 3,722. Improvements in and relating to cinematograph apparatus. Harry Stanley Marks, 56, Ludgate Hill, London.
- SCREENS.—No. 3,762. Improvements in screens for use with cinematograph magic lanterns and other optical projection apparatus. Mario Ganzini, 4, South Street, Finsbury, London.
- REFLECTING DEVICE.—No. 3,763. Improvements in reflecting devices for use in photographic studios. Adalbert Iser, 231, Strand, London.
- SHUTTERS.—No. 4,005. Improvements in shutters for photographic apparatus. Bernhard Evertz, 345, St. John Street, London.
- CINEMATOGRAPH-PHONOGRAPH.—No. 4,126. Improvements in apparatus for taking and displaying photographs of moving objects and for photographically recording and reproducing sounds. Eugène Augustin Lauste, 24, Southampton Buildings, London.
- EXPOSURE METER.—No. 4,243. Improvements in exposure-indicators for photographic plate-holders. William Phillips Thompson, 6, Lord Street, Liverpool.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.
The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention
 FULL SIZE FOCUSING CAMERAS.—No. 7,512. 1908 (February 12, 1908). The invention relates to cameras of the type in which a

full size image is focussed, not on a ground glass, but on a white opaque surface placed in the focal plane, the image being viewed from an aperture or through an eye-piece in the front part of the camera. In place of the flexible blind of a focal-plane shutter which has been suggested for the opaque focussing the inventors employ a rigid sheet or plate, hinged and released so that it effects the release of a focal-plane or other shutter. Mechanism is also provided whereby a single adjustment compensates for the distance between the sensitive plate and the surface focussed upon. The figure shows one of several forms of camera embodying the invention.

In operation the camera is set by the leaf 51 being depressed with the stop end 46 securing in position showing the white opaque surface 51 towards the lens. If an instantaneous picture is required the shutter is also set in front of the plate or film, and the whole is ready for action. The desired picture is focussed on the opaque surface 51 of the leaf being seen through the eye holes 68 by the operator leaning over the back of the camera with his forehead resting in the concave 64, the image appearing in an uninverted position, though actually it is inverted. The focal distance is adjusted by the manipulation of the milled head 40. But to ensure that the surface of the photographic plate or sensitive film will at the proper moment occupy the position of the



opaque surface 51, the camera is operated as follows:—The lever 37 is pressed forwardly until finger 34 reaches stop pin 41, causing the grip 38 to hold on collar of spindle 31 and to revolve it so as to draw the panel 26 with lens 70 backward the proper distance. This movement releases the catch 46 and allows the leaf 51 to fly up out of the way, which movement again operates by pendant 53 the spring of the shutter 56 to expose the plate. Joseph Gaut, 3, Cary Street, Leichhardt, near Sydney, New South Wales; and Harrington and Company, Ltd., 386, George Street, Sydney, New South Wales.

TRIMMING PRINTS.—No. 11,709. 1908 (May 29, 1908). The invention relates to the addition to the type of print trimmer in which a graduated board is pressed down against a pivotted blade, of a transparent guide in the form of a narrow strip of celluloid, which is fixed to the outside edges of the board with its straight top edge in alignment with the cutting edge of the fixed shear. The print can thus be stripped between the board and the transparent guide, and there is no need to raise the guide every time a print is trimmed, as is necessary when the guide covers the whole board. If desired, the celluloid may be ruled with a series of parallel lines whereby prints may be trimmed with a margin of any desired width round the picture. John Merrett, Trowbridge, Wilts.

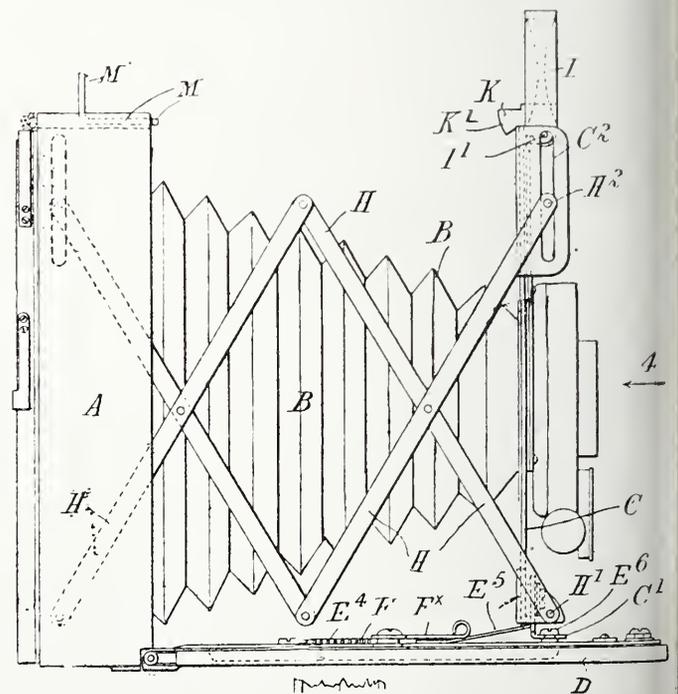
CAMERA BASEBOARD RUNNERS.—No. 26,535, 1908 (December 8, 1908). The invention consists of the device whereby a continuous line of runners is provided for the front of a camera, both on the body or case and on the hinged or falling baseboard. A gap is thus avoided, but the baseboard may nevertheless be folded into the

body when closing the camera. The device consists in mount the runners in the body so that they may move or slide back with the baseboard as it is folded, and move or slide out as the baseboard is extended to join up with the runners mounted there. Thus the movable body runners may be mounted in a sliding plate and connected by side links with the runners on the baseboard, the ends of the runners being in contact. The folding closing up of the baseboard forces the runners inwards out of way of it closing, and the opening of the baseboard draws them outwards again over the hinge so as to avoid a gap between the ends of the two sets of runners. The Thornton-Pickard Manufacturing Company, Limited, Arthur Gray Pickard, and Francis Slinger, all of Altrincham, Cheshire.

FOLDING CAMERAS.—No. 5,630, 1908 (February 18, 1908). The invention relates to folding cameras, in which a lazy-tongs connect the front and back of the camera is employed. The hinged baseboard is not provided with guides for the lazy-tongs, but the latter, attached to the front of the camera, is left free to move to either side, as well as up and down, so that the front can be given both a "rising" and "cross" movement. This is done by means of a foot (to which the lens front can be attached), which is guided in grooves in the baseboard and actuated by rack and pinion for focussing. The camera is further provided with self-folding and self-erecting view-finder, and a signing-pin likewise moving in conjunction with the latter.

The operations of opening, closing, and focussing the camera are as follows:—

If the camera is closed, the folding baseboard, D, which is acting as a lid or cover for protecting the front, C, and interior of the camera, is released from its fastening, M, and pulled down in



position at right angles to the back of the camera body, in which position it may be held against further opening movement by suitable means. The lens front, C, is then pulled out until it reaches the position aforesaid. When it is desired to focus, the focussing plate (viewed from the front, C, holding the lens) is moved backwards and forwards by the focussing device. To close the camera, the lens front, C, is released from its catch or catches, and pushed back home into the camera body, together with the lazy-tongs that are connected to it. The baseboard is then folded up into position, and engaged and detained by the catch, M, or any suitable kind of catch, and the camera is compactly closed into very small dimensions. Arthur Lewis Adams, 24, Charing Cross Road, London, W.C.

CINEMATOGRAPH MECHANISM.—No. 7,620, 1908 (April 6, 1908). In place of the usual two-armed spring a form of clutch is provided which bears not at two places only, but all round the spool plate

thus gives a more uniform pressure sufficient to enable the roller to drive the spool, but allow of a gentle slipping action. On Lewis, 4, Wilde Street, Liverpool.

New Trade Dames.

—No. 309,757. Photographic chemicals. The Leto Photochemicals Co. (1905), Ltd., 3, Rangoon Street, London, E.C., manufacturers. January 21, 1909.

—No. 309,758. Photographic chemicals. The Leto Photochemicals Co. (1905), Ltd., 3, Rangoon Street, London, E.C., manufacturers. January 21, 1909.

—No. 309,751. Photographic plates (sensitised) and films (sensitised). The Birmingham Photographic Co., Ltd., Criterion Works, Albert Road, Stechford, near Birmingham, manufacturers. January 22, 1909.

Analecta.

Extracts from our weekly and monthly contemporaries.

Photogravure Effect in the Bromoil Process.

H. HEWITT, writing in "The Amateur Photographer and Photographic News" for March 2, says:—"If a little care is exercised a true plate-mark may be impressed round a bromoil print with a white margin. The oil or bromoil print, which should be green pigmented if possible only a few hours, is damped on a block, and laid down on the bed of a copper-plate press, on a sheet of card-board cut exactly to the size of the plate-mark required. The print a mask of thin paper is placed, the opening showing, of course, the exact amount of the picture required. The plate employed in photogravure printing is now laid over the whole, the impression pulled in exactly the same way as a copper-plate impression would be. If the precautions are observed, the whole of the ink leaves the gelatinised paper and adheres to the plate paper, the finest details being preserved. Prints which it is proposed shall be transferred in this way are better done in some ink which does not dry with great rapidity. The Rawlins inks, thinned if necessary with double-boiled oil instead of a siccative, will be found satisfactory, though any of the inks prepared for the process will answer for transferring is done within an hour or two of pigmentation. The Sinclair inks prints a couple of days old, have transferred very readily. Papers which have a fine grain, such as the special oil paper, Nos. 1 and 2 of the Autotype Company, will produce the best printed prints in which that grain is repeated, the reason being that the brush action in pigmenting leaves a little of the ink in the hollows than on the projections of the gelatinised surface, and when all this ink is transferred to the smooth paper the granular effect is retained."

Inks for Bromoil.

Harold Baker, in an excellent paper on the Bromoil process, in the March issue of "Photographic Scraps," says:—"The ink is important, and I have succeeded best with ordinary printer's ink, sold in pound tins. A pound tin should last for years. A great variety of colours is not necessary. One of good quick-drying half-tone black, one of burnt umber, and a small one of red will give an almost endless variety of cold black, warm black, innumerable browns, and reds. It is well to choose a bright red, as it is 'degraded' by the addition of burnt umber and black. In all cases quick-drying colours should be used. A small quantity of ink is taken out of the tin with a palette-knife, or squeezed out on to the tile or piece of opal, and spread out thinly. If a picture is to be made, the several colours must be mixed thoroughly with the palette-knife. The ink must be very stiff, like butter, but sometimes it will need thinning."

Films from Glass Negatives.

The "Photographic Monthly" for March Mr. Fred G. Palmer gives the following method of obtaining films from glass negatives:—"Take a piece of glass, 5 x 4, if a 1/4-plate is being treated, and

while the gelatine is being soaked off the negative in the hydrofluoric acid bath, the selected piece of glass must be thoroughly cleaned, washed in water and dilute nitric acid, then in alcohol, after which dried and carefully polished with a dry flannel. Now, with a wad of damp wool draw a line about 1/2 inch in width all round the edge. Next pour on a coat of photographic collodion and set aside to dry.

While that is drying, remove the gelatine upon which is the important photograph, from the acid bath, and after washing it in two or three changes of water, plunge it into a bath of 50 per cent. alcohol and 50 per cent. water, in which it will be contracted to its original size. Next, place it in a good sized basin of water, in which the collodion-covered plate has been already placed, and float it into position on it. There is great necessity, of course, to remove all air bubbles, by gently pressing with the fingers and smoothing them away towards the edges. Lift out, and, when drained, set aside to dry; when that is thoroughly accomplished, coat again with collodion. Let this set hard, and when that stage is reached a sharp knife may be run all round the plate about one-quarter of an inch from the edge.

The collodion will peel off and the negative will be between the two layers, safely preserved from wet, easily handled, perfectly flat, and may be used on either side.

New Books.

"The South African Photographic Annual, 1909." Edited by H. Mudie Thomson. Cape Town: Central News Agency, Ltd. London: A. Henderson.

THE editor explains in the preface to this album of photographic reproductions that he has roughly divided his space between the pictorial work of South Africans and that of other countries of similar climatic and geographical features, for which reason "the leading British workers could not be enlisted, on account of the widely different atmosphere in which they exercise their splendid talent." If a production which for some incomprehensible reason is given the place of honour on the frontispiece is indigenous to the tonic air of the Cape Colony—well, thank Heaven for the much-abused weather of the British Isles!

Treating the whole collection in regard to the claim made for its distribution, viz., the advancement of pictorial photography "in a land of many restrictions and few encouragements," it must be confessed that it were better for the student of photographic pictorialism that he should never see many of the photographs here reproduced, certainly not in a volume in which no discrimination is offered between good and bad, where Dührkoop's "Twilight," very badly reproduced, rubs shoulders with dozens of examples of the most ordinary kind of work. This is not to advance photography. The South Africans have "Photograms of the Year"; if they will not learn from that, they certainly will not from this scrapbook of half-tones, which suffers in the first place from containing too many pictures, and in the second from the absence of distinction between good and bad. Curiously enough, we can find no representation of the only South African photographer whose work is at all known here—Mrs. Caleb Keene.

AN INTERNATIONAL EXHIBITION OF PICTORIAL PHOTOGRAPHY was held in New York, under the auspices of the National Arts Club, from February 2 to 20. The British section was well represented, Messrs. J. Craig Annan, Walter Benington, Archibald Cochrane, George Davison, and Frederick H. Evans being amongst the exhibitors, whilst earlier photographic work was illustrated by a selection from the photographs of the late David Octavius Hill and Mrs. Julia Cameron. The American exhibit was also a strong one, including, amongst many others, the names of C. Yarnall Abbott, A. L. Coburn, Frank Eugene, Benedict F. Herzog, Mrs. Gertrude Käsebier, Joseph T. Keiley, W. B. Post, Eduard J. Steichen, Alfred Stieglitz, Mrs. Eva Watson Schütze, and Clarence H. White. France was represented by MM. Robert Demachy, R. Le Bégue, and Major Puyo: whilst the Austrian and German exhibit included the works of Hans Watzek, Hugo Henneberg, Heinrich Kühn, T. and O. Höfmeister, and Baron A. de Meyer.

New Apparatus, &c.

Baby Accessories. Sold by F. E. Jones and Co., 22, Gray's Inn Road, London, W.C.

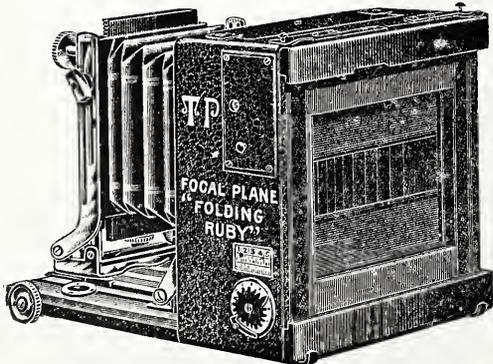
The miniature set of furniture shown in the accompanying illustration is supplied by Messrs. Jones specially for the portraiture of children in the studio, and very attractive the little table, settee, and other articles look, both in a photograph and when shown to the



fond mamma who has brought with her children to be photographed. Made in fumed oak, the set is sold complete at £4, inclusive of carriage and packing. Messrs. Jones keep a set on view in their showrooms, and can deliver within three to four weeks.

The Focal-plane "Folding Ruby" Hand-camera. Made by the Thornton-Pickard Manufacturing Co., Ltd., Altrincham.

A new model of the popular "Folding Ruby" camera of the Thornton-Pickard factory has been newly introduced with a focal-plane shutter built into the body of the apparatus, thereby fitting the camera for purposes of the most rapid photography without depreciating its value for ordinary hand-camera work, as well as for use upon a stand. In these three respects the "Folding Ruby" is admirably designed. Its special feature is the front, which provides abnormal rise, fall, and swing, and, in addition, very great extension. Moreover, it allows of the camera being used with lenses of the shortest focus, the baseboard for this purpose being made to drop forward so as to avoid cutting off the field of view by its projection. These features, which have obtained for the "Folding Ruby" a high degree of popularity, are embodied unaltered in the focal-plane



pattern. The focal-plane shutter is of the three-slit type, the medium aperture—about one inch—being for moderately fast exposures from 1-25th to 1-140th of a second. On pressure of a stud on the left of the camera this slit is wound out of the way, and the narrower slit—about one-quarter of an inch in width—brought into operation and employed for the most rapid exposures from 1-200 to 1-1,000 of a second. The two slits are rapidly interchangeable, but while the camera is set for the use of one the other cannot be used except by intentionally making the change. Lastly, there is a third

aperture in the blind the full size of the plate, which is a with equal convenience and allows of focussing being done on ground glass. The tension scale of the focal-plane shutter is with two sets of numbers, red and black, serving for the adjustment of the speed when using each slit separately. Time exposures of course, be given with the lens shutter, which is a Bau & Lomb "Automat," or a time exposure may be commenced with lens shutter and concluded, if thought desirable, by means of focal-plane.

The dimensions of the focal-plane "Folding Ruby," when in the quarter-plate size, are $4\frac{1}{2} \times 5\frac{3}{8} \times 5\frac{3}{8}$ in the quarter-plate size, not great dimensions for a camera which gives a total extension from lens to plate of 1 by taking advantage of the extending struts of the front. In the quarter-plate size, with three double dark-slides, focal-plane "Sunbeam" ever-set shutter, brilliant reversible finder and level, the price of the camera is £8 15s., if fitted with "Aplanat" lens, $f/7.7$; £10 in 5×4 ; £11 in postcard size; £13 5s. in half-plate. The Thornton-Pickard Co.'s list gives prices of the apparatus fitted with other standard lenses.

New Materials, &c.

"With risks of failure so extremely small, Successes really are quite *Certain-all*."

Thus sing Messrs. Ilford, Limited, of a new single-solution developed just introduced by them as "Certinal." This solution is diluted with from 10 to 30 times its volume of water for developing negatives, 1:20 being the strength advised for exposures. This we found to bring up the image in full detail a few seconds, and to give a negative of good printing density less than ten minutes. As Messrs. Ilford, Ltd., point out, "Certinal" is a developer of the rapid class—i.e., it rapidly brings up the image and builds up density steadily. Its action we found to be very clean and free from fog, both in the case of negatives and of lantern plates, for the development of which "Certinal" acts excellently. It is sold in bottles containing three ounces of the concentrated solution, at 1s. 6d. free 1s. 6d.

CATALOGUES AND TRADE NOTICES

COOKE LENSES.—The latest list just issued by Taylor, and Hobson, Leicester, very conveniently specifies the series of Cooke lenses now made, from the $f/8$ lenses (Series V) to the $f/4.5$ anastigmat, in all of which the three-lens system of construction is followed. It may be noted that the price of the new convertible Cooke is now reduced to £15 15s., or £19 19s., in "Volute" shutter. The price-list, which also shows the price of spirit-level and focussing magnifier made by Messrs Taylor, and Hobson, is sent free on application.

"PUSHAXE" COMPETITION.—By an error of transcription in the report of last week gave the name of one of the judges "William Grove" instead of as "Mr. William Crooke."

CITY SALE DINNER.—The 21st annual dinner of the City Exchange, of Fleet Street, Lime Street, Aldersgate Street, and Abchurch Lane, was held in the Manchester Hotel on February 27, Mr. Green, the proprietor of the firm, taking the chair. After the Royal Society concert the company then adjourned to the Windsor Room, where a concert was held, to which several well-known artists contributed. During the interval Mr. Robbins, the manager of the Sloan depot, proposed the health of Mr. and Mrs. Green, who responded to with great enthusiasm and musical honours. The "Firm" was then proposed by Mr. A. W. Ibbott, the manager of the Fleet Street branch, and the oldest employee of the firm mentioned the fact that he had been with the City Exchange for a period of twenty years, and interested his hearers in a short history of the progress and expansion of the firm during that time. The evening's entertainment concluded with the singing of "Auld Syne" and the charring of Mr. Green round the room by the staff. A flashlight photograph was taken at the dinner.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, MARCH 5.

Y.M.C.A. Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.

MONDAY, MARCH 8.

Yarmouth and District Camera Club. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.

Hampton Camera Club. Demonstration of "Ensyna." C. Robinson.

Southampton Camera Club. "Combination Printing." G. W. Lester.

Southampton Camera Club. "Rembrandt and his Work." W. R. Kay.

Southampton Camera Club. "Hand Camera Work in the Field." A. Pulford.

Southampton Camera Club. "Pigmoil." J. H. Liebreich.

TUESDAY, MARCH 9.

Southampton Camera Club. "The Absorption and Scatter of Light by Photographic Negatives Measured by Means of Marten's Polarisation Photometer." André Callier, Ghent. To be read by C. E. Kenneth Mees, D.Sc.

Southampton Camera Club. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.

Southampton Camera Club. Sale by Auction of Members' Superfluous Goods.

Southampton Camera Club. "Some Chronicles of an Ancient Kingdom." R. Mackay.

Southampton Camera Club. Y.M.C.A. Annual Meeting.

Southampton Camera Club. Lecturettes. J. Linley.

WEDNESDAY, MARCH 10.

Yarmouth and District Camera Club. Dutch Lantern Pictures. A. E. Staley & Co.

Yarmouth and District Camera Club. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.

Yarmouth and District Camera Club. "Some Tests of Photographic Shutters." E. A. Salt.

Yarmouth and District Camera Club. "Photographic Don'ts." J. Susans.

Yarmouth and District Camera Club. "Stereoscopic Photography." H. A. Files.

Yarmouth and District Camera Club. "Peeps at Life in the East." J. W. Hadfield.

Yarmouth and District Camera Club. "Bromide Toning." R. Matthews.

THURSDAY, MARCH 11.

Yarmouth and District Camera Club. "Controlled Prints on Satino Paper." L. Casson.

Yarmouth and District Camera Club. French Lantern Pictures. A. E. Staley & Co.

Yarmouth and District Camera Club. "Some Experiences of Lithography and Photo-Lithography." J. Widdop.

Yarmouth and District Camera Club. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.

Yarmouth and District Camera Club. Whist Drive.

Yarmouth and District Camera Club. "Light and Colour." L. Cumming, M.A.

Yarmouth and District Camera Club. "Finishing the Print." The President.

Yarmouth and District Camera Club. "Combination Printing." Ernest Luman.

Yarmouth and District Camera Club. "Celestial Photography." A. G. Mountfort.

Yarmouth and District Camera Club. "The Bromoil Printing Process." H. W. Jennie.

Yarmouth and District Camera Club. "The Oil Process." Chas. F. Stuart.

ROYAL PHOTOGRAPHIC SOCIETY.

Meeting held Tuesday, March 2, Mr. C. P. Butler in the chair.

Mr. F. Martin-Duncan read a paper upon "The application of photography to scientific research," in which he dealt particularly

with the use of the camera in biological research, illustrating the

practical and educational value of photographs in reference to plant

life. A brief discussion followed the paper in which Messrs. T. E.

Shwater, Oliver S. Dawson, and the Rev. F. C. Lambert took

part.

CRIPPLEGATE PHOTOGRAPHIC SOCIETY.—The tenth annual exhibition

will be held from March 22 to 25 inclusive, in the large hall of the

Cripplegate Institute, Golden Lane, E.C., the latest date for receiving

entries being March 6. Special attention is called to two of the open

classes—namely, Class F, which is for straight prints from straight

negatives, and Class G, for pictures in the oil, bromoil, ozobrome,

and gum processes only. Silver and bronze plaques will be placed at

the disposal of the judges, Messrs. F. J. Mortimer, A. H. Blake,

and J. B. B. Wellington, for award, and the society's medal will be

awarded to the best trade exhibit. Pictures now being exhibited at

the South London Exhibition will be collected free of charge to exhibitors

if so desired. Full particulars and entry forms may be obtained

from the secretary, Mr. H. S. Cuming, Cripplegate Photographic

Society, Cripplegate Institute, Golden Lane, London, E.C.

News and Notes.

L.C.C. CLASSES IN PHOTOGRAPHY.—A report from the Education Committee of the L.C.C. on the Council's schools shows that there is a class for photography at the Trade Schools for Girls, which is attended by twelve pupils, eight holding scholarships, three paying fees, and there being one free place. A new class for photography is to be opened here on April 1. The committee urge the Council to pass a resolution urging additional support from national funds for technical institutes and scholarships.

FELIX SCHOELLER, JR.—This well-known manufacturer of paper for photographic processes has established, at 10, George Yard, Lombard Street, E.C., a London branch, under the management of Mr. Kurt Schmidt, hitherto managing director of the firm. Inquiries and correspondence relating to business in Great Britain should be addressed to Mr. Schmidt.

NEWS PHOTOGRAPHY, PUBLIC-HOUSES ADVERTISING.—According to an article in last Friday's "Financial News," the latest development in press photography is a limited company, which anticipates making money by getting ahead even of the daily illustrated papers. The following account of the scheme is given as emanating from some one intimately concerned in its exploitation:—

"Our business is to be done, first of all, in London, and with the public-houses. There is hardly a public-house in London whose walls are not decorated with advertisements of one kind or another, for which no payment whatever is made. We intend altering this. We have already entered into scores of contracts to affix to the walls of a public-house a large rectangular frame. This will surround a border of pictorial advertisements, for which a charge will be made. The advertisements will include, besides the ordinary matter now appearing in a public-house free, local trade announcements, theatres, etc., but no reading matter will be allowed. The central space of the frame will be reserved for photographs of current events—in fact, of events which take place during the day, and which in the ordinary course would not be available to the public until the next morning. A special feature will be made of such items as movements of royalty, racecourse meetings, weddings, law-court cases, football, and cricket matches, and the like, and the fact that pictures of these events will be on view within an hour or so of their occurrence is bound to attract the public.

"The pictures will be changed four times a day. In order to keep up the supply we shall employ about twenty photographers. Ten, say, will constitute a free-lance corps, going where they please, and sending in anything of interest. The other ten will remain in the office until sent out by the editor to report pictorially anything that may arise. All photographs will be sent in to a central depot, where they will be developed, and then, after being passed by the editor, will be distributed by means of messengers mounted on bicycles. London will be divided into about 50 districts, and these messengers will be allotted a district containing a certain number of pubs, any long-distance requirements being satisfied by motor-car. We shall naturally require a huge staff, but the support we have already received, not only from public-house keepers in London, but also in the suburbs, ensures the success of the scheme. We shall probably float with a capital of £500,000, and our energies will not be confined to the Metropolis. We start here, but are making our way to Birmingham and Manchester. In fact, there is no limit to the scope of the undertaking. Each centre will be considered on its merits, local topics being adequately treated."

THE AFFILIATION OF PHOTOGRAPHIC SOCIETIES.—The new Affiliation Executive Committee, consisting of Messrs. F. C. Boyes, J. Brown, C. Churchill, W. Davenport, A. Herbert Lisett, F. J. Mortimer, C. H. Oakden, P. Bale Rider, W. H. Wilshire, and Dr. A. R. F. Evershed, at their first meeting dealt with many matters of importance to the affiliated societies. For the better conduct of the work the following sub-committees were appointed: Consular and Federation Committee, Lecture Committee, and Press Committee. Arrangements were made as to the house exhibition of the prints selected in the recent competition. The exhibition is to be opened by the chairman on March 10 at 8 p.m. It was decided to

call a combined meeting of secretaries and "consuls," to be held on March 26. Mr. P. Bale Rider was re-elected chairman of the Executive Committee for the coming year.

PHOTOGRAPHY THROUGH OPAQUE MATERIALS.—Dr. Hall Edwards, in opening the Birmingham Photographic Society's exhibition last week, made the announcement that it had been found possible to take a photograph by means of ordinary light through $\frac{3}{4}$ in. of iron. The details of the process he was not in a position to divulge, but they would be forthcoming shortly.

STREATHAM EXHIBITION.—The members of the local society are holding their third annual exhibition on March 11, 12, and 13 at the Hall, 2, Ambleside Avenue (close to Streatham Station). Catalogues of admission can be had free from the hon. sec., F. E. Huson, 56, Salford Road, Streatham Hill.

THE DRESDEN INTERNATIONAL EXHIBITION.—It has now been finally fixed that the official opening of the Dresden Exhibition will take place at 11.30 on May 1. and that the King of Saxony will perform the ceremony. Most countries will be represented by Ministers or important officials. Amongst these are Canada, New Zealand, Austria, Russia, Belgium, Italy, Spain, Sweden, and all the German Governments. Sir B. Stone, who is greatly interested in getting together a large collection of prints, as well as the L.C.C., will both furnish a splendid loan collection of topographical and record work.

AMONG THE LECTURES to be given in connection with the South London Photographic Society's Exhibition is one on Monday, March 8, on "The Glorious West Country," by Mr. Chas. R. Rowe, M.J.L., formerly assistant editor of "Photography." He is very enthusiastic upon the charms and attractions of the West, and has written and illustrated a number of West Country books and guides. He will be pleased to repeat the lecture during the week in any London suburb without fee, and any organisation desirous of accepting the offer should communicate with him at 83, Edith Avenue, Plymouth.

"ENSIGN" COMPETITION.—Mr. Cyril Panting, Survey Department, Nairobi, British East Africa, is the winner of the "Ensign" roll-film competition for February. Houghtons, Ltd., offer a three-guinea camera every month for the best negative on "Ensign" film. The entries close on the third of the month. Entrance is free, and a competition form is enclosed with every spool of "Ensign" film.

THE FREE SITTING.—Some of our leading citizens (writes the "Edinburgh Evening Despatch") are much moved at present by the enterprise of a leading firm of London photographers, who are sending round a deputy armed with a camera to take them all without money and without price in any attitude, standing, sitting, or lying down. One of the honoured clients, a member of the Town Council, in a restaurant recently, was explaining the generous offer to a fellow-luncher, and he added: "I wonder what is behind it all?" "I should think," said the fellow-luncher, who takes life quite seriously "the Criminal Investigation Department."

NATIONAL POSTAL PHOTOGRAPHIC SOCIETY.—The secretary, Mr. F. Gardner, advises us of his change of address to 32, Popple Street, Sheffield.

REPAIRS TO APPARATUS.—Mr. Alfred B. Allen, 20, Endell Street, Long Acre, London, W.C., whose long experience in the repair of cameras of all kinds, shutters, lanterns, cinematographs, and other photographic apparatus has long been at the disposal of the trade, now intimates that private commissions entrusted to him will have his best attention. Mr. Allen is also prepared to give expert services in the way of examining and purchasing apparatus, or will act for purchasers abroad in selecting and buying apparatus.

FREE PORTRAITS IN YORKSHIRE.—A letter appears in the "Yorkshire Post" of Tuesday last, giving an account of the all too well-known methods of the free portrait canvassing firms. In this instance the people were trading as the King Edward Fine Art Photographic Co., or the King Edward Enlarging Co., of 65, Louis Street, Leeds; works, 55, Cobourg Street, Leeds, the name of M — Kelly being given as proprietor. A representative of the company took £4 15s. for payment in advance of a frame for an enlargement, the frame being of the usual trashy character and valued by a picture-framer at 5s.

Correspondence.

- *• We do not undertake responsibility for the opinions expressed by our correspondents.
- *• Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

THE PIN-HOLE AND THE BOOK.

To the Editors.

Gentlemen,—My attention has just been drawn to the section dealing with pin-hole photography in Dr. Lindsay Johnson's "Photographic Optics," recently reviewed in your columns. He ascribes to me a discovery to which candour compels me fully to say that I cannot lay claim. I am credited with having written in the "British Journal of Photography" "that the thickness of the perforated plate always reduces its effectivity" (*sic*), and it is therefore due to your readers that I should correct the statement.

Of course, a thick plate diminishes the angular field of view and the circle of complete illumination; it also has the effect of degrading the crispness of the image owing to the appreciable reflection and scattering of light from the sides of the aperture. If the word "effectivity" has reference to these defects of the thick plate, the discovery referred to dates back to the days of Da Vinci and Porta.

I would also take this opportunity of repudiating the pin-hole exposure rule quoted on the same page. It is some satisfaction, however, to be misrepresented in such good company. On "Photographic Optics"

$$r = \sqrt{d\lambda}$$

is given as Lord Rayleigh's formula for the best relation between the radius of the pin-hole (r) and the camera extension (d). Surely Lord Rayleigh's final conclusion was that the formula

$$r = \sqrt{9d\lambda}$$

gives the best results.

This, perhaps, is a minor matter, but it may be well to point out that on this same page 3 the letter d is used with two different significations in dealing with the same topic, and the unhappy not only possible obfuscation of the student but actual serious error on the part of the author, for the constant in equation (4) is 0.81. It must have twice this value, 1.62.

In the domain of pin-hole photography diffraction is habitual sinning against than sinning. "Photographic Optics" bears testimony to this generalisation, witness the statement taken from that "diffraction is due to the light waves being retarded by striking the edge of the pin-hole. Shade of Fresnel!

Again, "the image . . . is impaired by the diffraction (rings?)," p. 2. As a matter of fact, under the proper conditions an image may be better, thanks to the influence of diffraction, than it would be if diffraction did not exist, i.e., than it would be if it travelled radially.

On Page 4 an apology is made for the pin-hole in the statement "Moreover, a pin-hole does not give rise to point images of point objects? If so, why bother about the resolving power of lenses?"

As a devotee to "Stenopaic Photography," I feel I owe it to you to say that such cavalier treatment as it usually receives in books should not pass unnoticed and unchallenged.

DOUGLAS CARPENTIER.

THE "THAMES" PLATE.

To the Editors.

Gentlemen,—Will you kindly allow me a last answer to the letter of Mr. S. E. Bottomley and the Thames Colour Plate Company, No. 2547 of the "B.J." I am very much astonished by Mr. Bottomley's venture to write: "One does not doubt for a moment that Dr. Mebes's plates were Autochromes, and not 'Thames' plates." Has he not read that Director Schultz-Hencke stated that the plates experimented with were "Thames" plates directly bought of the Thames Colour Plate Company by order, December 5, 1908, or does Mr. Bottomley believe that I cannot discriminate between an Autochrome and a "Thames" plate? In favour of Mr. Bottomley we will suppose that the words are a *lapsus calami* and no intention to question our belief.

too, have not the slightest personal or commercial interest in colour plate company. As the Thames Colour Plate Company again to the experiments in Prof. Hans Virchow's laboratory, sorry to repeat my first statement: this report, too, is false. Photographic work in Prof. Virchow's laboratory is done by the photographische Lehranstalt des Lette Hauses" through its lady, and I have been positively informed by Director Schultz-

As soon as the Thames Colour Company are in possession of a full report of the lecture, every interested English reader will agree with us that the "New York Herald" has been badly misled by a reporter who had no idea of colour photography at all. Yours very truly,
DR. MEBES.

February 28, 1909.

Dr. Mebes misreads Mr. Bottomley's letter. Dr. Mebes, in his letter of February 8, wrote that the exhibited photographs were on chrome plates. Mr. Bottomley, in his letter of February 26, went out of his way to acquiesce in this. Therefore, the writer of the above letter has no cause for indignation.—Eds. "B.J."]

THE RABBIT SHOP" AND "THE VILLAGE INN."

To the Editors.

Gentlemen,—In your review of the South London Exhibition you refer to my print "The Rabbit Shop" as seemingly a re-echo of Mr. Calland's "Doctor's Shop." I do not remember any print of that name; but there is a print of Mr. Calland's called the "The Village Inn," which is strikingly similar to mine, so much so that it might be a re-echo of the other. I should be glad, therefore, if you would allow me to state that neither print owes anything to the other, however much both may have been inspired by Whistler. My print was made in February, 1905, and the print in April, 1905. Mr. Calland's was exhibited, I believe for the first time, in the autumn of the following autumn.—Yours truly,

J. C. WARBURG.

I wrote from memory as regards the title of the picture, which, Mr. Warburg reminds us, was, we believe, "The Village Inn."—Eds. "B.J."]

Answers to Correspondents.

PHOTOGRAPHS REGISTERED:—

England, 21, High Street, High Wycombe, Bucks. Photograph of Wm. Barton, Chair Manufacturer, High Wycombe. Photograph of Sir J. Thomas, Paper Manufacturer, Wooburn Green, Bucks.
& Stocks, Langholme Road, East Boldon, Durham. Photograph of Thomas Burt, M.P. Photograph of C. Fenwick, M.P.
Aitken & Co., 9, Forth Street, Edinburgh. Fourteen Photographs: Shearing Sheep together; Driving wet Harris Tweed; Spinning and Carding Wool; "Waulking" (old method); Dying wet Harris Tweed; "Waulking" (new method); Woman Scouring Harris Tweed by the Hands; Scouring wet Harris Tweed in Harris with the feet; Men Shearing Sheep in Harris; Women Springing; Crofter carrying Piece Harris Tweed to the Scouring; Crofter in Harris carrying wet Harris Tweed from the Scouring; Old Crofter Weaving Harris Tweed, and Young Crofter Weaving Harris Tweed.

POSITIVES.—(1) I had given me to copy one of the little glass photographs, with the emulsion on the front and blacked at the back. The face and hands were coloured and a little basket on the table was gilded. It was 2in. by 2½in. in size. (2) After copying (negatives now in my possession) the photograph (evidently by the wet plate process) had the picture accidentally taken off the glass. How can I best restore the photograph to be like the original, or at least as near as possible to it? Would it be necessary to make another by the wet plate process from the enlarged negative I have or make a crystoleum?—S. BELTON.

Without seeing the picture we cannot say anything about it. (2) We don't understand what you mean by "the picture accidentally taken off the glass." If the negative is a collodion negative the best imitation of it would be one by that process. We are not at all sure that we really clearly understand either of your queries.

—In producing carbon pictures on matt surface opal glass by the single transfer process, no substratum is required. The matt surface of the glass gives a good tooth to the tissue. It would be different if it were not for the tooth.

THE VANDYKE PROCESS.—Will you kindly describe, or indicate where I can find a description of, the Vandyke process, as used for the reproduction of Ordnance maps at Southampton?—J. FLETCHER.

For first exact description see "Indian Survey Report" for 1899 and 1900, page 26. See also "Process Engravers' Monthly" for 1907, page 180; article by E. R. Grills. Also brief description in current "Penrose Pocket Book and Diary," page 104.

LENS QUERY.—I should esteem it a great favour if you could tell me something of the merits of the two following lenses I have had offered me for sale. The inscription on the mounts are: (1) "Ross, London, 13,279"; (2), "102,541, A. Laverne and Co., Clement and Gilmer, Sucrs., Paris. Panorthoscopique, No. 1." If you cannot give me any information from this meagre description do you think the makers would oblige? Also, could you give me their correct addresses?—S. THOMAS.

We cannot. Your best way would be to write to the makers of the lenses. They will then perhaps refer to the numbers in their factory books and tell you what the lenses are. The address of the former is North Side, Clapham Common; that of the latter is 140, Faubourg St. Martin, Paris.

CANADIAN STUDIO.—I intend to put up a photographic studio in Wilkie, Sask., Canada. I should be very glad if you would give me the following information. I have a plot of land in the above town, of which I am showing a plan. I would like to know how to light studio and colour of blinds for controlling light. The light is very strong, both summer and winter. I intend putting building as per dotted lines. Part of this building will be used for dwelling. I hope the information will be lucid enough.—J. B. WARBURTON.

Supposing the dotted lines are to the scale of the solid ones, the sketch shows that the studio will have excellent proportions. If you adopt the lean-to form, the north-west side should be the glazed one. About 14ft. of glass, side and top, will be ample. The roof glass need not be carried higher than from 18in. or 2ft. from the ridge. Dark green will be a good colour for the blinds. You will find Bolas's book on "The Photographic Studio and its Construction" useful to you, as it gives several sketches of different forms of studios. It is published by Marion and Co., price 2s.

LENSES.—I have an R.R. lens for taking street views. (1) If I take the front combination off and only use the back one, will it make a difference to picture? (2) If so, what difference? (3) Also, is it better for copying to use only the back combination?—F. MC.

(1) Yes. (2) The focal length is about doubled—i.e., the image given of a given object is twice the size on the ground glass, less subject is included, and the camera extension must be about doubled. Also the working aperture is half—i.e., the exposure must be four times. (3) No, except in the case of a very large original, which is so placed that the camera cannot be brought close enough for a copy of the required size. In the case of copying same, half, one-third size, and so on, the whole lens should be used.

WHOLE-PLATE HAND-CAMERA WORK.—I have a 1-1 plate field camera, and I wish to adapt it to hand-camera or snap-shot work. How can I best get a focussing scale engraved upon it, and what kind of a view-finder do you recommend? The lens I use is a Dallmeyer Stigmatic, Series II., 10½-inch focus.—DOUGAL CRATUR.

The lens is very unsuitable for hand-camera work, since the depth of focus is so small in the case of a lens of such great focal length. However, if you supply Messrs. Dallmeyer with the correct focal length, they can prepare and engrave a scale, or you can make one yourself for different distances, either by trial or calculation. But we should advise you to think twice before adopting the lens for the purpose. Our own preference is for one of the direct-vision type of view-finders, as large a one as you can get.

PHOTO-ENGRAVING.—It is my intention to start an engraving business in London shortly, and I shall be glad if you will kindly enlighten me on the following: (1) Is a licence necessary in England, and if so, what is the amount of same and to whom should it be sent? (2) To whom should I apply for the necessary papers for the purpose of registering the style or designation under which I intend carrying on business? (3) Would the safe-lights, stated on p. 765, "B.J.A.," 1909, answer equally well and permanently for liquid lamps?—LICENCE.

(1) None is necessary. (2) If you wish to register a trade name you should apply to the Comptroller-General of Patents, Designs,

and Trade Marks, 25, Southampton Buildings, London, W.C. (3) Yes, they can be used in solution in glass cells.

Geo. J. HUGHES.—(1) So far as we know, no materials or specimens are available at present. (2) c/o American Express Company, Waterloo Place, London, W.

J. INGHAM AND SONS.—Messrs. Bender and Co., 21, Berners Street, Oxford Street, London, inform us that they have managed the English business for some years, hold stock of dies, and are executing orders.

ELECTRIC STUDIO.—One arc lamp would be sufficient for portraiture or two for groups. The high power incandescent lamps are of no use. Several firms supply arc lamps specially for portrait use. See our advertisement pages.

COPYRIGHT.—Your kind advice on the following would be esteemed. A photographs for a firm and supplies prints from negatives. A holds the copyright, but hands over negatives to firm for convenience. A sells his business to B, with the copyright. Does this hold good, as the firm disputes his right?—COPYRIGHT.

It is unfortunate that the negatives have changed hands. In the absence of clear evidence that they are lent only to the firm, the copyright has become null and void, and neither party owns it. It will be very difficult for B to lay claim to the copyright if he has not got the negatives, even if the transference of the copyright has been formally carried out (as it requires to be) in writing.

EXCELSIOR.—(1) We do not know for certain, but we should expect it to be for a plate 13 x 18 cm. Messrs. Zeiss, Jena, could inform you. (2) We should certainly select A. (3) Five or six inches.

PRISMATIC DISPERSION COLOUR PROCESS.—(1) Reference, page 715, "B.J.A." of 1908, M. Raymond's method of photography in colours by prismatic dispersion, is the method therein indicated one that can be followed out by an ordinary amateur, or is it merely a laboratory experiment like that of Lipmann? (2) Is an 8-degree angled prism a suitable one? (3) I have a line screen, 135 lines to the inch. Would this do, or is it absolutely necessary to have a cross line one? (4) Ought the prism to touch the plate? (5) Where can one get the 60-degree Schultze screen, and what would be the price of one about 5½ in. by 3½ in.?—E. Y. E. N.

(1) The method is only of experimental interest. (2) M. Cheron, who has worked out the process in its best form, uses a prism of 12 degrees angle. (3) The screen would answer for experimental work. (4) No, the screen is placed in the focus of the first lens. See M. Cheron's article in the "Colour Photography" Supplement, January 3, 1908. (5) Messrs. John J. Griffin and Sons, Kingsway, London, W.C.

COLLOTYPE.—Would you kindly inform me of a good book to read on the colotype process?—COLLOTYPE.

"Practical Colotype," by A. W. Fithian (2s. 6d.).

COLOURING LANTERN SLIDES.—Could you oblige me by telling me where I could get lantern slides coloured at a reasonable price, either private or firm?—B. F.

Dorrett and Martin, Belle Vue Road, Upper Tooting, S.W.; Alfred Underhill, 32, Clarendon Road, Croydon; and M. Darton and Co., 8, Ribblesdale Road, Hornsey, N.

EXPLOSIVE CHEMICALS.—Some time ago I bought of a chemist some surplus stoppered bottles. I required the bottles only, but some had portions of chemical in them without labels. I took one of these for use, what looked like about 4 oz. of soda inside. I emptied this into a bucket, and to get rid of it I took some to the tap outdoors to dissolve with water, as I thought, to throw afterwards down the sink. But after a few seconds this exploded with terrible force, the liquid burning my face very badly. I may mention it also blew the bottom out of bucket. Now, as I am only acquainted with chemicals for photographic uses I shall feel very grateful to you if you can explain what this chemical is called; also if there is a book on explosive chemicals which photographers are likely to use.—15-YEAR SUBSCRIBER.

It is impossible for us to say. Many chemical bodies are decomposed by water. The only books are those on explosives used for military and other purposes; but they would not be of any use in your case.

CLEANING OFF VARNISHED NEGATIVES.—May we ask you to kindly advise us what is the best method and medium for removing the films from very old wet and dry plates, some of them being varnished?—CLARENCE.

For the varnished negatives the best mixture is a solution of

10 per cent. caustic potash or caustic soda in methylated which the negatives are given a soak for a few minutes put in very hot water. In the case of unvarnished negative treatment is not necessary, and about the best means is to pickle in spirit of salt mixed with about an equal volume afterwards scrubbing the film off with a stroke or two of and rinsing in clean water.

J. W. C.—We have written the firm on the matter.

SULPHIDE TONING.—What is the cause of various defects in toning of bromide prints—viz. (1) a harsh orange color some few have been toned; (2) also the cause of bluish which appear after they are dry?—SULPHIDE.

1. This must be due to exhaustion of sulphide bath. not use the same bath for a number of prints in succession.

2. If you are using ferrous oxalate as the developer patches may appear if the developer is not completely out before bleaching in the ferricyanide and bromide however, ferrous oxalate is not being used the blue spots due to iron specks in the washing water. The best remedy a piece of flannel over the tap to filter out the specks.

E. W. A.—We do not think anything would be gained eight jets. When the burners are one behind the other ones have little, if any, effect if the number exceeds for same condenser is used for both the film and the slides, the latter are put close against the condenser the former well away from it, so that it may intersect the cone of narrow part. It should be possible to arrange matters with use of any supplementary lens, but a smaller condenser would result in a loss of light.

COPYRIGHT.—(1) Will you kindly tell me what is the difference any, between copyrighting and registering a photograph cost of doing one or the other, or both if necessary, both in the country and abroad? I have a photograph which I should like to protect against illegitimate use if it is not too expensive see from your paper that registering costs only 1s. 7d. Would that be sufficient to give me a remedy against anyone using my photograph that did not belong to them?—SAPANALAH.

(1) Registration is the formal act of claiming copyright is necessary to protection, for the reason that no action is sustained in respect of infringement done before registration. Certainly. It is the cost of registering one photograph and course the protection applies to that one only.

LENS QUERY.—Kindly let me know the value of a Wray the following inscribed on mount:—"Wray, London N.A.L. No. 9936." The full aperture is f/8. and is lens. What size plate does it cover, and is it a rapid one it be used for instantaneous work?—D. McMONAGLE.

The letters "N.A.L." signify "Narrow Angle Lens." The lens is constructed for 5 x 4 plates. Like all similar however, it will not give straight lines at the margin of It is as quick as any other form of lens having the same aperture therefore it can be used for rapid exposures. The list is 30s.

PLANS, and others.—In our next.

COLLOTYPE.—Morgan and Kidd, Richmond; London Street Co., Regent Street, London, W.; and Harvey, Barton, Lower Church Lane, St. Michael's, Bristol.

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SUMMARY.

Our publishers desire us to remind advertisers of the forthcoming Colonial and Foreign issue of the "British Journal," which will appear March 26. The latest date for the receipt of copy is Friday March 19.

In instance of the friendly relations existing between professionals in America is provided by a recent practical conference between Messrs. Dillaye and Steffens. (P. 190.)

A book which the portrait photographer should add to his library "Composition in Portraiture," a review of which, in the shape of an article, appears on page 192.

A suggestion has been made to use a solution of paraffin for softening untoned proofs sent to a customer from being finished and copied by another photographer. (P. 190.)

Some of the expedients which may be used in avoiding unsightly enlargements in enlarged negatives or prints are the subject of an article on page 190.

F. Dillaye has given some further working details as to the use of the permanganate method for the making of enlarged paper negatives direct by reversal. (P. 194.)

Some help in sulphide toning is provided in the current "Photography." (P. 198.)

Douglas Carnegie describes a modification of the grease spot photometer employed for photometric measurements. (P. 197.)

Some dyes and the method of making them into filters for photographic work figure in an article by Professor F. C. C. Hansen, Copenhagen. (P. 195.)

W. Scheffer describes a reflex accessory to the large photo-micrographic camera of Zeiss, which possesses some notable advantages for practical work. (P. 193.)

New formulæ for flash powders figure with other matters under "Patent News." (P. 201.)

Some notes on "The Camera and the Eye" allusion is made to matters of vision of some photographic importance. (P. 191.)

R. J. Wallace, the author of numerous papers on sensitometry, has joined the Cramer Dry Plate Company, to establish an investigation laboratory. (P. 189.)

Malcolm Arbuthnot is now showing a selection of his work in the offices of the "A.P." (P. 200.)

Details of Mr. Arthur Payne's method of preparing photo-engraving direct in the camera on the metal plate have been published in our patent specification. (P. 198.)

Another machine for acid-blast etching of half-tone plates has been patented. (P. 199.)

EX CATHEDRA.

The Colonial Issue of the "B.J."

In further reference to the special colonial and foreign issue of the "British Journal," which will appear on March 26, we may draw the attention of manufacturers and others to the fact that a review of the latest introductions in the way of apparatus and materials will be one feature of the number. Articles or samples sent for notice should reach the Editors not later than March 17, and be accompanied by any electros necessary for illustration. As already announced in our pages, the arrangements for the distribution of the special extra edition among English-speaking photographers and photo-dealers have been very completely made, and advertisers will have the satisfaction of knowing that the whole of those on our colonial and foreign lists, which have been corrected and supplemented since last year, will have the Colonial Number directly posted to them by Messrs. Greenwood. The list of the countries thus covered is sufficient to show the wide area of customers.

Argentine Republic	Dominican Republic	Orange River Colony
Bahamas	Eastern Siberia	Paraguay
Barbados.	Ecuador	Peru
Basutoland	Egypt	Philippines
Bechuanaland	Fiji	Prince Edward Island
Bermudas	Guatemala	Puerto Rico
Bolivia	Hayti Republic	Quebec
Brazil	Honduras	Queensland
British Columbia	India	Rhodesia
British East Africa	Jamaica	Salvador
British Guiana	Japan	Sandwich Islands
British New Guinea	Malacca	Siam
British North Borneo	Manitoba	Sierra Leone
Burma	Mauritius	South Australia
Cape Colony	Natal	Straits Settlements
Ceylon	New Brunswick	Tasmania
Chili	Newfoundland	Transvaal
China	New South Wales	Trinidad
Cochin China	Mediterranean	Uruguay
Colombia	Mexico	Venezuela
Corea	New Zealand	Victoria
Costa Rica	Nicaragua	Western Australia
Cuba	North-West Territories	Windward Islands
Delagoa Bay	Nova Scotia	Zanzibar
	Ontario	

The text portion of the "Journal" will contain extra pages and features of special interest to readers in distant countries.

* * *

Mr. R. J. Wallace.

We hear of the establishment of an investigation laboratory for the Cramer Dry Plate Company, of St. Louis, U.S.A., by Mr. Robert James Wallace, who, since he has been in the Photo-physics section of the Yerkes Observatory, has contributed many scientific papers of practical photographic import. Mr. Wallace and Mr. Cramer both say that they have been led to this step by the demonstration given by

Dr. C. E. Kenneth Mees of the great practical value of such a department in connection with a dry-plate works. As Mr. Wallace and Dr. Mees are in correspondence, it is probable that their work will not be duplicated, and that the results achieved on each side will be made available quickly on both sides of the Atlantic. There is a certain satisfaction, too, in knowing that the American pioneer in this line is of good British extraction.

* * *

How they Fraternise in America.

The way in which American photographers compare notes and go into council for their mutual aid would astonish some of our English professionals. Quite recently the redoubtable Mr. Strauss, of St. Louis, became dissatisfied with certain qualities in his negatives, and, regarding Mr. Steffens, of Chicago, as the best portrait negative maker in the States—"if not on earth"—asked his advice, which was given in the form of a visit and a series of demonstrations, with Mr. Strauss's own apparatus, materials, exposure, etc. This sort of practical and most generous helpfulness exemplifies a spirit that cannot be too widely spread. A large number of American professionals have learned the truth, quoted by Mr. Steffens, that "the man who is afraid of having his brains picked usually makes precious poor picking," and they are only too glad to communicate anything they know to a brother professional.

* * *

Defacing Proofs as a Preventive against Toning.

At one time or another various dodges have been recommended for the purpose of preventing prints sent as proofs from being utilised by the customer to the disadvantage of the photographer. A rubber-stamp impression—PROOF—does not enhance the appearance of the photographs, and is therefore but little used. We read in the "Bulletin of Photography" that the process adopted by an American studio in the case of untuned proofs is as follows:—A little paraffin is dissolved in benzine (light petroleum oil or "petroleum ether") and a small cross drawn on the face with a fine brush. This cannot be seen on the proof, but it prevents the toning solution reaching the paper, and therefore fulfils the useful, if limited, purpose of rendering the prints useless. But proofs are frequently copied, and to prevent such use perhaps the best means is to write the number of the negative in small plain characters close to the face, using copying ink.

* * *

Wanted—A Stereoscopic Camera.

There is now every sign that stereoscopic photography is once more becoming popular, for stereo cameras of various new patterns are rapidly appearing upon the market, and there can be no doubt that the demand controls the supply as much in this case as it does in others. We have not yet, however, seen the particular type of camera that we have so often demanded on our own account—that is, the long extension stereo camera with the adjustable front, which is required for use with near objects and is also so useful for producing transparencies on one plate without any cutting. It is, we think, very regrettable that the adjusting front should be so much neglected, even in the case of the highest priced cameras. Though not always wanted, yet when it is, it is wanted very badly, and we know of several would-be purchasers who are simply waiting for the appearance of the ideal type of camera at a moderate price, and of at least one who is making a camera for himself in despair of ever finding one in the hands of the dealers. There are several long extension cameras adaptable for stereo work obtainable, but their long exten-

sion is not available when used for binocular purposes and they have as a rule neither an adjustable front nor a fixed front that is quite as wide as it might be. It should be possible to bring the lenses as near together as possible to reduce the separation to about two inches, and also to separate them to the full width of the front. The stereo division should be adaptable for use at either single or double extension, and even if this means the provision of two divisions of differing length it is no great matter. The triple extension type of camera is a most desirable one, because it permits focussing at either back or front and a half-plate camera of this type that will permit the use of stereo plates when desired is in practice most desirable. We live in the hope that we may yet see a camera of the kind described put upon the market at a moderate price.

ON SUBDUING GRANULARITY IN ENLARGEMENTS.

THERE is not much to complain of at the present time with regard to the coarseness of the grain of plates of the most rapid type. It was different a decade or so ago, when an extra rapid plate meant a considerable amount of granularity of the image. Thanks, however, to the skill of the plate-makers that is a thing of the past with most brands of extra rapid plates at present on the market. We now get exceedingly quick plates with a grain almost as fine as that of plates of ordinary rapidity. Still the grain of the ultra-rapid plates, although not visible when the negative is examined by the eye, may show in a marked degree if an enlargement is made of it to a degree of, say, ten or twelve diameters. The granularity is usually more pronounced if the enlargement is made by artificial light, as in the enlarging lantern, than when diffused daylight is employed.

It is by no means an uncommon thing for a photographer to have to produce an enlargement, say a life-size head, from an original which may be of the cabinet size or smaller, and very often from a paper print. This, of course, is a great magnification. If it were only three or four diameters the coarseness of the grain would in many instances pass almost unnoticed, but with the great magnification it may become most objectionable. The question for consideration is how may the granularity be reduced to a minimum, for it is obvious that when the grain is very conspicuous it entails a considerable amount of extra work in the way of finishing in monochrome or colour.

We shall first consider the case where an enlarged negative is required to be afterwards printed from the ordinary way. In this case it will be necessary to prepare a transparency, say by contact printing on a dry plate, or by the carbon process. If in making the enlarged negative from the transparency the lens be slightly out of focus, the sharpness of the image will be materially impaired, but the granularity will be less conspicuous than if the image were sharply focused, and if the enlargement is not great it will scarcely be noticeable. It may be thought by some that making an enlargement a little out of focus would be as objectionable as would be the granularity, but in practice this is not the case, for if the eyes and the darker parts are strong and bold the picture will seem sharper than really is, and what is more, if these portions be retouched and sharpened up in the print with water colour, it will be the general appearance of the picture greatly for the better. It is in the lighter portions that the granularity is so conspicuous. The enlarged negative can, of course, be retouched and much of the coarseness got rid of that way. In the development of the enlarged negative it should be made strong and vigorous, so as to get

as bold as possible in the print, as they then do as a rule exhibit the granularity visible in the other ones. In connection with this method of ameliorating granularity, we may mention one case which came to our notice some few years ago. For publication purposes it was required to enlarge a number of old wax-plate negatives of very artistic landscapes. Of course, the negative showed the grain of the paper very strongly, and it was necessary that this should be suppressed as far as possible in the enlargements. The originals were of the half-plate size, and the enlargements were of 16 by 13. The method pursued was as follows:—

On transparencies were made from the small negatives, and from them the enlarged negatives were produced. In making them a R.R. lens, having a great deal of spherical aberration, was employed. The lens was by a very bad one from an optician's point of view, as it could not yield crisp definition unless it was well stopped down, but in this case it was worked at its full aperture. The enlarged negatives were made of considerable vigour in the development. The finished pictures, when issued to the public, showed very little granularity; indeed, not more, if so much, as was seen in prints made direct from the original negatives.

Another way of reducing the apparent granularity when an enlarged negative of a portrait is used is to mask out the background entirely and print in another with a diluted tint, for it is in the background that the granularity is always the most conspicuous, and if that be got rid of and another introduced the rest of the picture is found to be much improved in appearance. Still another way of subduing the grain in enlarged negatives may be mentioned. Here again it is assumed that the negative has been made tolerably strong in the development. It is put into the printing frame and a print made. When about half printed the blacks will have considerable vigour, while the lighter portions are but very faint and show but little of the granularity. At this point, between the negative and the partially made print, a sheet or two of thin celluloid are interposed and the printing continued to the proper depth. In this way much of the pronounced granularity will be got rid of and a good result obtained. The first printing secures the necessary sharpness and detail, while the second produces a certain amount of diffusion, which greatly reduces the granularity without materially interfering with the definition of the more prominent portions secured in the first.

In the foregoing we have been assuming that enlarged negatives are employed, but at the present time the greater number of enlargements have to be made direct from the original on bromide paper, and here we have not the same scope for getting over the trouble. One very general way is to make the enlargement with the lens slightly out of focus, as mentioned when dealing with the enlarged negative. But there is a marked difference between a picture taken with a lens that gives critical definition, put out of focus, and one that has a certain amount of spherical aberration worked at its best focus. This is well exemplified in the portrait lenses, in which spherical aberration ("diffusion of focus") can be introduced at will. A lens with a good amount of spherical aberration is best to use when granularity is to be reduced to a minimum, and this is what is, optically speaking, an inferior instrument, but at the same time be the best photographic tool in the circumstances. Most R.R. lenses, even those by good makers, are not free from spherical aberration, and an image focussed with a small stop will not be at its sharpest when that be removed and the image examined with the full aperture. Advantage may be taken of this to reduce the granularity in enlarging. The image is focussed with the smallest stop, and, say, half the exposure made; then

the stop is removed and the necessary exposure completed with the full aperture. The first exposure will secure the necessary detail in the thinner parts of the negative, and the second will yield a certain amount of diffusion in the grain, thereby reducing its conspicuousness. Another plan sometimes adopted is to slightly alter the focus of the picture by moving the easel, carrying paper slightly backward or forward after a portion only of the exposure has been made.

THE CAMERA AND THE EYE.

SOME time ago we drew attention to the fact that while many writers and lecturers have laid much emphasis on the resemblance of the eye to the camera, it is possible to push this comparison to an extreme and so neglect the even more important and more interesting points of difference between the two. Lately, however, we have been reminded that it is equally possible to go too far in the opposite direction, and to lay overmuch stress on differences that do not exist. A well-known writer, when recently considering the effects of the strained perspective produced when we view a photograph from too great a distance, came to some remarkable conclusions. In considering the case of a prone man lying with his feet towards the camera—a favourite subject for showing the eccentric side of photography—it is pointed out that a photograph produced with a six-inch lens may represent the feet as four times as large as the head. These proportions are then compared with those of the retinal images produced in the eye as the result of placing the eye in the position of the lens, when, by a process of mathematics, it is deduced that the image of the feet would be only about one-third larger than that of the head, which means that the relative proportions in the retinal image would be about the same as those of the natural object. Upon this obviously wrong foundation, due to misapprehension and miscalculation, is built up a eulogy of the eye as a drawing instrument far superior to the camera. The first principles of visual optics, however, show very clearly that the proportions of the retinal images in a case such as that considered must be practically the same as those of the camera image, even if we make an allowance for the difference due to the curvature of the retina. One of the points of resemblance between the eye and the camera has thus been perverted into a point of material difference.

But setting aside such optical fallacies, it should be obvious that the method of looking at the problem which we have just criticised is not in line with actual conditions. There is little reason in making a comparison between the retinal image and the photographic image; it should be made between the retinal images formed when looking at the object and looking at the photograph, and these are, of course, identically the same if we take up the right view-point in both cases. Even in the case of a photograph of a subject such as that described, all the quaint effects of disproportion disappear if we take the right view-point. The disappearance of an unnatural effect is very strikingly displayed if we make a stereoscopic photograph and examine it in the stereoscope, and, if our memory is not at fault, two excellent examples of just such a subject are published by Messrs. Underwood and Underwood. In the erroneous comparison to which allusion has just been made, a very important point of difference between the eye and the camera is overlooked. In the latter both lens and plate occupy fixed positions, and in the case of the eye it is customary to consider the conditions to be analogous, though, as a matter of fact, they are not. The lens in the eye is a moving one, and

when we visually compare the proportions of near and distant objects we do not compare them as they appear from the lens, but from a point some way behind it; that is, from the centre about which the lens of the eye, and the whole eye, in fact, is continually rotating. To reproduce the conditions of the camera the eye must be kept fixed on one point of the object, and this unnatural condition of "fixed" or "indirect" vision gives a less distinct and also a larger image than that ordinarily produced in easy and natural "mobile" or "direct" vision. Here we touch upon one of the most important differences between the eye and the camera. In the latter the image is projected from one fixed point, while in the former we have practically two overlapping images projected almost simultaneously from two different points of view. In

other words, we may say that we have a 15.5 mm. and a 9 mm. lens working together simultaneously on the subject, so that our final impression of an object may be described as a conglomeration of views obtained from different distances. This is a far more complex arrangement than the camera, and the attempt to simplify considering the eye to be equivalent to a camera with a 15.5 millimetre lens is perhaps the worst course that can be taken. We shall be nearer the truth if we consider the focal length to be 9 millimetres, but in order not to be misled we must really leave such partially true comparisons alone and consider the eye as it is, that is, as an optical instrument which behaves in an essentially different fashion from the camera that we are accustomed to use in photography.

COMPOSITION IN PORTRAITURE.*

"Of the making of books there is no end." So said somebody once, but who, and when, we do not know. With regard to books upon art principles applied to photography it is painfully true. The astonishing thing is that poor affairs in the way of photography continue to be produced, in spite of all the literature showing a thousand and one golden rules and royal roads and short cuts. And another surprising thought is that anything of any artistic value at all was ever produced in earlier days before this mass of oracular enlightenment was offered to a favoured public. It must not be denied that books, lectures, and so forth, do here and there brighten a dullard and enlarge the mind of a narrow-viewed aspirant; but, for our own part, we believe that their chief use lies in the accretion of cash or kudos to their promoters. The latest comes from America, and is written by "Sidney Allan," better known in photographic circles as Sadakichi Hartmann. It is no less useful than its forerunners, and, like them all, raises hopes of exposition in the matter of art. We believe that these books are largely purchased by a public who feel that art is a mystery to which they have not the key, but that in the magic pages they will find it; that they have only to read in order to be master of those esoteric mysteries which differentiate a mere man from an artist. We are not sure that the authors themselves are not also honestly under this impression, since they so often start off with promises to put the matter in a nutshell—a thing which they infer nobody before has succeeded in doing. Mr. Allan, for example, says in his introduction: "I am of opinion that most books on this subject, excellent as they may be, have treated it in too pedantic and pedagogical a manner. The theories of these writers are too elaborate, involved, clogged up, as it were, to be of practical use. No man can remember all they say about obliterated verticals and circular attraction, etc., particularly a photographer, who cannot gradually construct and improve a composition. Why not talk in plain English?" All this may be true, but it smacks of the cheap-jack. And the aspersions upon technical language are ill-bestowed, for these matters cannot be written of at all without theorising, and theories are useless unless expressed with care and exactitude. After all, if we must have books on art, they had better be the treatises of Da Vinci, Reynolds, Goethe and Ruskin than the colloquial prattle books that can be read in half a day and forgotten in half an hour. Mr. Sidney Allan says many true and good things; but his "plain English," such as it is, doesn't cut at the core of the matter any swifter than the language of the literary and artistic giants we have named. The fact is that whilst many have written *about art*, nobody has actually written

art itself. It is an incommunicable thing. A man has it or hasn't it, and there's an end of the matter. Mr. Allan knows this well enough, for he says, "No painter really argues out things while he paints. He feels them intuitively. As a painter said to me one day, 'We do things, and then you come down and talk about how we have done it, when we hardly know it ourselves.'"

"His art knowledge must be second nature with him, or is of no use at all."

"The good taste of the photographer must decide these questions, a certain subtle instinct for what is right or wrong. Nobody else can do it for him."

"The best way to learn is to try and assume attitudes and work with your own body and face before a mirror. I am convinced you will learn more in half an hour than by the study of a dozen books on composition."

"The remainder" (all in addition to mere principles) "necessarily must be left to years of experience and experiment. Only in that fashion will my readers arrive at the mastery of composition, not merely of its fundamental principles, but at its intricate subtleties and marvellous possibilities."

The moral of this is that the rare part cannot be acquired. Principles are dry bones. The breath that can make them live is born with the artist. But the man who has this breath can flout and subvert the principles and charm us still. Many photographers have done so. As the author himself admits, "leaving old methods and old points of view (beg pardon, 'new points')." To revert to them is, therefore, no more fruitful of success than to invent new ones. Photography has opened a number of new doors to artistic effect that it has made it impossible to learn new principles. This little book cannot tell any one how or when to employ these principles—new or old; that is the intuitive part necessary to the photographer.

What the book does do is to get together reproductions of portraits, both paintings and "photos," to use the author's term. These range from Botticelli to Dührkoop, and in themselves are highly interesting. It then classifies and describes the examples, praising here and condemning there. If a reader should be anxious to learn which of this endless variety of poses and arrangement is intrinsically bad or good, he is driven up against the author's own preference as a final criterion. It will never be otherwise. He will find every pose he has ever thought of, every scheme of lighting he has ever seen, represented, and receiving some sort of honourable recognition. Where, then, does he stand? He looks in vain for the royal road, the golden rule. He must not blame the author, but himself, for inasmuch as what he wishes to learn cannot be written.

We have said that the book contains many good and

* "Composition in Portraiture," by Sidney Allan (Sadakichi Hartmann). New York. Tennant & Ward, 122 East 25th St.

A few of these are aphorisms worthy to be written in letters of gold, and displayed in every studio:—
 "good print proves to be the result of what has happened in the studio previous to pressing the bulb."
 "The hands in the large majority of portraits look like those of heroes."

"The hand without the wrist is not beautiful. It is rather ugly-looking."

"Holding a fan, a flower, a book, etc., is always effective, but I do not like any line at statuettes and crystal balls."

"Some of our advanced professionals, when they try to do an artistic trick, you will find two or three flat tints in the foreground against an opaque background. They have fallen into the common error of mistaking darkness and monotone effects for artistic effect."

"It is my contention that the most natural light effect would be the most effective one for portraiture."

"The majority of portraits to-day look as if the people depicted were mulattoes or quadroons, which is not particularly pleasing to the sitters."

"In such observations as these that the real educative value of the book lies. They sound a sane note. Mr. Allan has our commendation of his views when he deprecates the modern custom of cropping a head, or a part of a head, not where tradition points as the proper place in the field, but encroaching from the side or top in a manner suggested by the unsymmetrical characteristics of modern portrait art. This is one of those developments that have been introduced not so much by artistic as by advertising motives, and we shall be glad to see it pass away for the childish practice it represents. The Japanese are not portrait painters, and a portrait is all the more successful for resembling a Kakemono."

"In most matters the author displays a welcome common-sense independence of opinion. Only in two instances do we venture to disagree with him. One is in his extravagant praise of Whistler's portrait of Carlyle, which forms a frontispiece. Mr. Allan asks us to notice how all the details of dress have been minutely indicated; how the outline has been accentuated against the background; how naturally the figure is seated, and how well it has been placed in space. There is an atmosphere around the figure."

"One feels that this person is seated in a room, and so on. There is too much hero-worship about this. As a matter of fact, the points indicated can easily be shown to be downright faults. The figure is as flat as paper, which it resembles, as though cut out and pasted against the wall. As to being naturally seated,

surely nobody but a lunatic would naturally seat himself close to a wall in this manner. There is less feeling of air and space than in most painted portraits. Whistler made the unfortunate mistake of trying to repeat a former success. His "Mother," which is a fine and subtle work, was bought by the French nation, and Whistler wanted to "do it again." But his Carlyle is not a repetition of the qualities of the "Mother." Nor is it a dignified and manly likeness of the Chelsea sage. The work has a spurious reputation induced by the widespread reproductions that sell cheek by jowl with other specious works, and the magic name of Whistler alone brings it upon many a wall. We consider it anything but a good example to set before photographers, who, in fact, are admonished in this very book against several of its characteristics. Mr. Allan also much admires Boldini's portrait of Whistler, in which we find it difficult to see more than a clever and superficial virtuosity joined to a particularly unhappy composition.

The other point whereupon we differ is that portraits by certain old masters named were probably less good as likenesses than photographs are to-day. It is because the photograph is characteristic of a moment only, and all the accidentals which that moment bursts upon the sitter, that likenesses are often unconvincing in camera work. The general and typical truth of the painted portrait allows a truer rendering of the sitter's personality and character. In such a case as that of Velasquez the truth of his likeness is proved by the many portraits of Philip IV., which are far more like each other than as many photographs would have been.

Besides the numerous half-tone blocks, the book is illustrated with many diagrams, a few of which we seem to have seen before in an article by Mr. Sutcliffe, of Whitby. Their source is not acknowledged, however, although mention is once made to an English photographer whose name is forgotten as the originator of two plans of a studio showing lighting arrangements.

The chief utility of a book of this sort is its reiteration of the well-established modes that painters in past times have proved to be the best. With these modes it is a case of a survival of the fittest and of the safest, for those who have not the artistic equipment necessary for pioneer work. We recommend the little volume on account of the author's sound observations and reflections, and of his thorough appreciation of the principles practised by the old masters, of whom he gives copious illustration.

His warnings and frank criticism of many fads of modern photographic work are refreshing and salutary.

A REFLEX CAMERA FOR PHOTO-MICROGRAPHIC WORK.

In the construction of this camera the condition to be fulfilled was to produce an instrument by means of which the image could be focused on the ground glass, and at the same time all the necessary adjustments of the microscope and the illuminating apparatus conveniently made by the operator without changing his position. It was also required that the dark-slide should stand over the plate uncovered ready for exposure in order that the photograph might be taken on the instant of a given phenomenon being seen on the ground glass. Fig. 1 shows the solution of this problem. Two mirrors, A and B, are mounted in a wooden box; the light coming from the microscope through O is reflected at A and B, and brought to a focus on the ground glass M. The eye-piece of the microscope is connected with O by means of a light-tight funnel-piece. At V is placed the blind-shutter, which is released by the movement of the mirror A from its position DE into the position DE¹, the movement taking place from the axis D—that is to say, the shutter being released when the mirror takes up the position DE¹. On the shutter being released, the image is brought to a focus on the plate P, stand-

ing with the shutter of the dark-slide, CC, withdrawn. All light is excluded from the portion R of the apparatus, except that admitted when the shutter is worked. Also, if the shutter is entirely removed from the camera, the mirror A in the position DE serves to reflect all the light coming from the microscope to M, and completely protects the plate from light action. This is important when giving exposures of considerable length, as will be seen later.

Fig. 2 shows the practical form which has been given to the apparatus as a part of the large Zeiss camera for photo-micrography. The front conical part of the camera is replaced by the new form of construction just described. As shown in the figure, the latter is adaptable without modification to the large Zeiss photo-micrographic camera. The funnel-piece is shown at O forming a light-tight connection between the microscope and the reflex attachment. At H is the lever serving to raise the mirror A (Fig. 1); K is a catch holding the mirror in the position DE¹; the blind-shutter is fixed at V. The connection of the apparatus with the hinder portion of the bellows is exactly

the same as that of the two portions of the large photo-micrographic camera, and the reflex attachment is thus interchangeable with the usual conical front portion of this apparatus. The dark-slide is placed at C, the position being so chosen that the optical path from O to M is the same length as that from O to C. This arrangement allows the operator to adjust both the coarse and fine focussing, the stage-movements, the Abbe illuminating apparatus, and the other lighting accessories on the optical bench all with the right hand whilst at the same time watching the effect of this adjustment on the ground glass. In making a photo-micrographic exposure the shutter is first wound, the dark-slide inserted at C, and the shutter of this latter with-

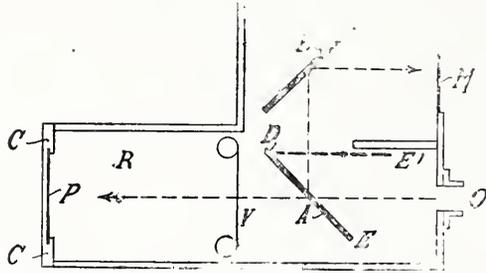


Fig. 1.

drawn, and at the moment when it is desired to make the exposure the lever H pressed down with the left hand.

The apparatus was originally constructed for the purpose of making photographs of quickly moving objects, and was successfully used both by transmitted light as well as by dark field illumination for taking quickly moving objects with the image in the centre of the plate. It was soon seen that the apparatus possessed advantages not only for instantaneous exposures, but also for all kinds of photo-micrographic work. The facility of focussing up to the moment of exposure is of great service, since alterations in the adjustment have frequently to be made, and every photo-micrographer has realised the trouble and incon-

venience of the image coming out of focus shortly before during the exposure. For example, in the case of making exposure of a diatom in very oblique lighting, the mirror be put down during exposure in order to control the adjustment of the light. For work involving exposures of considerable length of this latter kind, in which special adjustments have to be made, this feature of the apparatus is very convenient. regards the objection that with the above apparatus it is necessary to work at a constant extension, the writer's experience has been that this is of no importance. For the past six months

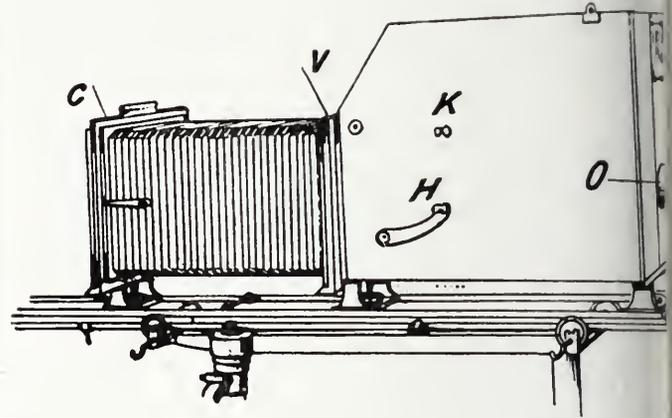


Fig. 2.

kinds of exposures of the most varied description have been made with a fixed bellows extension of one metre, and in a single case was there any need for a different extension. The great advantage of keeping to one fixed extension is that at any subsequent time the degree of enlargement is ascertainable. The first model of the reflex micrographic camera was made according to the drawings of the author by Mr. Schermann in Berlin, and has been in frequent use for six months past without giving any cause for dissatisfaction.

DR. W. SCHEFF

ENLARGED PAPER NEGATIVES DIRECT BY REVERSAL.

[Continued interest appears to be taken in reversal methods, such as that used in the Autochrome process, for the preparation of enlarged paper negatives direct. We recently published ("B.J.," October 23, 1908, p. 811) three different methods producing this result, and still earlier a note by M. Maes ("B.J.," March 20, 1908, p. 215), in which bichromate was used as a reversing solution. In the current issue of the "Bulletin Belge," M. Dillaye, in commenting upon M. Maes' method, explains that the crux of the problem lies not in the formulæ, but in certain minor precautions which must be taken in using them. An abridged translation of M. Dillaye's paper is given below.—Eds "B.J."]

On exposing the bromide paper, the enlargement on which is to be converted into a negative, the time given must be somewhat more than when making a bromide enlargement. The time may be increased by two-thirds, or even double may be given. In developing the enlargement it is essential that the image should be obtained through the whole thickness of the film—that is to say, until the black portions, the shadows in the positive, reach the paper support. For this purpose a highly restrained developer is employed working slowly and without fog. A suitable formula for this purpose is as follows:—

Water (distilled)	300 ccs.
Diamidophenol	2 gms.
Sulphide of soda (anhydrous)	10 gms.
Potassium boro-bromide solution	20 gms.
Sodium bisulphite (liquor)	10 ccs.

This developer is used at a temperature of 68 to 72 deg. F. The development should be watched, not by reflection, which gives not the slightest indication of the density required, but by transmitted light, the paper being held up to the light, and development stopped at the moment when the details in the deepest

shadows of the picture commence to choke up so as to be indistinguishable from the general tone of this portion. Suppose that double the ordinary exposure is given, and the bath is at a temperature of 68 to 72 deg. F. as above directed, the time of exposure will be 5 to 7 minutes, and with a developer containing the bromide given above there is no risk of fog. After development, the enlargement is rinsed once or twice with water, and is then placed, gelatine side uppermost, on a sheet of ebonite, or, if this is not obtainable, a sheet of glass or a board previously covered with black paper soaked in water in order to get it to lie flat. This precaution, which is frequently omitted from the instructions for making reversed paper negatives, is of the first importance. If it is neglected, almost certain failure is invited, owing to the action of the light on the back of the paper. Thus mounted on a black support, the paper is exposed to daylight for a short time. In proportion to the action of the light on the positive print, the high-lights of the latter become grey, then yellowish, and finally of a rose or lilac tint. The action should be allowed to go on up to the point when even the darkest shadows have a rose appearance.

much exposure is better than too little. The eye, more-
 will quickly get accustomed to this control. As a rough
 e, it may be said that placing the enlargement 12 inches
 a window in midday December light with grey sky, a suffi-
 degree of exposure is 20 minutes, or, at the least, a quarter
 f 1 hour. In midsummer light 4 to 5 minutes will be about
 time, or 30 seconds if the exposure is made to direct light
 ide the window. The longer the exposure the more rapidly
 certainly the negative may be intensified. Exposure having
 done, the negative is taken into the dark-room, and the
 ining part of the process carried out.

pendent upon the temperature, the paper negative will have
 me more or less dry during exposure. In order to avoid
 ible stains, it should be placed in a dish of water, and
 wed to remain there for at least 30 seconds, although longer
 do it no harm. The first development and all after-opera-
 are preferably done in the same glass dish, the cleanliness
 hich is a very essential part of the process. In place of the
 romate reversing solution, the use of which involves nitric
 as a clearing bath, I much prefer to use the permanganate
 od adopted in the Autochrome process. The following two
 tions are made separately. Each keeps indefinitely:—

—Potassium permanganate	2 gms.
Water	500 ccs.
—Sulphuric acid (pure)	10 ccs.
Water	500 ccs.

al parts of A and B are mixed a few minutes before use.
 water being poured off the enlargement, the reversing mix-
 is poured on, and the dish kept in movement. The positive
 ge gradually disappears, usually two or three minutes elaps-
 before it is totally gone, but it is convenient to give a time
 minutes in order to ensure that the action is complete. It
 n lies until there is a considerable deposit of oxide of man-
 ese on the print; the final negative image can be seen by
 ection, and better still by transmitted light. The perman-
 ate bath is thrown away, the prints well rinsed, and a clear-
 bath applied of:—

Water	1,000 ccs.
Potash alum (powder).....	10 gms.
Sodium bisulphite (liquid)	25 ccs.

This solution may be used over and over again until exhausted.
 Its action is to remove the manganese peroxide from the print,
 and at the same time to harden the gelatine. A few seconds
 suffice to restore the original white of the paper, but it is con-
 venient to use the solution for a fixed time of 2 minutes. During
 its action the print should be turned over several times, in order
 that the liquid may come into contact with the back as well
 as the front. In thus handling the prints, it is well to use a
 celluloid or ebonite forceps, in order to avoid stains, which may
 easily arise by handling the prints with the fingers. The clear-
 ing action having been completely performed, the print is well
 rinsed, and seen to contain the negative image, at first light grey
 on a perfectly white ground. This image, of course, consists of
 the unreduced bromide, its greyness being due to change which
 the light has made in it. It is now reduced to metallic silver
 by application of a developer. Theoretically, this developer
 should act whatever its composition and whether or not it con-
 tains potassium bromide. In the case of making negatives by
 this method on plates or films, theory accords well with practice,
 since the transparency of the support allows of the progress of
 the first development being followed with some degree of cer-
 tainty. But it is not so with paper. The opacity of the paper pre-
 vents us from seeing exactly what we are doing. I know that some
 writers speak of developing paper negatives until the image is
 just visible on the back, but my experience is that such visibility
 is simply deceptive, even in the case of very thin papers. It cer-
 tainly is in the case of the Lumière B paper, which I have used
 throughout in my work, and I have never been able to obtain,
 even with twice, three, or five times the exposure necessary for a
 good positive print, this much described appearance of the image
 on the back.

All this, apropos of the developer, which should be applied for
 the second development of the paper. This should be highly re-
 strained, so as to allow of the action being stopped at any desired
 point. It is used at a temperature of 68 to 72 deg. F., and it will
 be seen that the negative gradually develops with all its tones
 and details, the process taking about 30 minutes. If it should
 be found that for a proper degree of contrast a longer time than
 this is needed, it is a sign that exposure to daylight has been too
 short. It is quite certain that if the process be carried out as
 herein described, failure is impossible. F. DILLAYE.

LIGHT-FILTERS AND SOME HISTOLOGICAL DYES FOR PHOTO-MICROGRAPHIC WORK.

[A paper by Professor F. C. C. Hansen, of the Normal Anatomical Institute of Copenhagen University, in the "Zeitschrift für wissenschaftliche Mikroskopie."]

THOUGH there are doubtless plenty of good light-filters for
 photo-micrographic work, the following notes and formulæ
 would be of service. The use of aniline dyes as light-filters is,
 course, very general, as shown by the excellent textbooks on
 subject by Neuhauss, and by Kaiserling, and by the formulæ
 in the encyclopædias of photo-micrography.
 The most convenient form in which to prepare a light-filter
 ordinary work is undoubtedly as a dyed gelatine film ob-
 tained by fixing and washing a photographic dry-plate. Neu-
 hauss advises this course, and I invariably adopt it in my own
 work. The dyes to be specially recommended have been exam-
 ined by me, as by many others, first with the spectroscope
 simply, and afterwards by further photographic tests. I confine
 myself for the present to the light-filters which are suited par-
 ticularly for the ordinary descriptions (yellow-green-sensitive) of
 throsin orthochromatic plates—that is to say, those which

transmit blue, violet, yellow, and orange rays. Among these
 are the following:—

1. Naphthol Yellow S, in strong solution in water containing 3 parts per 1,000 of acetic acid.
2. Light Green F (Lichtgrün F), in 2 per cent. or 3 per cent. solution in water with 3 parts per 1,000 of acetic acid.
3. Naphthol Green B, in 2 to 3 per cent. solution in water to which 2 parts per 1,000 of ferrous sulphate is added; this latter addition, according to my experience, affecting the colour favourably.

The gelatine plates are kept in motion in one or other of these solutions until it is seen, by means of the pocket spectroscope, that the film gives a suitable absorption. A little practice enables this to be done quite readily. Usually 10 or 15 minutes' immersion in the dye solution is ample for the desired intensity of colour. The plate is then rinsed superficially in distilled

water and set up to dry. Two such differently dyed plates are cemented together with a thick solution of Canada balsam in xylol, the precaution being taken to make each gelatine film perfectly dry by careful warming over a spirit lamp. The two plates are then kept pressed together with clips for some days at a temperature of 105 deg. to 125 deg. F., and are finally bound with paper edging.

I prefer the sulpho-acids, Naphthol Yellow S and Light Green F, to the basic green dyes, as they are more amenable to use with gelatine.

The simple naphthol yellow filter allows red, orange, green and yellow-green rays to pass through almost unaltered, as does also Martin's yellow, which, like picric acid, is used as a yellow filter. But if a plate of Naphthol Yellow S be combined with one of Light Green G, an excellent yellow-green filter is obtained of great transparency and relatively sharp transmission. Except for a weak band in the red, which may be neglected in practice, the filter passes only the yellow-green and green, the transmission region being from about 540 to 510 $\mu\mu$. I have used this filter for over a year in place of the Zettnow filter with great success. The filter is very bright, is convenient in use as a yellow filter, and gives better negatives with achromats.

A similar filter passing the yellow-green and green, but transmitting no red, is prepared by combining a screen of Naphthol Yellow S with one of Naphthol Green B. The absorption takes place more uniformly from both ends of the spectrum; the portion transmitted is somewhat broader, corresponding approximately to 560 to 510 $\mu\mu$ —that is, little yellow, but more favourable action in the yellow-green and green. The brilliancy of the filter is not quite as great as that prepared from Light Green F and Naphthol Yellow S. For most purposes I prefer this latter filter to the other.

If this latter filter is combined with a screen lightly stained with Naphthol Green B, the band of transmission in the red is filled up without the brilliancy suffering. For this purpose I first dye a plate in the ordinary way with Light Green F, rinse, and then dye this same screen-plate in the Naphthol Yellow S solution (which, naturally, should then be thrown away). The twice-dyed plate, when dry, is then cemented to the plate dyed with Naphthol Green B. This filter is very useful for certain purposes, and has greater brilliancy than the filter prepared only with Naphthol Green B and Naphthol Yellow S.

According to my experience, the filter of Light Green F and Naphthol Yellow S is more efficient than the other green filters, and also than the Zettnow filter.

As is well known, blue filters are employed for certain purposes in photo-micrography through which blue and violet rays can pass, whilst all others, particularly green, yellow-green, yellow and orange, are cut off. The ammonia copper solution is used in this way as a blue filter.

A convenient dry colour filter for the blue and violet rays is prepared from a combination of Water Blue and erythrosin. I stained a fixed and washed dry-plate for about 10 to 15 minutes in a 1 per cent. solution of Water Blue (Grübler), which has been acidified with a little sulphuric acid to the extent of 1 to

2 parts per 1,000. The plate is then rinsed and stood up. A second plate is bathed for 10 to 15 minutes in $\frac{1}{2}$ per cent. solution in water of erythrosin (blue tint), rinsed, and dried. The erythrosin must be of a bluish description, having only a slight absorption in the violet and blue (on this account most eosins are quite unsuitable), whilst the erythrosin should have a maximum absorption in the yellow-green and green. The Water Blue screen being cemented to a screen suitably stained with Erythrosin B, a filter is obtained which, disregarding a weak transmission band in the red, allows only blue and light to pass from about F (485 μ) to H (397 μ), the filter being of great brilliancy.

* * * * *

It is a well known fact that black, blue-black, or, in the lighter tones, greyish colour tones, are desirable in microscopical preparations which are being photographed. Such stains are provided by the various methods, using an iron and chrome haematoxyline. The use of these compounds is inconvenient for ordinary purposes, and therefore the aluminium haematoxyline has obtained a considerable degree of favour. I have recommended iron haematoxyline¹ and chrome alum haematoxyline solutions, as well as ferri-cochineal solution, for the reason that their use is much easier and quicker than the ordinary haematoxyline method, whilst the colour tones are black or blue-black, and of very good gradation. I can, therefore, recommend these dyes for photo-micrography. Apart from the iron haematoxyline being highly permanent, the optical effect is that of a blue-black, or, in the lighter tones, of grey. For ordinary observations the tones are just as suitable as the stains ordinarily used. We have employed these stains in our work in Copenhagen almost exclusively for the past two years, and the preparations have been found to behave most satisfactorily as regards permanence to light and other agents. Even screens which have been stained very quickly endure subsequent staining with strong colours, such as concentrated picric acid used in a well-known combination of acid fuchsin and picrin,² and there is no danger in the case of my dye solutions to over-dye, the staining nucleus persisting even in the case of quite rapid dyeing with concentrated picric acid. Also there is an absence of reddish brown tone colours, such as are produced when using aluminium haematoxyline.

On the other hand, the colour gradations, for example, in preparations of muscles and of protoplasm, are more greyish and soft. The particulars given in my note in the "Zeitschrift für wissenschaftliche Mikroskopie," Vol. XXII., 1905, have been fully confirmed by other microscopists in Copenhagen, and particularly for photo-micrography these dyes have been almost exclusively used with great success. It should also be mentioned that microscopic preparations which are to be used for micro-photography should most advisably be dyed black or blue-black, a point which has been brought to my notice by the Carl Zeiss Works of Jena.

F. C. C. HANSEN.

¹ "Zeitschrift für wissenschaftliche Mikroskopie," Vol. XXII., 1905, pp. 40, 41.
² Compare also the preliminary dyeing with iron haematoxyline recommended by Benda and C. Wiegert for acid fuchsin and picrin.

ROYAL PHOTOGRAPHIC SOCIETY.—An exhibition of photographs by members of the Affiliated Societies is now open to the public free at the house of the Royal Photographic Society, 66, Russell Square, W.C., and will remain open daily from 11 to 5 (Saturdays 11 to 2) until April 10. The prints are selected from the 1908 competition and form the basis of a lecture by W. J. Morgan, R.B.A., of Birmingham, who criticised them, and in some cases made sketches to illustrate the points raised in his criticisms. These sketches are hung under the photographs to which they refer accompanied by Mr. Morgan's remarks, and at the close of the exhibition the whole collection, together with the lecture, will be circulated amongst the societies comprising the affiliation.

CINEMATOGRAPH LEGISLATION.—Kensington Borough Council sent a circular letter to the other twenty-seven London Borough Councils with reference to cinematograph and similar entertainments. They say that they have considered circulars from other metropolitan local authorities, and, while they are in agreement with the expressed as to the desirability of the places referred to being subject to licence, they consider that any legislation should apply to the whole country and not to London only, and that not only the places where the entertainments are held be licensed, but the steps should also be taken to ensure that only competent persons be allowed to operate the apparatus. A communication to this effect has been addressed to the Home Secretary.

A MODIFICATION OF THE HURTER AND DRIFFIELD PHOTOMETER.

photometer is to photography what the precision balance is to chemistry—an ultimate court of appeal. Very few, if any, photographic investigations are satisfactory unless at some time or other there has been a trial at the bar of the photometer. Unfortunately for photography, however, measurements with the Hurter and Driffield photometer (at any rate, with the simple type of photometer) is within the reach of the average amateur of humble means are not only very fatiguing, but at the same time lack precision and certitude that characterise gravimetric measurements; in photometry “the personal equation” seriously asserts itself. Any modification of the photometer, therefore, which tends to lighten the strain involved in its use, and to minimise the influence of the personal factor, is to be welcomed. This article describes a modification of the Hurter and Driffield photometer, which, as regards myself at any rate, has been instrumental in greatly diminishing the fatigue of observation, and at the same time in increasing confidence in the measurements obtained.

The modification consists in substituting for the customary Besen grease-spot indicator, with its two widely separated and obliquely viewed mirror images (Fig. 1), a paraffin-block indi-

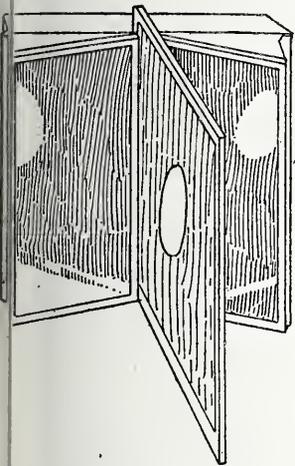


Fig. 1.

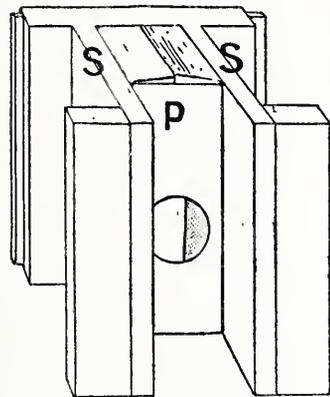


Fig. 2.

icator, as first used by Joly. With this indicator (Fig. 2) the illuminations to be compared are brought into contact; a single *coup d'œil* simultaneously commands them both; the strain of maintaining, or trying one's best to maintain, a mental record of the impression produced by one of the mirror images during the interval occupied in transferring visual fixation to the other image is obviated.

As I could not find any instructions bearing on the manufacture, best dimensions, etc., of the Joly photometric indicator, I had to experiment on the subject for myself, and my experience may prove acceptable to any who may care to try for themselves the modification here advocated.

Two homogeneous plates of wax must first be cast. The most stable material, in my hands, proved to be the wax of which carriage-lamp candles are made. I was unsuccessful in getting satisfactory slabs with the paraffin sold in mass by the chemical dealers. In solidifying from the molten state non-homogeneity invariably resulted, owing, I take it, to the separate crystallisation of eutectic.

The carriage candles (purchasable at a penny apiece) are first cut up, and the wicks removed. The wax is then melted in a casserole and heated well above its melting-point. As a mould I used one of those lantern troughs which are made by squeezing a piece of rubber between two glass plates held by a wooden frame. The plates were removed from their frame, and their outer surfaces rubbed over with a pledget of wool wetted with

glycerine. Replacing the glycerined plates in their frame, the trough was immersed, nearly to the level of its open mouth, in a print-washer, through which cold water was kept circulating. The molten wax was poured into the water-cooled trough, and then violently stirred with a knitting-needle till it became pasty and was on the point of setting solid. This rapid cooling and agitation during cooling of the molten wax seem essential to the attainment of a good homogeneous block.

When quite set the block is easily removed from its mould by pulling the glasses out of the frame and then sliding them off the wax. The block is then planed down to nearly the required thickness. A jack plane is held foot uppermost in a vice and the block pushed over the blade. (The planing of wax will be found by the exoteric a delectation of no mean order.) By means of a tenon saw the planed block is cut into two smaller blocks of about the required size, say 30 mm. by 40 mm. To get these two small blocks of precisely the same desired thickness I pushed them between the parallel jaws of a calliper set to give the required dimension. The edges of the jaws, of course, acted as two plane-irons. In this and all subsequent manipulation great care must be exercised in keeping the wax clean and out of contact of the wax shavings produced in the earlier stages of manufacture.

Experiments were made with a view to determine the best thickness of the wax slabs for use in the H. and D. photometer. I finally adopted a thickness of just over 6 mm. Slabs thinner than this necessarily gave a rather small field of view, and the resultant illumination was somewhat too dim for the purposes of easy comparison.

A piece of smooth tin-foil, cut very slightly smaller than the wax plates, is now sandwiched between them, and they are then joined hermetically by running a hot knitting-needle round their four smaller faces. One of these faces—the face which is to be observed in actual use—is now planed down till the tin-foil is reached, and a perfectly smooth and regular surface—divided medially by a sharp line of tin—is attained. The indicator is finally fixed in a wooden frame or holder painted dead-black and so constructed as to fit into the cursor box of the photometer. The sides SS of this frame are, of course, perforated by circular apertures of the same diameter as those in the sides of the cursor box. A small brass plate (P), perforated with a circular aperture of about 10 mm. diameter and fixed in contact with the front face of the indicator, completes the process of manufacture.

As a sample of the degree of constancy and accuracy of the results furnished by an indicator thus constructed, I quote from my notebook some measurements of relative densities of patches secured in the course of an investigation on pinhole exposures:—

Scale readings	Series A.	Series B.	Difference.
.....	.06	.45	.39
„	.23	.62	.39
„	.33	.71	.38
„	.37	.75	.38
„	.45	.85	.40
„	.55	.95	.40
„	.30	.68	.38

The measurements of Series A were taken with a thin indicator (wax plates each 4 mm. in thickness). In Series B the indicator had the dimensions I finally selected as most appropriate to the H. and D. photometer (each plate just over 6 mm. thick). The observations were taken on different days, and (by altering the relative intensities of the two albo-carbon lights of the photometer) the zero reading on the scale was purposely made to differ on the two occasions. The approximate constancy of the values in the difference column is, I think, quite satisfactory

when it is remembered that the second decimal places in the readings given under A and B are not engraved on the H. and D. scale, but are eye-appraised. Furthermore, it must be noted that the A results were obtained with an indicator which was finally rejected as being composed of too thin plates and affording too feeble illumination.

In the following table are given some density readings taken with the same zero point on two different occasions and using the indicator constructed from 6 mm. slabs:—

1.13	.....	1.14		1.19	.....	1.2
.89	.....	.89		1.31	.....	1.31
1.04	.....	1.03				

These results show a far better accordance than I (with my very occasional and intermittent photometric practice) was formerly in the way of obtaining with the conventional Bunsen indicator.

DOUGLAS CARNEGIE.

FAILURES IN SULPHIDE TONING.

THE failure of the bleached print to tone in the sulphide bath is, perhaps, the most common defect of the sulphide-toning process. The following article, therefore, in the current issue of "Photo-Notes," on the cause, prevention, and remedy for this trouble, should reduce the number of prints thus unnecessarily wasted:—

The cause of this is the deterioration of the sodium sulphide, which has very uncertain keeping properties when dissolved. As the sulphide decomposes, hypo is formed, and as soon as this reaches a certain amount, the toning action is upset. The first effect when decomposition is becoming serious is the production of a yellow brown image. The next stage is an apparent failure to act, nothing but a faint yellowish image being produced. The final and most serious stage is not merely failure to act, but an action of the wrong kind, for the bleached image gradually disappears. When this hopeless stage is reached, the sulphide solution is acting as a fixing bath, and, of course, no remedy is possible.

The yellow brown images produced by the slightly stale sulphide are, perhaps, not pleasing in colour, but they suit some subjects, and may be considered to be as permanent as the ordinary results. We are inclined to think that they tend to improve in colour by keeping, but it is difficult to be sure of this. When the toning solution fails to act, a remedy is possible if the solution is not too far gone, or the print is not left in it too long. The proper toning action is very rapid, and if no effect is observed in the first half-minute it is hopeless to expect that any toning action will commence later. It is also useless to substitute a fresh bath for the stale one, because, as a matter of fact, though no visible change has taken place, nevertheless the image has been changed more or less completely. The stale solution has changed it to a sulphide, but to one of the wrong kind, and practically colourless; therefore a fresh sulphide solution will have no effect at all.

Before we can attempt anything in the way of re-toning, we must re-convert the image to a silver salt, and to do this we want a very powerful bleacher. The best to employ is bichromate and hydrochloric acid, using ten grains of potassium bichromate and twenty minims of strong acid to every ounce of solution. The print is washed free from the sulphide solution, and then put into the bleacher, which will act very slowly. About ten minutes should be sufficient, but as it is difficult to see the change, it is better to give half-an-hour, and so make sure of sufficient action taking place. After this the print is washed and re-developed, and re-development will also be a slow operation as a general rule. Whether it is so or not depends on the amount of sulphiding action that took place in the stale sulphide solution. In any case we generally find it best to start with a strong rodinal developer of a strength of about 1 in 5. This may at once do all that is required; if not we try a short exposure to a strong light, and if this fails to yield sufficient density in five minutes we let the print soak in the developer for another ten minutes, then wash and transfer it to an ordinary strong bromide paper developer such as amidol or metol hydroquinone.

If none of the image has been destroyed by the hypo in the sulphide solution, we shall, by these means, produce a good strong result which may be black if the re-development has been rapid, or a fine rich brown if the development was slow. If desired, we can

then re-tone, using quite fresh solutions; but, as a rule, the tone arrived at in the process of re-development is a far finer than any possible by sulphiding methods, and it may be well to leave it alone.

Most people, we believe, throw away prints that have failed to tone under the impression that their case is hopeless. Restoration, however, is quite possible if the stale sulphide has not been allowed to act too long. It is especially necessary to be cautious when using the white crystalline variety of sulphide, for the deterioration of the solution cannot be detected by observation. Even if it is faintly of sulphuretted hydrogen, it does not follow that it is spoiled perfectly. A weak solution of working strength will not kill the image, and the stock solution should be made of 10 per cent. strength at least. Twice that strength is still safer.

Photo-Mechanical Notes.

Photo-Etched Blocks Direct on the Metal Plate.

THE patent specification relating to the process of making printing blocks direct in the camera according to the method invented by Mr. Arthur Payne has now been published (No. 28,415, 1900). It will be seen that the process, as here described in the inventor's own words, consists in the interposition between the metal plate and a sensitive emulsion of a collodion or other film, the plate being treated so that this film prevents chemical action between the emulsion and the metal, and acts as a resist to the etching process. This technical description will continue the interest of the photographer by a preliminary illustrated account of the process which we gave in our issue of June 19 last, when some of the first blocks to be made by the process were used in illustration.

The following are extracts from Mr. Payne's description of the process:—

When my process is used in the production of printing blocks either in line or half-tone, and for intaglio or relief printing processes, I take the copper or zinc or other metallic plates, silver, brass or steel, that are also occasionally used, and polish the surface of the metal and clean it free from grease by any of the well-known methods at present in use. The polished or grained surface of the metal plate is then coated with a substratum, for which I prefer to use a 2 per cent. collodion, such as is made by dissolving pyroxyline in a mixture of equal parts of methylated ether, 70 per cent. ethyl alcohol .90 per cent., and I prefer to slightly colour the collodion by the addition of a small quantity of a strong solution of the aniline dye known as brilliant green in ethyl alcohol. I do not, however, restrict myself to the use of this particular dye, but it is not an essential part of the invention that any dye should be used, for it is only used as a convenience, and the plain collodion serves as an efficient substratum. Though I prefer to use a collodion substratum, yet I do not restrict myself to this particular, for other substrata that prevent chemical action between the emulsion and the metal and act as a resist to the etching fluid may be used, such as bitumen, gum dammar, or celluloid, either singly or in combination.

I next proceed to coat the surface to which the substratum has been applied with a very thin film of fine grained gelatin-iodide silver emulsion prepared with a hard gelatine, preferably without the addition of chrome alum or other hardening agent. If required, the emulsion may be made colour-sensitive by any of the usual methods.

This thin film of emulsion must allow the light to penetrate through the film to the substratum, so that when the plate is exposed in the camera and afterwards developed the silver image will have penetrated right through the film to the substratum. The above description describes the manner in which the plates prepared: they are used in the following manner:—

GENERAL MANIPULATIONS.

The prepared plate is exposed in the camera in the usual manner either with the use of a half-tone screen when such is required for the production of half-tone printing blocks, or without the half-tone screen when line blocks are being made. It is then developed by the timing system of development, either with an acid developer,

As ferrous oxalate, or an alkaline developer, such as glycin. I prefer to develop the plate for three minutes with the following glycin developer used at a temperature of 65deg. F. :—

Sodium sulphite cryst.	1¼ ounce
Glycin	½ ounce.
Potassium carbonate coml. : anhydrous.	2½ ounces.
Potass. bromide	30 grains.
Distilled water	30 fluid ounces.

At other times of development, other temperatures, and differently compounded developers may be used so long as the image is sufficiently developed that it penetrates the film, though for some special applications of the invention this penetration is not always essential. The plate is then washed with running water for half a minute.

From this point onwards the manipulations vary according to the particular work for which the process is being used.

METHOD No. 1.

If the object is to obtain a positive image from a negative "original," such as in the making of a positive half-tone relief block on a continuous tone-negative, or if an intaglio line or half-tone block is being made from a positive "original," then after the photographic image is prepared, as stated in "General Manipulations," it is fixed by immersing the plate in a fixing-bath (made by dissolving 4oz. of "hypo" in 20 fluid ounces of water) for about half a minute, which is usually sufficient to thoroughly fix the thin film emulsion. The film is then washed with water, about one minute's washing usually being sufficient with running water, and the plate then ready for immersion in the "hardening" bichromate solution, which is referred to later on.

METHOD No. 2.

If a negative image has been obtained upon the plate, and it is required to convert it into a positive image, or *vice versa*, the washed negative (or positive), prepared as described in "General Manipulations," is treated for a suitable time, usually half a minute, with a "reducer," such as the well-known "reducer" made dissolving

Potass. permanganate	15 grains.
Sulphuric acid	75 minims.
Distilled water	20 ounces,

which dissolves all the developed silver image out of the film and leaves the undeveloped silver haloids in the film. The plate is then washed with running water for about half a minute and exposed to daylight, or other suitable actinic light, for a few, say five, seconds, and the plate again developed, preferably in daylight or strong actinic light, with ferrous oxalate developer, or the before-mentioned glycin developer, or any of the well-known developers which do not render the gelatine insoluble so as to prevent subsequent development with hot water. The plate must be developed with the glycin or other developer until the image is developed right through the film, and three to five minutes is usually sufficient when developing in daylight with the glycin developer at a temperature of 65deg. F., but a slightly prolonged development is not harmful.

The plate is again washed with running water for half a minute, and then "fixed" in the manner already described, the plate again washed with running water until free from "hypo," usually for about one minute, and then it is "cleared" by means of the well-known "hypo and ferricyanide reducer," or by a very weak solution of the before-mentioned acidified permanganate "reducer," the object of the "clearing" being to remove all traces of the previously developed silver that may have been left on those portions of the image or "resist" which will be subsequently dissolved away with hot water, for the presence of any slight veil or fog in the clear portions of the image would harden the gelatine when it is immersed in the bichromate solution and prevent the resist being properly developed. This plate is then washed with running water for about one minute.

GENERAL MANIPULATIONS.—CONCLUSION.

Assuming that a good clear image is obtained by either of the above-mentioned methods, as already described, and that the lines and clear spaces are quite free from "fog," it is immersed for half a minute in the following bichromate solution, used at a temperature of 60deg. F. :—

Potassium bichromate cryst.	½ ounce
Potash alum. cryst.	12 grains.
Distilled water	12½ fluid ounces.

This solution has the well-known property of hardening the gelatine in the presence of the metallic image, or other solutions that have a similar catalytic action may also be used for this purpose. The plate is then rinsed with water and developed like a carbon print in hot water of a temperature of about 120deg. F., first allowing the film to remain in the water for a minute or two, and then assisting the removal of the soluble portions of the film by agitating the plate in the water, or by gently brushing the surface of the film with a soft camel-hair brush or similar soft material whilst the film is immersed in the hot water.

When all the soluble gelatine has been removed the plate is fastened to a "whirler" and the surplus water driven off by centrifugal force, then the plate is dried at a gentle heat by revolving it face downwards over a "hot plate" or a flat Bunsen burner. The film rapidly dries, and when dry is cooled and the collodion or other substratum removed from those portions of the plate that are not protected by the gelatine resist by gently wiping the surface of the film with a pad of cotton wool moistened with a solvent of the substratum. A mixture of equal parts of meth. ether .720+ethyl alcohol 90 per cent. being used for collodion and for celluloid, meth. ether .720 for gum dammar, and benzole for bitumen. When the collodion substratum is used, it is advisable to finally wipe the plate with a pad of cotton wool moistened with ethyl alcohol after the collodion has been removed with the mixture of ether and alcohol.

The plate is then ready to be etched in the usual manner, the collodion or other substratum and gelatine film forming an efficient resist, after which it may be mounted and printed from in the usual manner.

This process may also be used for the production of engraved metallic plates for ornamentation, such as illuminated or memorial brasses, or for ornamental metallic fittings of any description, or for name plates, engraved dials, etc., either in intaglio or relief, made in the manner already described, and if required the hollows may be filled in with coloured wax or other suitable material. This process may be used in engraving or etching glass or similar substances by preparing the surface to be engraved with a suitable substratum and light sensitive emulsion, which is exposed in the camera and then treated as before mentioned to form a suitable resist.

Mechanical Etching.

A method of acid-blast etching, which has been recently patented, claims as a novel feature the delivery of the acid from a nozzle having at its narrowest cross-section orifices through which air is sucked or introduced by pressure. The etching chamber has in its lower part an air compartment and a liquid compartment serving a series of upwardly directed nozzles which have their lower orifices in the liquid compartment and their air-intake orifices in the air compartment.

The patentee, M. Piolunkowski, of 17, Schwind Strasse, Munich, in his specification (No. 18,540, 1908), says that :—

It has already been proposed to etch metal plates by projecting or spraying the etching liquid against the under-surface thereof in a more or less finely divided state, the liquid being sucked by an air current into a laterally perforated nozzle, and then carried out of the nozzle in the form of spray by the air current. It has, however, been found that when the liquid is sprayed in this manner the fine particles of liquid are only projected upwards with comparatively low velocity against the under-surface of the plate, the available energy having been largely expended in converting the liquid into spray. The liquid, therefore, adheres to the surface against which it is thrown, and the injurious effect on the edges of the etched lines is still produced. It is not possible to materially increase the velocity of the particles by increasing the pressure of the air current, since the suction effect of the air current ceases when the pressure at the entrance of the nozzle exceeds about two atmospheres, the minimum pressure in the apparatus being then more than normal atmospheric pressure. Moreover, the temperature of the air would at this pressure rise to about 176deg. F., and this would render it quite impracticable to carry out the process without very considerable modifications.

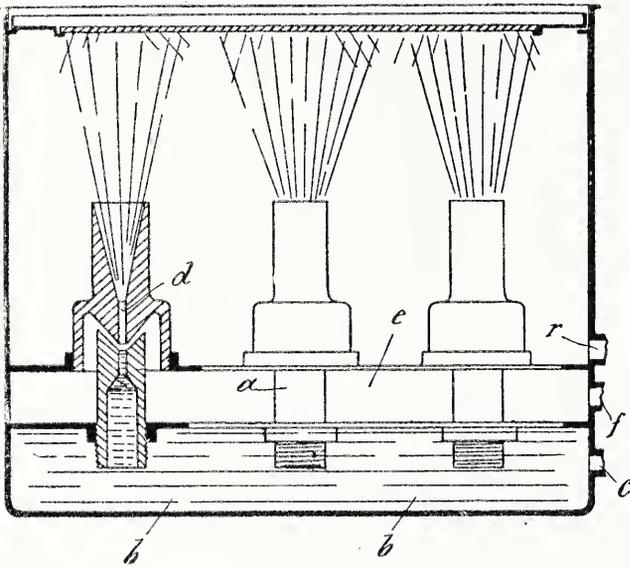
The present invention overcomes these difficulties by propelling the liquid itself through the nozzle instead of sucking it in by a current of air, the air being, according to the invention, admitted at the smallest cross-section of the nozzle. Energy is thus directly impressed on the particles of liquid, and the latter can be projected:

against the plate with very considerable velocity without excessive expenditure of power and without materially raising the temperature.

The particles of liquid projected against the plate at this high velocity immediately rebound, and therefore only act upon the plate during exceedingly brief periods without adhering to the surface. The lines produced in this manner are very sharp and free from irregularities produced by the liquid penetrating under the "ground" at the edges.

For the purposes of the invention, the nozzle is preferably constructed as shown in the annexed drawing, but though this construction of the nozzle has been found specially suitable for the process, it does not itself form part of the invention. Similar constructions have been previously used for producing spray for other purposes. The drawing represents an apparatus comprising three nozzles, the container and one of the nozzles being shown in section.

The lower orifice of each nozzle, *a*, is in the compartment, *b*, at the bottom of the container or etching chamber. The etching liquid



is forced into this compartment at *c* at suitable regulatable pressure. At the narrowest part of the bore, *d*, the latter communicates with ducts leading to a chamber, *e*, into which air can be forced at *f* at suitable regulatable pressure.

The production of spray is most effective when the ducts are downwardly inclined towards the central bore of the nozzle, as shown in the drawing. By suitably regulating the pressure of the liquid and air the velocity of the issuing jet can be regulated, and also the degree of fineness of the particles of liquid, and it is thus possible to etch more or less deeply and more or less rapidly, as required, but always with the particles travelling at such speed that they do not remain in adhesion with the plate.

The liquid rebounding from the plate can be carried away at *r* and cleansed so that only absolutely pure liquid is used for etching.

One advantage of the improved process lies in the fact that if suitable supply cocks are provided water can be projected against the plate through the same nozzles for washing purposes, so that a separate washing chamber is unnecessary.

CATALOGUES AND TRADE NOTICES.

LANCASTER REFLEX CAMERAS.—Messrs. J. Lancaster and Son, Camera Buildings, Broad Street, Birmingham, have issued a new circular descriptive of the well-known "Plano-reflex" camera, the long extension and other movements of which render the camera a universal instrument of this type. The list, which is very fully illustrated, is worth getting.

BINOCULARS AND BIRD-STALKING.—Messrs. Ross, Limited, have published, and send gratis on application, a sixteen-page treatise by Charles Dixon, entitled "The Ross Bird-stalker." It is a monograph on the advantages, possibilities, and use of the prism binocular in field natural history.

Exhibitions.

PHOTOGRAPHS BY MR. ARBUTHNOT.

A COLLECTION of photographs, described as "A Series of Impressions Rendered by Photography," by Malcolm Arbuthnot, has been open at the "Little Gallery" of "The Amateur Photographer and Photographic News," 52, Long Acre, W.C. Many of these pictures will be recognised by visitors as those by which Mr. Arbuthnot has achieved a notoriety of a sort. They are displayed in places of honour upon the walls, as though their author and the hangers of the gallery consider them the finest things of the collection. We ourselves do not think so, and we believe our opinion is the general one. Mr. Arbuthnot proves by this display that he is a capable worker, gifted with a strong sense of the queer and the odd in sights and faces that meet his gaze. This faculty may be amusing to its owner, but, of course, nobody can claim that it is art. It is art *per se*, those things that are most successful in this gallery are the quiet and commonplace ones, chiefly some portraits. "C. Alison, Esq." (3), is quite good, and so is "An Old Man" (19), and two ecclesiastics, called respectively "The Smile" (23) and "Brother Z——" (25). "The Donkeyman" (41), "To Leeward" (43), and "The Beach" (32), are still unsurpassed, because of their naturalness and simple strength of realism. But before Mr. Arbuthnot's character-heads and the subjects that have attracted him by their quaint design, we can only feel that it is not beauty that affects him in his outlook, but the mere whimsicality of things. The temperament that makes this preference is a common one enough, when it is joined to the artistic temperament we may get a Wirtgen or a Van Beer's, but of itself it is opposed to aesthetics. It can be said that in any one or two cases the quaint things here are made to justify their existence as pictures by any beauty of treatment. "The Topsail Yard" (29) and "The Low Ebb" (35) are examples of things both interesting and queer in themselves, but certainly not lovely. "The Hermit" (39) is childish and trite in idea.

In his landscapes there is an absolute want of relation in tones, and this lack is only filled by flatness and dullness of effect. A better thing could have been made with such a subject as "A Thames Boat on water" (36), unless it is meant that a thunderstorm is impending in which case the thing is perfect. "The River Medway" (37) shows the bridge, the ship, and the near boats all in the same hard edged dark tones, though they are obviously in retiring planes. The stretched-out foreground, which we had hoped was a sin of the painter is shown also in one or two cases with detrimental effect.

FORTHCOMING EXHIBITIONS.

- February 20 to March 20.—South London Photographic Society. Sec., H. Creighton Beckett, 44, Edith Road, Peckham, S.E.
- March 11 to 13.—Coventry Photographic Club. Sec., W. R. Harris, 17, Allesley Old Road, Coventry.
- March 17 to 20.—Nottingham Camera Club. Sec., E. L. Kent, Radcliffe Mount, West Bridgford, Notts.
- March 22 to 25.—Cripplegate Photographic Society. Sec., H. Cuming, 234, North End Road, Kensington, W.
- March 30 to April 3.—Sheffield Photographic Society. Entries close March 13. Sec., H. Merrill, 22, Harboard Road, Woodsear, Sheffield.
- March 31 and April 1.—Shropshire Camera Club. Entries close March 20. Sec., Harry W. Hughes, Kingsland, Shrewsbury.
- April 10 to 17.—Midlothian Photographic Association. Entries close March 31. Sec., B. Sherratt, 8, Castle Terrace, Edinburgh.
- April 27 to May 1.—Maidstone and Institute Camera Club. Sec., J. Harris, 23, Knightrider Street, Maidstone.
- April 29 to May 17.—Photo Club de Paris. Entries close March 17. Secretary General, Photo Club, 44, Rue des Mathurins, Paris.

A PHOTOGRAPHIC society has been formed at Johannesburg under the name of the Photographic Art Circle, the membership being confined to those interested in the pictorial side of photography. The Hon. Secretary is Mr. Harold Smith.

Patent News.

Process patents—applications and specifications—are treated in "Photo Mechanical Notes."

The following applications for patents were made betweenbruary 22 and 27:—

ENLARGING.—No. 4,479. Improvements in apparatus for enlarging photographs and the like. Ralph Winwood Robinson and Leonard Leslie Robinson, 4, South Street, Finsbury, London.

CINEMATOGRAPHS.—No. 4,534. Improvements in feeding mechanisms for cinematograph cameras, printers, and perforators. Ernest Francis Moy and Percy Henry Bastie, Greenland Place, Camden Town, London.

SCREEN-PLATES.—No. 4,713. Improvements in the manufacture of regular grain three-colour screen-plates for direct colour photography. Charles Frederick Emil Fenske, 21, The Pavement, Thornton Heath, Surrey.

PHOTOCOPYING.—No. 4,735. Improvements in photographic copying apparatus. Edmund Edward Fournier D'Albe, 11, Sunbury Gardens, Rathmines, Dublin.

LANERN SLIDES.—No. 4,745. Improved method of carrying and exposing lantern slides or films. William Morton, "Strathcona," Campbell Street, Wishaw.

PHOTOCOPYING.—No. 4,790. Improvements in photographic or heliographic copying apparatus. A. W. Penrose and Co., Ltd., and William Hamble, 28, New Bridge Street, London.

CINEMATOGRAPH-PHONOGRAPH.—No. 4,899. Improvements in apparatus for producing audible moving pictures, pieces of music, and other performances by the aid of two or more devices such as moving-picture apparatus, phonographic apparatus, and the like. Franz Ewald Thormeyer, 65, Chancery Lane, London.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention

SWINGING AND FALLING CAMERA FRONT.—No. 11746, 1908 (May 30, 1908). The mechanism of the front comprises two similar sets of arms or cantilevers, each set pivoted on or attached to any fixed or movable support on the body of the camera so as to swing in planes parallel to the axis of the lens, and having certain members which may be unfolded and extended between and along which the camera "front" or lens-board, or the camera "back" may be fixed or moved; and also provided with devices for locking them

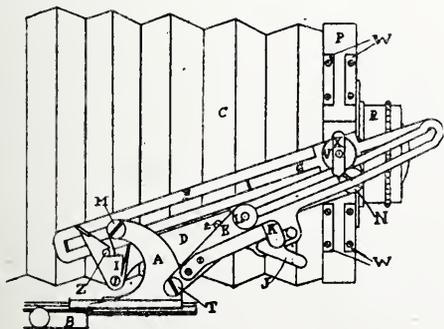


Fig. 1.

in certain positions, and for moving and fixing the "front" in or out of parallelism with the "back," or for moving and fixing the "back" in or out of parallelism with the "front," as the case may be. Fig. 1 represents the arms and "front" swung forward. Fig. 2 shows the arms unfolded. The first claim is for the combination with a camera "front" or "back," having side-pivots, of two similar sets or systems of arms or cantilevers, each consisting of two or more members, one of which is supported on the other

member or members of the corresponding set, being pivoted or otherwise movable thereon, and supporting the corresponding side of the "front" or "back" at its side-pivot, which may be moved along the member, and clamped thereto at any desired point, being provided with a nut or other binding device for that purpose, the other member or members of the same set being pivoted at one of their ends to suitable and different points of a fixed or movable part of the camera, in such a manner that the member to which the "front" or "back" is attached may be folded against the other member or members, or extended and supported from that end or ends of the said member or members which is not

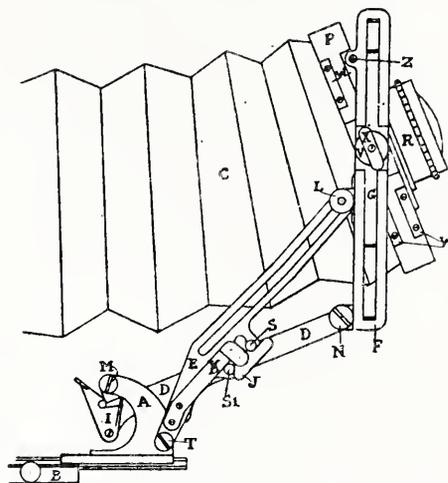
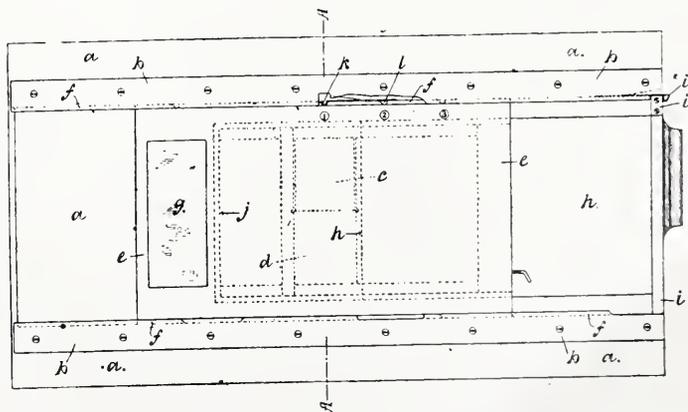


Fig. 2.

pivoted to the camera, bolts, or other means being provided for binding or locking the several members together, or to a part of the camera, in any desired position, and so that all the members of both sets may be swung or moved on their respective pivots or attachments, in parallel planes and in the direction of the axis of the lens, carrying the "front" or "back" with them, whereby the "front" or "back" is supported with capability of adjustment both for focussing the photographic image and for raising or lowering the lens, or the sensitive photographic film. For a proper description of the construction the full specification is necessary. John Arthur Harrison, 28, Chippendale Street, Cast'e Boulevard, Nottingham.

REPEATING-BACK CAMERA.—No. 2,739, 1908 (February 7, 1908). In the drawing *a* is the back or frame of the back of the camera, *e* is the frame of the "dark slide" carrying the sensitive plate, the flanges, *f*, of which slide in grooves formed between the back plate of the frame *a*, and the metal strips *b*.

c is the window or aperture in the back of the frame *a*, it being



of the full depth required for the plate; *d* is the shutter which operates in connection with it, so arranged as to close the lower half of the aperture, or the upper half, as the case may be, at will; or, it may be removed entirely, so that the whole depth of window is operative.

When the slide is in position in the back *a*, and it is desired to expose a portion, the slide *e* itself is moved along certain distances or stages corresponding with the width of the aperture or window

c, so as to give exposure on different parts of the plate in stages, and a spring catch *k* which is fixed on the frame *a*, is adapted to engage in notches *l* on the flange *f* when the slide has been moved to the required position.

When this has been exposed, the slide *e* can be further slid along the back *a*, so as to bring another notch *l* under the catch *k*. In this position another portion of the plate will be opposite the window *c*. Then, when this is exposed, the slide can be moved to its furthest position, namely, to the end of the frame or back *a*, and in which position, the last part of this plate will be exposed.

When the several successive exposures have been made along one edge of the plate, and the slide closed over its shutter *h*, and removed, the shutter *d* is changed from one end or other of the window *c*, and then the slide is again placed in position, and exposures made along the other edge of the plate or film. William Laurence Parkinson, 5, Commutation Row, Liverpool.

CINEMATOGRAPH-PHONOGRAPH.—No. 16,611, 1908 (August 6, 1908).

The claim is for an apparatus for synchronising cinematographs and talking machines, comprising in combination a system of electric incandescent lamps, contacts connected with the same, a rotatable collector-disc adapted to be driven by a cinematograph, a collector having segments adapted to be coupled with a talking machine, and means for electrically connecting the segments of the collector with the electric lamps through the collector-disc. Jules Greenbaum, 236, Friedrichstr., Berlin.

FLASH POWDERS.—No. 14,692. 1908 (July 10, 1908). A patent has

been taken out for the use of insoluble, or nearly insoluble, metallic salts of thoria, in conjunction with magnesium or aluminium metals, as a rapid or slow flash powder. The compounds of thoria with the acids of the heavy metals which are found most suitable are the chromate and the tungstate. The chlorate and perchlorate are also found suitable. The nitrate, on account of its acid reaction and hygroscopic nature, is unsuitable for a flashlight powder, even when put up separately from the magnesium powder, since under these conditions the salt cakes together. Chromate of thorium in the two forms, one containing some water of crystallisation, the other none, both produce a very rapid flash (difference from chromate of cerium). A suitable formula for a flash powder is 30 to 35 parts of magnesium powder mixed with 70 parts of thorium chromate. For a slow-burning powder one part of magnesium is mixed with two parts of thorium tungstate. Salts of peroxide of thorium may be produced by precipitating nitrate of thorium with hydrogen peroxide in a solution containing also the acid which it is desired to combine with the thoria. Thus a solution of thorium hydroxide in perchloric acid gives a gelatinous precipitate of perchloride on addition of hydrogen peroxide heating the solution to 140 deg. Fahr. and rapidly cooling. This compound forms a white, brittle, glassy mass, which is easily powdered and keeps well in the air. It does not cake, and may be easily mixed with magnesium. Carl Beltige, 18, Schlesische Strasse, Berlin.

THREE-COLOUR CINEMATOGRAPHY.—No. 11,791, 1908 (May 30, 1908).

According to the invention, when taking a picture, or series of pictures, a translucent film or screen divided into successive series of primary colours is disposed between a colour-sensitive film and the lens, this translucent screen being preferably arranged closely to the sensitised film, and being intermittently travelled in conjunction therewith between each period of exposure in such a manner that successive exposures are effected through successive primary colour divisions.

The film or screen may either be continuous or it may consist of a suitable length of film wound from one spool on to another, and each series of colour divisions thereon is composed of the three primary colours—red, green, and blue-violet. The extent of each colour-division is equal to the area of the sensitised film affected during an exposure.

In order to reproduce animated pictures in the natural colours, transparencies or positives are produced from the sensitised film in the usual manner, and the aforesaid colour screen is interposed at a suitable point between the film provided with photographs and the screen upon which the images are projected, preferably adjacent to the film. The translucent film is adapted to be travelled synchronously with the positive film, and so that the colour divisions occupy the same positions relatively to the positive

film as they occupied when the negative was taken. Will Friese-Greene, 203, Western Road, Brighton; and Friese-Greene Patents, Ltd., 64, Victoria Street, London.

New Trade Names.

THOMAS A. EDISON (Signature).—No. 305,781. Chemical substances used in manufactures, photography, or philosophical research and anti-corrosives. Edison Manufacturing Co., Orange, New Jersey, U.S.A., manufacturers. August 26, 1908.

Analecta.

Extracts from our weekly and monthly contemporaries.

A Lady's Developer.

In "Photography and Focus" for March 9, Miss Alice M. Percival writes: "The best non-staining developer I have found so far is pyrocatechin. I use it in the ordinary pyro-soda formula, simply substituting pyrocatechin for pyrogallie acid. The stock solution of pyrocatechin does not keep so well as pyro, but it will keep in good working order for at least a month or six weeks. It goes bad in that time, but its developing power does not seem to be impaired, though with longer keeping it goes off entirely. The brown developer does not stain fingers or plates in the slightest. The sodium carbonate solutions used in developers roughen and spoil the appearance of one's fingers, and as almost all developers contain these or similar substances, it is wise to keep one's fingers out of the solution as much as possible, even when a non-staining developer like pyrocatechin is being used."

Exposure and Development of "Ensyna" Paper.

In "Knowledge" of March Mr. Chapman Jones writes on the behaviour of "Ensyna" paper under somewhat abnormal conditions.

By increasing the exposure the resulting image becomes more dense and with diminishing contrast.

The image may be printed out, but if fixed straight away it will lose the greater proportion of its density.

After printing out, a short development in a diluted paper will give an image that will change little, if at all, in the fixing process. Such an image is a very reddish shade of brown and flat, unless the negative is unduly hard; but, of course, the paper is not intended for such treatment.

The makers say that "the tone is entirely governed by the exposure and not by the development." This appears to be true if development is always carried to the same degree of image density, and one would endeavour to do in making many duplicates. But this does not appear to be no exception to the rule that the more of the work is done by the exposure and the less by the development the more dense is the image. With sufficient exposure the image on development is red and gradually passes through sepia to a blue black, but one tint will correspond to the most suitable amount of development. With the same exposure, development may be stopped at the reddish brown, sepia, purple, or black stage, and if these latter over-developed prints are reduced by dissolving away a part of the image, they will retain their colour, and in this way differently coloured images are obtainable with the same exposure; but obviously such prints will not all have the same scale of gradation.

With under-exposure only the black or colder tints are obtainable, with a tendency to excessive contrast.

Increased exposure, as usual, tends to flatness of image.

It is of interest to note that there appears to be no sign of reversal within an enormous range of light action, exposure and development being interchangeable, with the limitations as to colour, gradation, and density, and the difference in constitution between the merely printed-out and the developed image, noted above. I have exposed some of the paper under clear glass to daylight for periods up to about two days, during a part of which time the sun shined directly upon it. After a certain exposure, when an almost black colour is obtained, further exposure seems to be without effect. The colour loses nothing on fixing, nor does it change materially

ted with the developer supplied for the paper. It will, of course, be understood that such treatment as is here described is suitable for the getting of ordinary prints. For this purpose very few seconds' exposure and development as directed cannot be improved upon.

A Developer for "Ensyona,"

F. G.," writing to the "Pharmaceutical Journal" of March 6, 1909:—"A very short series of experiments proved that a very simple developing solution, consisting of 2 grains each of pyroacetone sulphite to each fluid ounce of distilled water, produced perfectly satisfactory prints of even richer tone than was obtained by the special developer supplied. The pyro and acetone solution may be somewhat slower in action than the special developer supplied by the makers, but the resulting prints are in no way inferior. It is, moreover, that the tone is somewhat influenced by the strength of the developer, as, when diluted to half the above strength, a darker brown was obtained. The fixing solution should be acid, similar to that ordinarily used for gaslight papers. A strength of from two to three ounces of 'hypo' to the pint is sufficient, to which a quarter of an ounce of potassium metabisulphite may be added. Although the makers state that thirty seconds suffice for fixing, I do not find that any harm results from allowing a longer time, from two to three minutes."

New Books.

Photographischer Almanach, 1909. Edited by H. Spörl. Leipzig: Ed. Liesegang (M. Eger). Mk. 1.

This twenty-ninth issue of "Liesegang's Almanach" contains as a special feature a portrait of Dr. Lüppo-Cramer, who is apparently cogitating upon radio-latent images. The letterpress of the "Almanach" amounts to 144 pages, and in that space well accomplishes the not inconsiderable task of providing some articles of current interest, facts of outstanding items of progress, reviews of new apparatus, and a directory of photographic societies in Germany and Austria.

Photographie au Charbon. By G. A. Liebert. Paris: Gautier-Villars. Fr. 2.75.

The original publication on which the present work is based was written by M. H. Liebert, the father of the author. It appeared in 1876, at which time pigment printing was in its infancy. M. Liebert has produced a very comprehensive work on the carbon process only, as that word is generally understood. Gum-bichromate, the powder process, ozotype and ozobrome, and the various other processes are to be treated in subsequent manuals devoted to "la photographie par les procédés pigmentaires." If the present work may be taken as a criterion of what is to follow, the series would provide a most inclusive treatise on methods of pigment printing. M. Liebert commences with the making of tissue, describes various commercial tissues, and then turns to the details of the single and double transfer methods, in the course of which he provides the most detailed instruction in the sensitising of tissue, printing and development upon various temporary and final supports. The later portions of the volume relate to the by-paths and applications of carbon work, such as transparencies, miniatures, multi-colour work, combination printing, and the making of carbon engravings. The volume is one of the most complete we have seen.

THE MIDLOTHIAN PHOTOGRAPHIC ASSOCIATION will hold its second exhibition in the Synod Hall, Castle Terrace, Edinburgh, from March 10 to 17 inclusive. Of the six classes two are confined to members, one to associates of the Scottish Photographic Federation, the remaining three being open to all photographers. In this last class one is devoted to colour photography, both prints and transparencies. Twelve plaques will be placed at the disposal of the exhibitors. Mr. Robert Burns, A.R.S.A., for award, which number may be increased at his discretion. Entries close March 31, on or before that date all entry forms, accompanied by the necessary fees, must be sent to the exhibition secretary, Mr. B. Sherratt, 8, Castle Terrace, Edinburgh, who will be pleased to send entry forms and full particulars to intending exhibitors.

New Apparatus, &c.

An Automatic Folding and Portable Dark Room. Made by Nicolas Wladimiroff, 20, Rue Emile Augier, Paris.

Of the many ingenious pieces of apparatus for the development of plates in full daylight which we have seen we cannot call to mind any which exhibits such an ingenious design as this. Whether there is likely ever to be an appreciable demand for such an apparatus is another matter. However convenient it may be to develop a plate in daylight, the many sacrifices which the use of a developing chamber entail are rightly considered by many photographers to be too great a price to pay for the alleged convenience. The tourist, when he wishes to develop *en route*, usually contrives to make his hotel bedroom into a dark room for the nonce, develops and washes briefly, and sets his negatives in a position where they will be dry in the morning. As a means of testing the correctness of an exposure there is no doubt that there is something to be said for a portable developing chamber, but the real difficulty, and one which no inventor has yet surmounted, is a certain and convenient means of conveying home the wet negative secure from dust and other damage.

However, this is not to say that, within these limitations, M. Wladimiroff has not designed a piece of apparatus which, as we have said, is above all things ingenious. It is a folding box which when erected forms a chamber $7\frac{1}{2} \times 7\frac{1}{2} \times 9\frac{1}{2}$ inches, in the top of which a lensless eye-piece is fitted. This latter is provided with a pair of opaque diaphragms which in the ordinary way form a light trap to each eye-piece. When, however, the eyes are allowed to rest in the rubber ends of the tubes the bridge of the nose presses upon a rubber knob which opens the diaphragms. To the sides of the box are affixed two sleeves allowing of the workers' hands being admitted without access of light into the apparatus. The bottom of the box contains a sheet of ruby glass, whilst the front is likewise provided with two ruby panes. To one side a shelf is attached by a spring hinge on which the developing dish may be laid during the earlier part of development. On holding the dish in the hand for a moment and releasing the shelf the density of the negative may be judged by the ruby window in the floor of the chamber. The whole apparatus is collapsible and folds into about the space of three whole-plate dark-slides. The price for 9×12 cm., or quarter-plate, is £2; for 13×18 cm., or 7×5 plate, £3; and for 18×24 cm., or whole-plate, £4.

New Materials, &c.

A BRINGER OF BUSINESS.—Like the flowers that bloom in the spring, *tra la*, Messrs. Walter Pearce and Co., of St. George's Press, Brentford, bring promise of sunshine, business profit, and other agreeable things which should result from a discreet use of the very distinctive printed booklet just produced by them under the title of "When Spring Flowers Bloom." In addition to the things which the poet has associated with the spring season—or perhaps as a result of the combined action of them and Messrs. Walter Pearce and Company—a visit to the photographer's studio should be numbered, and if a reminder of the fact takes the very graceful form of this "Spring Flowers" booklet, the aspiration should be at once a fact. Messrs. Pearce, in accordance with their usual practice, have produced a dainty piece of printing, only one edition of which they issue in a given district. The letterpress may be modified to fit the photographer's own conditions, and at the moderate prices at which these booklets are done by Messrs. Pearce their use should be a source of profit to a photographer with any kind of fairly good clientele.

VICTOR TROPICAL PAPER.—A correspondent writes us for the address of a bromide or chloride paper, placed on the market under this name. Inquiries in the trade having proved fruitless in discovering the source, we should be glad if the manufacturer or agent could communicate with us, when we will forward his letter to our correspondent.

Commercial & Legal Intelligence

EASTMAN KODAK COMPANY, OF NEW JERSEY.—In addition to the usual quarterly dividends, payable on April 1, the directors of the Eastman Kodak Company, of New Jersey, have declared an extra dividend of 5 per cent. upon the Common Stock, also payable on that date to stockholders of record on March 2.

LEGAL NOTICES.—A supplementary dividend of 8½d. in the £ is to be paid to the creditors of Wm. Tapscott Radford, photographer, etc., 7, Bampton Street, Tiverton, Devonshire.

NEW COMPANIES.

H. A. DUPUY AND Co.—Registered January 18. Dealers in patents and apparatus for transmitting photographs by electricity, 31, Lombard Street, E.C. Partnership from January 18 "until the particular business for which the firm is constituted is completed." General partner: I. Hendrickx, 31, Lombard Street, E.C. Limited partner: W. H. O. Ainslie, Ingledene, Foxley Lane, Purley, Surrey, contributing £500 in cash.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, MARCH 12.

Acton Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Aberdeen Photographic Art Club. "A P." Prize Slides.
Sutton Photographic Club. "Colour Photography." A. E. Bawtree.

MONDAY, MARCH 15.

Kingston-on-Thames Photographic Society. Dutch Lantern Pictures. A. E. Staley & Co.
Catford and Forest Hill Photographic Society. Monthly Competitions. Criticism by A. H. Lisett. Affiliation Prize Lantern Slides.
Southampton Camera Club. "Thornton Pickard Prize Slides and Apparatus, with descriptive remarks." R. Hesketh.
Bradford Photographic Society. Five minute Papers by Members.
Scarborough and District Photographic Society. "Gothic Architecture." A. S. Tetley.
Kidderminster and District Photographic Society. *Photography* Prize Slides.
Attercliffe Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Stafford Photographic Society. Midland Photographic Federation, Lantern Slides.

TUESDAY, MARCH 16.

Royal Photographic Society. "The Romance and Humour of Invention." A. H. Dunning.
Chiswick Camera Club. "A Chat on Pictorial Photography." W. E. Walker.
Leeds Photographic Society. "A Swiss Holiday." Gilbert Middleton.
Hanley Photographic Society, Y.M.C.A. "Gum Bichromate." Mr. Brand.
Sheffield Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Kinning Park Camera Club, Govan. "Mounting and Framing the Exhibition Print." James M'Kissack.
Hackney Photographic Society. "Gum Bichromate Printing." C. Wille.

WEDNESDAY, MARCH 17.

Leeds Camera Club. "Platinotype Demonstration." Rev. Joseph Beanland.
Leicester and Leicestershire Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Croydon Camera Club. Annual Sale of Members' Surplus Photographic Apparatus.
North Middlesex Photographic Society. "Home Portraiture." M. Fraser Black.
Sale Photographic Society. Print Criticisms.
Borough Polytechnic Photographic Society. Lantern Slide Competition.

THURSDAY, MARCH 18.

Richmond Camera Club. French Lantern Pictures. A. E. Staley & Co.
Rodley, Farsley, Calverley and Bramley Photographic Society. Y.P.U. Print Portfolio.
Chichester Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Maidstone and Institute Camera Club. "A Holiday Tour with the Camera." F. Argles.
Southend-on-Sea Photographic Society. "Flashlight Portraiture." Randolph Goodwin.
Folkestone and District Camera Club. Lecture Competition.
London and Provincial Photographic Association. "The New 'Aurora' Colour Plate." E. Fenske.
Midlothian Photographic Association. "Exposure and Development." Ben. Sherratt.
L.C.C. School of Photo-Engraving, Bolt Court. "The Design and Construction of Photographic Cameras." Arthur S. Newman.
Liverpool Amateur Photographic Association. "Spring under Italian Skies." J. Dudley Johnston.
Handsworth Photographic Society. "Autochrome Slides." F. E. B. Hall.
Aberdeen Photographic Art Club. Informal Meeting.

ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held Tuesday, March 9, the president (Mr. J. C. Mummery) in the chair.

In connection with the opening of a house exhibition of competitive prints by members of affiliated societies, a short paper was read by Mr. Bale Rider, in which the aims of the Affiliation were referred to and some particulars given of the work represented on the wall. This can be more appropriately referred to when we review the exhibition, as we shall do next week.

The paper down for the evening was on "The Absorption and Scatter of Light by Photographic Negatives Measured by Means of Marten's Polarisation Photometer." by M. André Callier, of Ghent. Dr. C. E. K. Mees had translated the paper, but in place of the full text gave an abstract dealing more particularly with the practical application of M. Callier's experiments. M. Callier's work has been made primarily to ascertain the amount of light scattered from the surface of negatives with a view to ensuring accuracy of photometric measurements. This scatter, however, has also an effect in modifying the contrasts of enlargements made by projecting a negative, it being always found that the projected image has greater contrast than the negative from which it is derived, and similarly the positive produced by projection shows greater contrast than that printed by contact. This fact had been emphasised long ago by Mr. Vero C. Driffield, who gave one explanation of it in the "British Journal," 1894, p. 714, but the explanation there given did not account for the considerable amount of contrast obtained in practice. M. Callier's measurements, however, of the amount of light scattered from the surface of a negative illuminated by transmitted light did account for the degree of contrast observed. This scatter could be obviated by first completely diffusing the light illuminating the negative, to do which efficiently it was necessary to place opal glass in contact with the film of the negative. Varnishing would go some little way towards obviating the scatter, but not completely. Some transparencies were shown illustrating the result obtained in accordance with M. Callier's work, and the subject was then to an interesting discussion, in which the Rev. F. C. Lambert, Mr. S. E. Sheppard, Messrs. A. J. Newton, E. J. Wall, C. P. Butler and Oliver S. Dawson took part.

CROYDON CAMERA CLUB.—Dr. Mees, on the 24th ult., lectured upon "The Photography of Coloured Objects," and Mr. S. Wratten last week gave an exposition on the new "Wratten Lantern plate."

Dr. Mees initiated a new departure by bringing with him a powerful electric rotary-fan, which, affixed to one of the ventilators, created an atmospheric disturbance of no mean order. He explained that an appliance would keep the room clear of tobacco smoke. It was most effectual in this respect, and also in materially lowering the temperature. Several members conveniently near the door quickly slipped out and returned with overcoats on; those not so fortunately situated shivered and went varied shades of blue as the evening progressed. Whether the more abundant supply of oxygen was responsible or not, the lecture itself, although the blackboard was never in requisition, was one of the most interesting ever given in the club rooms, and it would be almost impossible to attempt to epitomise it. As the lecture was avowedly a dress rehearsal for a little gratis pamphlet to be issued in the spring, the lecturer particularly asked for criticisms or suggestions. Little of either was offered, or indeed could be, offered. A very ingenious form of reflector spectroscopy was employed for projecting the spectrum. The filament of a Nernst lamp was (by means of an objective and mirror) focussed on the screen, no condensers being used. The mirror was removable in an instant, bringing a silvered grating into operation and furnishing a very even spectrum on the screen. Perhaps of the experiments shown the most instructive were illustrations of the variation of the luminosity curve at great and small intensities, and those showing that coloured objects do not obey the same laws as pure spectrum colours. A series of cards dyed to match different parts of the spectrum showed striking differences in reflecting value. For instance, a red card placed in the red portion of the spectrum glowed bright, a green card in the green portion became distinctly darker, whilst a blue card in its own region had the least reflecting value of all. The clear deduction to be drawn from this experiment is that the luminosity curve of coloured objects is different

that of the pure spectrum, and Dr. Mees stated it departs much from the curve of the plate, a pure spectrum being closer.

Wratten, on March 3, had an easy task in illustrating the uses of the new lantern-plate, which in quite Christian spirit regarded as good for evil. Capital warm shades are obtainable with hypo developer, generally a deleterious addition, and even thioamide, which causes reversal with ordinary emulsions, only on the plate by giving bright bluish-purple tones. Judging from pictures shown on the screen, most developers seem suitable, hydroquinone, rodinal, rytol, and pyro soda each affording results. Warm tones can also be secured in the usual way. It is pointed out that with a normal bromo-iodide plate it was impossible to obtain really warm tones by development. If chloride of silver was incorporated, its solubility in ammonium bromide, and the rate rendered these easy of attainment. Such addition unfortunately impaired the keeping qualities of the plate. Having regard to the fact that the solubility of a substance depends not only on its nature but on the surface it exposes, their laboratory had developed out an emulsion of such microscopic fineness that the hitherto insoluble bromide was capable of being dissolved by the restrained developer, the consequent deposition of silver in solution giving the warm tones sought.

CKNEY PHOTOGRAPHIC SOCIETY.—The twentieth annual report of the society was submitted to the members at the annual general meeting on the 2nd inst. The report and accounts were very satisfactory, progress having been made in all respects. Officers and Council for the ensuing year were made as follows:—President, J. Linley; Secretary, Walter Selfe; Assist. Hon. Sec., A. D. Fort; Excursion Secretary, S. Woodhouse; Curator, W. H. Witts; Lanternist, F. Morrison; Treasurer, H. W. Lane; Council, A. Akerman, A. Capper, G. Caudle, E. Farmer, A. J. Linford, W. Rawson, F. E. Roofs.

STERHAM PHOTOGRAPHIC SOCIETY.—At a meeting held on Tuesday the 2nd inst., Mr. W. Firth, vice-president, in the chair, Mr. J. Hart, representing Messrs. Charles Zimmermann and Co. (Photographic), Ltd., gave a series of demonstrations illustrating the uses of the well-known "Agfa" photographic chemicals and specialties. After dealing briefly with the necessity of pure chemicals for photographic use, Mr. Hart proceeded to take a flashlight picture of the members present, using for the purpose "Agfa" flashlight lantern and the "Dega" Electroflash. The resulting negative (developed with rodinal) showed that the methods employed, although exceedingly simple, were very efficient, producing a soft harmonious effect, without crudeness of lighting. In addition to rapid fixing, sensitization, and reduction, Mr. Hart demonstrated the use of "Agfa" Neutral Toning and Fixing Salts, pointing out how the product in question fulfilled the requirements of a number of photographers who find the need of a simple combined toning and fixing bath. At the same time it was pointed out that permanent prints were obtained with the salts in question, sulphur toning being possible.

The above lecture-demonstration, it may be added, has been voted the most successful and instructive by the many societies before which it has been given during the past season, and though the few remaining dates are booked, society secretaries who may wish to secure a good trade fixture for next winter's programme may be desired to put themselves in communication with Mr. Hart in good time before the autumn.

News and Notes.

BAKELITE.—It is announced that Dr. Baekeland, the inventor of the bakelite paper, has prepared oxy-benzyl-methylene glycol-anhydride, and for short "bakelite," and that this substance possesses properties which should make it a good substitute for celluloid.

SPECIALTY BUSINESS.—According to "Abel's Weekly," the Messrs Selby, two young Englishwomen, who have become successful photographers in New York city, make a specialty of taking pictures of dogs. Appointments are made for these furry-coated creatures the same as for persons, and the posing is done with as much care and care as when a society bride is facing the camera. Dogs are not easy to photograph successfully, and they do not always lend

themselves to studio posing. The reason that these young women have done so well with their unique line of photography is because both are great lovers of dogs, and they know how to get on with animals. Usually their pictures, all of which are taken in their Fifth Avenue studio, are of the dogs alone, though sometimes they pose the dog and the owner together.

M. TANQUEREY AND "TRUTH."—Mr. Labouchere's organ, of the date of March 3, contains the following amusing letter, received, as it states, from the "genial rogue," Tanquerey, of "free portrait" fame:—

"MY DEAREST LABOU,—Now, now, you are getting off the track. You forget that on many occasions during the past fifteen years you have called me 'my old friend, Tanquerey.' Why this sudden change? Surely your customers will not understand you. Of course I have a thick hide, and lucky I have, for the numerous poisoned arrows you have sent me across the water would certainly have done harm to others. But Tanquerey is too tough to be touched by them.

"I am sorry that the French police will not help you either. My case has been tried years ago and found perfectly honourable and legal. It is too bad, *n'est ce pas*, but it can't be helped, and you must grunt and bear it. I will tell you that I have 500,000 customers to-day in England, who are sending me orders every day. I suppose those good people do not read 'Truth.' . . ."

"I take the statement," our contemporary proceeds, "about the 500,000 customers to belong to the same order as those in Tanquerey's circulars and his press extracts, including the alleged testimonial from 'Truth.' Be the number what it may, he is, of course, right in assuming that his customers are not readers of 'Truth,' and he thereby demonstrates how much better it would be for many people if they were.

"In the meantime, it is a comfort to learn, as I do every week, that 'Truth' has saved a certain number of the more intelligent class from falling into Tanquerey's clutches. One of my readers, forwarding one of his circulars the other day, asked what new trick he is now working under cover of offering to supply, not only a portrait, but also a frame, 'free.' There is no particular new trick about it. It only means that you will have to pay for the free portrait and frame under the head of carriage, packing, Customs duties, etc. For years past Tanquerey has been enabled to supply free portraits on these terms, and if he now throws in a frame at the same price, it only shows what a profit he must have made out of a 'free' portrait on those terms."

Correspondence.

* * We do not undertake responsibility for the opinions expressed by our correspondents.

* * Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

ASSISTANTS' PROSPECTS.

To the Editors.

Gentlemen,—My attention has been much attracted lately to the number of advertisements appearing in your columns week by week for pupils and apprentices. Surely this is a good indication (or bad, should I say?) of the present unhappy state of our profession. Now glance at the columns headed "Situations Wanted." What do we see? Advertisements one after the other, column after column, all assistants out of employment. The conclusion one is forced to arrive at is that employers cannot afford to engage salaried assistants, but endeavour to get their work done by learners whenever possible. The ultimate result will be, naturally, that these apprentices and pupils will shortly be thrown on the market, to swell the already overcrowded ranks of despairing "unable-to-find-positions" assistants.

There is a good deal in the daily press about the unfortunate clerk, some even asserting that tram conductors and road-sweepers are better off. I think one could easily say that, as regards prospects and salaries, photographic assistants are very much in the same plight as clerks.

There is also a firm who advertises regularly in your journal (noted chiefly for the egotistical and bombastic form its announcements take)

who recently advised photographers to dismiss their assistants and send all printing, finishing, etc., to them. Surely the poor assistant finds it hard enough to live without people seeking to "take the bread out of his mouth" in this manner. Were I an employer, this firm would get precious little work of mine to do.

I beg to remain, yours truly,
AN UNDERPAID ASSISTANT.

FREE PORTRAITS IN YORKSHIRE.

To the Editors

Gentlemen,—My clients, the King Edward Fine Art Engraving Company, have seen me relative to the letter of Mr. W. H. Jennings in your issue of the 2nd inst. The facts, as set forth in the said letter, may have been those which he was told, but are not consistent with what actually took place. An order was taken for an enlarged water-colour portrait and carved polished oak frame complete for the sum of £4 15s., which sum was a fair and reasonable price for high-class work of this character, and such could not be supplied for a less price. On the proof and frame being submitted to Miss Griffiths, she expressed her appreciation and approval. Mr. Jennings's letter would lead your readers to believe the sum of £4 15s. was paid for a frame only, and they will readily understand the important part of the work, both in time and skill, is in the process of enlargement, and the care consequent thereon. The reference to the brooch incident is no doubt referred to for some purpose best known to Mr. Jennings, as the wish of my clients for the loan of the brooch was only for the purpose of the work to be done. My clients carry on a large business, have received numerous testimonials as to their straightforward conduct and good work, and many of such have come from the neighbourhood of Driffield, where numerous orders have been satisfactorily executed.—Yours, etc.,

89, Albion Street, Leeds,

EDWARD F. MAUD.

March 8, 1909.

[We insert the above letter at length, although parts of it refer to matters not touched upon in our abridged extract from the "Yorkshire Post." Our correspondent having addressed an almost identical letter to the "Yorkshire Post," it is fitting that we should print also the reply thereto by the writer of the original letter, Mr. William H. Jennings, of Driffield. The following is the reply from this gentleman to Mr. Maud's letter:—

"To the Editor of the 'Yorkshire Post.'

"SIR,—Mr. Maud states that 'an order was taken for an enlarged water-colour portrait and carved polished oak frame complete for the sum of £4 15s.'

"His client's letter to me of February 23 states: 'Re your remarks, "he tried to get an order for water-colour," this we must say is an error of Miss Griffiths; as a matter of fact, our Mr. Kelly never canvassed for an order. He might have said or promised to see her portrait would be made in water-colour without paying extra £3 3s. for same.'

"It is not conceivable that Mr. Maud would knowingly state that his clients did what their own letter expressly repudiates and asserts they did not do, and it must be assumed they did not inform him of the fact.

"My purpose was simply to set out the actual facts of the transaction. I am satisfied that Miss Griffiths, who has been for upwards of 20 years in the service of my family, has correctly stated what took place, and it rests with Mr. Maud to explain how his version and that of his clients come to be in flat contradiction.—Yours, etc.,

"Driffield,

"WILLIAM H. JENNINGS."

"March 5.]"

THE USE OF LIMELIGHT WITH A MANTLE.

To the Editors.

Gentlemen,—Some little time ago you copied from the pages of "Nature" a letter by Mr. C. E. S. Phillips advocating the enduing of artificial limes with gas mantles with a view to the increase of intrinsic luminosity. Will you permit me to inquire, through your correspondence column, if any of your readers have tested the virtue of this suggestion; and, if so, what their experiences have been?

Having recently had occasion to test a new lantern jet just placed on the market, I took the opportunity of photometrically testing Mr. Phillips's suggestion, and I uniformly found that the presence of the mantle wrought no measurable improvement in the light obtained. I experimented both with ordinary hard limes and the

artificial (magnesium oxide) "limes" sold under the trade name "Mabor limes."

The mantled lime placed on an ordinary blow-through jet balanced against a very steady ejector jet, and the luminosities of the two radiants were compared in a H. and D. photometer provided with a Joly paraffin block photometer head. (The diaphragms and diffusing ground glasses were, of course, removed from the side of the photometer.) A reading was first taken for the mantled lime. The mantle was then removed from the lime and another reading was taken at once without any alteration of the gas and oxygen supply to the two jets.—Yours truly,

DOUGLAS CARNEGIE

Answers to Correspondents

- All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & COMPANY, 24, Wellington Street, Strand, London, W.C.
- For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

- G. S. Pearce, Victoria Road, Diss, Norfolk. *Photograph of the Screen at Mary's Church, Diss.*
- Wm. Marshall, 31, Hart Street, Henley-on-Thames. *Photograph entitled "After the Dip" Photograph of the King on Lou ch at Henley Regatta 1887, when Prince of Wales. Photograph of Tomb in Greys Church, near Henley-on-Thames.*
- R. T. and J. Elliott, Market Street, Hexham. *Combination Photograph containing Eight Photographs in connection with the Roachburn Colliery Disaster.*

PAINTING REGISTERED:—

- G. Wilson, 34, Horsforth Avenue, Bridlington, Yorkshire. *Oil Painting representing an occurrence at Flamborough in which six men were drowned.*

COPYRIGHT IN DUPLICATES.—Recently I sold the sole postcard rights of the enclosed two photographs to two different firms, one to each of them. What I want to know is: Would one of the photographs be held as a "colourable imitation" of the other, as defined by the Copyright Act, and have I thereby infringed the postcard rights of one of the firms?—CAMPO.

So far as the strict letter of the Copyright Act is concerned, a photographer is at liberty to make any number of negatives from a subject, and, even though they may be closely similar, to register the copyright in each separately. At any rate, there has never been a case to show that he cannot. On the other hand, quite apart from copyright considerations, we think that any breach of contract could probably be sustained against you by the firm in respect of your selling to another an almost identical photograph. So far as imitating the pose and costume of the subject, you or anybody else has the right to produce a similar photograph so long as he works from the living model.

POSTCARDS OF CHINA.—I enclose postcard copied from a set of 10. Am I liable in any way if I issue such and similar as postcard MAYPOLE.

If there is copyright in the design of the article, we think the photograph will be an infringement of it. This follows from a portion of the Copyright Act which lays down that a reproduction in some other form of art, e.g., of a painting by a plaster cast, is nevertheless a copy. If the age of the article is such that no right can now be existing in it, there can, of course, be no restriction as to copying it and issuing postcards.

COLLOTYPE.—Will you please outline the colotype process, or give the name of a text-book on the process, and where I could obtain the same?—COLLOTYPE.

"Practical Collotype," by A. W. Fithian (Iliffe, 2s. 6d.).

MAGNESIUM LIGHT.—1. There is no electric light in this town, should like to be able to take a sitter by artificial light in an emergency. I have tried magnesium ribbon, but the exposure is

so have some magnesium powder, but as it cannot be moved during exposure like the ribbon, I propose to rig up a frame red with tissue paper, at an angle of about 60 deg. with the r, and behind this to fire off the powder, using reflectors on low side, and also on floor. Do you think this would do? der is expensive, so any hints would be thankfully received. s there any danger of the powder exploding by concussion, such rapping a bottle of it on the floor?—FLASHLIGHT.

We should advise you to improve on your idea by making a l-sized box with a front of tracing cloth, in order to enclose the es from the powder. You could fit into the floor of the box of the convenient 1s. 9d. "Agfa" flash lamps which we re-ed some few weeks ago. This will supply a convenient means gniting the flash powder. 2. Except by deliberate means, there ot.

LARGE.—1. If the photographer was paid in the ordinary way his work, of course the death of the sitter does not allow him nnex the copyright. 2. He may obtain, by gift or purchase, a ten assignment of the copyright from the executors or assigns. ou do not tell us the essential point, viz., who is the proprietor he copyright in the photograph you are asked to enlarge. If person who gives you the order is the proprietor, obviously ave no liability. You have simply to carry out your cus-er's orders.

—We must refer you to our advertisement columns, in which will find the addresses of some who do what you require.

ED PRINT.—I should be very much obliged if you would advise if anything can be done to remove the spots on the enclosed t. It is one very much prized, and I should like to remove n, if possible.—T. CHIDLEY.

here is no chemical method of removing the spots without aging the colouring. The spots are only superficial, and do not v on the coloured portion. They can be removed by carefully ping them away with a penknife, or by rubbing them off with ean ink-eraser. As they show only on the vignettted portion, as the paper has a matt surface, but little trace of the spots remain if the work is carefully done.

—Most of the people handle news-photograph's. Try Mr. agustin Rischgitz, Linden Gardens, Bayswater, W.

ES.—(1 and 2) Consult a booklet on the process, issued by owfield's, 146, Charing Cross Road. (3) The celluloid is dipped spirit and hot-rolled in contact with the photographs. (4) cher and Sons, Camera House, Farringdon Avenue, E.C.

—You should use a stronger bath, which will give you softer ults.

INCENT.—It depends on the location of a studio. For inland es, May and onwards; seaside places, not until June or y, when the busy season commences.

M.—We know of no such complete list.

TO SCALE PROCESS.—On February 12 you kindly gave me ticulars of the true to scale process, and although I have followed ections I have not been very successful. I enclose specimen t, but the trouble is to get it clear. Would you please tell further (1) whether the mixture containing sulphate of iron st be made up fresh every time, as I find it goes brown through dation in a day or so? (2) Whether the operation ought to be ed on in yellow light? (3) I find better results by adding more ver than you give, but it makes the film too tender. Any further t you can give me I shall be glad.—PLANS.

(1) The mixture need not be made fresh every time, but the k is kept in a tin, and at least a quarter of the new composition dded to any that has been used before. A slight brown colour s not matter. (2) It is not necessary to carry out the operations a yellow light. (3) The probable remedy would be to add a le more glycerine, which would keep the film more moist. It ld appear from the example that either the ink used or the od of rolling up may have something to do with the result. lhaps a stiffer ink or sharper rolling might prove better. This ult from an early attempt is distinctly promising, and with ctice we have no doubt you will soon improve upon it.

IE TO SCALE" PROCESS.—I am engaged as a photographer and e engineering printer (plans, etc.), and would like you to give me er working particulars of "True to Scale" process. Seeing

your reply to "Plans" of February 12, 1909, I have tried to do this process but I find that the ink takes on the ground of the print. I would like to ask you the following questions: 1. How long must elapse after placing print on jelly, and must it be done in dark room? 2. Must inking up take place at once; and must fresh ink be rolled on surface for every print? 3. Can a different print be placed on pad without remelting? 4. Does a print require to be taken first on negative paper and then blue positives be made from this?—BLUE PRINTS.

1. Only a sufficient time must elapse to place the print down on the jelly completely, lifting up from the end first placed down—that is to say, it must not remain on the jelly more than a second or so. The work need not be done in a dark-room. 2. Inking must take place at once, and fresh ink must be rolled on the surface for every print. 3. A different print cannot be placed without remelting, and the addition of some new jelly. 4. The blue print is the ordinary blue print made from tracings, and is, therefore, itself a negative blue print, undeveloped, only exposed.

CARBON PICTURES ON VELLUM.—I shall be very pleased if you can enlighten me on the following: In your article on Carbon Printing in the "B.J." for January 17, 1908, instructions are given for transferring on to vellum. Can you tell me: 1. Where the vellum is obtainable. 2. Whether the transferring can be done with the dry moulder in place of the rolling press? 3. If so, would the procedure be the same? 4. Can I get the other articles of this series at your publishers?—D. E. T.

1. The vellum paper is sold in small quantities by the Auto-type Company, 74, New Oxford Street, W.C. The importers only supply it by the ream. 2. We should say so, though we have not tried it ourselves. 3. Yes, precisely, though too much heat should not be used, as that might affect the indiarubber coating of the temporary support. 4. Yes, we send you a copy of the index, 1908. If you mark articles our publishers can supply at 2½d. per copy. 5. Say 5s. to 7s. 6d. each. It depends on the expenses incidental to making.

S. PROSSI.—We think if you expose more fully you will not get the trouble. Yours is not the general experience. The light is deficient in red, but then, complexions are not pure red in colour.

ABER.—1. See our issue December 18, 1908, p. 975. 2. Illustrations Bureau, 12, Whitefriars Street, E.C.

APPRENTICESHIP.—As a photographer, I wish to take on an apprentice, but never having served an apprenticeship myself, I am at a loss to know what the term of years is, and the commencing salary, and how much per year it increases, and also what he would get when out of his time.—P. M.

There are no set rules with regard to apprenticeships. It is simply a matter of arrangement between the parties. The term may be for any period—three, five, or seven years. The salary, necessarily, is governed by the amount of premium, if any, paid with the apprentice. What the apprentice would get when out of his time, of course, will depend upon his ability and somewhat upon the status of the photographer with whom he served his apprenticeship.

H. D. WILSON.—There are no up-to-date books on emulsion-making, and those by Abney, Eder, etc., are not of much use for present-day commercial work. Knowledge of emulsion-making is dearly bought nowadays—by practice.

S. G. L.—We should advise the pair of A lenses.

COLD ENAMEL.—Will you kindly oblige with the composition of a resin resist suitable for the cold enamel method of printing referred to in the "Photo-Mechanical Notes" last week? 1. If it is a patented process, kindly suggest a resin solution which would answer the purpose. Is the coating homogeneous or a grain (as in photogravure)? 2. I cannot see what there is to prevent the solvent finding its way beneath the small dots, dissolving the resist, and washing the glue away (in the manner a carbon tissue would be acted upon if not transferred). 3. How would the glue be removed from the dots before etching?—COLD ENAMEL.

1. The resist used by Dr. Albert is a secret. A solution of shellac in spirit can be used, or a saturated solution of dragon's blood resin in spirit, or a 35 per cent. solution of bitumen in

benzole may be used. Penrose and Co. sell the solution ready prepared under the name "Redcol." There is no grain produced, but a homogeneous film. 2. Provided the film is properly dry, and the spirit that is used to dissolve away the shellac contains no water, that is, there will be no difficulty unless the plate is left in the spirit too long. 3. The glue resist is removed by scrubbing with a soft scrubbing-brush and water. It need not be removed, as the acid would soon remove it.

MONTAGUE COOPER.—Charles Bowen, glass dealer, 58, Grove Road, Holloway, London, N. We fancy he buys only within a certain radius of London, so that you might try the effect of the advertisement later.

HOW NOT TO PREPARE A LECTURE.—I have been asked to give a lecture on photography. As I cannot afford to purchase the "History of Photography," would you inform me where I can obtain information of this character? When did Daguerre begin the working of "types?" Who made the first wet plates? Also dry plates? Who first thought of and actually printed from negatives, etc.? How was paper prepared before albumen, and who thought of albumen? What was it Fox Talbot did? As you see, I am entirely ignorant of the History of Photography; and do not for a minute expect you to use your journal to answer these queries; but should be much obliged if you could tell me where to obtain same. Thanking you for a speedy reply in this week's Friday, March 12, "Journal," if possible.—**JINKS.**

We think you are unwise in consenting to undertake the duties of instructing an audience. The best (and cheapest) course we can suggest is the purchase of No. 60 of "The Photo-Miniature"—"Who discovered Photography?" Price 6d.

BOOKS ON LIGHTING.—I should esteem it a favour if you will inform me where I can obtain the best book on lighting and posing (illustrated). I have no objection to price, providing it is an excellent publication dealing with all classes of lighting. Further, I should like to purchase a book on children's portraiture, posing, etc., perhaps you will inform me of this also.—**LIGHTING.**

"Artistic Lighting," by James Inglis, 2s. 6d., and the "Lighting in Photographic Studios," by P. C. Duchochois, 1s., are about the two best. No. 2 of the "Photo Miniature," "The Pose in Portraiture" is a good book on its subject, but is out of print; though enquiry at a large dealer's might secure one. 2. None that we know of.

CONSTANT READER.—1. We certainly consider the fee a very moderate one. If your customer can get anybody to make a journey and supply whole negatives and print for 1s. 6d. we should advise you to let the photographer who will work at this price have all he can get. He will not grow very fat on it. 2. A suitable material can be found in the unbleached "sheeting" which large furnishing drapers can supply up to 8ft. width.

RETURN TO BUSINESS.—Owing to my health I left photography three years ago, but having recovered I wish to return to photography and would be much thankful if you would kindly give me a few helpful advices on the following subject. 1. Where I intend settling there is already a good photographer and no room for two, but an opening for cheap work at 6d., etc. Would it be possible to do it and better work also together, or better keep to one? 2. What lamp would you advise me to buy—enclosed arc or mercury-vapour? I have been told the latter is very expensive to keep owing to breakage of the tubes. 3. Are the cheaper papers and chemicals now on the market as permanent as dearer ones?—**A RIP VAN WINKLE.**

1. Better not mix the good and cheap work. 2. The mercury-vapour consumes very little current, but is, as you say, liable to the expense of tubes which go wrong. 3. If you mean, are the results as permanent, we say yes, certainly. The chief difference is in the quality of fine surface or range of gradation.

EMPLOYEE'S COMPENSATION.—Would you be kind enough to reply to the following? What amount of compensation can an assistant legally claim who has met with an accident while in the service of his employer, and in the performance of his duties; such accident necessitating a more or less prolonged absence from business, and the services of a doctor with the extra expenses

of medicine, etc.? In the event of the accident causing a permanent injury or disablement, can the assistant further compensation for this?—**FAIRPLAY.**

In the case of total disablement an employee earning than one pound a week is entitled to one-half his salary that must not exceed twenty shillings a week. No compensation is payable until after the first week's disablement. On pp. 554 and 555 (February 22 and July 26 respectively) of our volume for 1907, are articles fully dealing with the subject to which your correspondent is referred, as they deal with it far more than the limited space in this column will permit.

DAMAGED NEGATIVE.—1. I find that chromium intensifier after leaving a hole in the film. Can you account for this?—**ENTHUSIAST.**

1. We can only account for this on the assumption that the film contained a patch of decomposed and soluble gelatine. This seems to be no other possible explanation.

PHOTO-MICROSCOPY.—1. When a photo-micrograph is said to be x 700 does this mean that the objective used gave x 700 in the microscope? If so, by doubling the distance (between the objective and the eyepiece) and using the objective only, I should get a picture x 1,400? 2. What multiplication do 1 in. and 1-10 in. objectives give in the microscope? 3. Is it possible to use glass as a temporary support for double transfer carbon print? Thanking you in anticipation.—**TRICOLOUR.**

1. It means that the objective and ocular together give a magnification of 700. Thus a 1-10 objective and No. 7 eyepiece would give about this magnification. With a high-power objective correction is as a rule only at its best for one particular distance, which means a particular magnification. Greater magnifications can then be satisfactorily produced only by varying the ocular. 2. A 1/4 objective gives an initial magnification of about 40, and a 1-10 one of about 100, the initial magnification being the size of the image at 10 in. from the objective. 3. It is more usual to employ opal, but glass may be used; the surface being ruled over with a solution of yellow beeswax, 60 grs.; yellow rosin, 180 grs.; rectified spirit of turpentine, 10 ozs.

INVENTOR.—The idea seems a good one, and the way to turn it to your best advantage, as you have not the capital to manufacture the thing on a commercial scale, will be to obtain provisional protection for it, and then get some of the large houses to purchase the invention from you. The cost of a provisional protection is only 10s.

W. COX.—We are quite unable to say whether there is any copyright in the photograph or not. The only way of learning that is by searching the register at Stationers' Hall. The fee for the search is 1s. only. We may say that in all probability the copyright in the picture has been registered.

DEATH OF A BUCKIE PHOTOGRAPHER.—The death occurred suddenly last week of Mr. William Clark, of Buckie, N.B. He was a native of Buchan, and had been in business in Buckie for thirty-one years. He was a Town Councillor for several terms, and as convener of the Lighting Committee did good work. Mr. Clark was very popular in the town, and was an enthusiastic Freemason, having been D.W.M. for several terms. He was 51 years of age.

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SUMMARY.

The "B.J." Colonial Number.—Advertisers taking advantage of special issue are advised by the publishers that matter for dis-continued announcements should arrive to-day, Friday.

business feature of the reflex camera used for studio portraiture mentioned on p. 211.

Some further American notes by Mr. H. Snowden Ward deal with Canadian matters and instance the enterprise shown in cine-graphy. (P. 213.)

The annual general meeting of the P.P.A. was held last week, Mr. Lang Sims was elected president for the forthcoming twelve months in succession to Mr. H. A. Chapman. (P. 217.)

Mr. A. W. Everest has suggested a modification of the method of Mr. W. H. Smith for testing shutter speeds whereby a record of the efficiency is obtained. (P. 226.)

Mr. H. E. Smith has taken out a further patent dealing with the use of thiomolybdate compounds for sulphide toning of P.O.P. (P. 220.)

Among other patent news is the Dufay process of making a screen-plate for colour photography. (P. 221.)

Facilities for illustrative prints are often afforded nowadays in principal advertising. (P. 210.)

A touch of pathos is contained in the account given by a Paris correspondent of the "B.J." of the aged M. Guerry, maker of the well-known shutter of that name. (P. 216.)

Details of making panoramic prints from a series of separate negatives have been given by a practical American worker. (P. 214.)

The action of the sulphide bath is found by a correspondent not to be the action of the solution in sulphide toning. (P. 225.)

Some notes on the lighting of bas- and alto-reliefs are given on p. 212.

A slow plate and small stop provide a means of photographing in-cluded thoroughfares, which may not be known to some. (P. 211.)

The proper selection of an illuminant is a point not to be over-looked in commercial enlarging. (P. 211.)

EX CATHEDRA.

The Colonial and Foreign Number.

Next week's issue of the "British Journal" is now in a very advanced state, both as regards the enlarged text portion and the arrangements of our publishers for despatching it immediately on publication to photographers in all parts of the English-speaking world. Among other attractive features, the issue will contain an account of a quite new process and principle of toning of bromide prints and lantern slides, worked out by Mr. C. Welborne Piper. Mr. Harold Baker contributes a practical treatise on the bromoil process, and, in addition to other articles dealing particularly with photographic conditions abroad, the issue will contain a review of the most recent introductions in the way of apparatus and materials upon the photographic market.

* * *

Varnishing Bromide Prints.

Unvarnished bromide prints, toned or untoned, are liable to become disfigured in the course of time by a metallic-looking deposit of sulphide produced by gas fumes, etc. Varnishing will prevent this appearance, and a solution of celluloid will form a quite invisible varnish that gives no gloss whatever. It is quite efficient as a protection, but its presence cannot be detected even when it partially overlaps the mount. To prepare it, clean some old celluloid films, and then cut up the celluloid into small pieces. Put these in a wide-mouthed bottle, and fill with amyl acetate. When dissolved, a thick, syrupy liquid should be formed, and the relative amounts of celluloid and amyl acetate should be adjusted until the result is of about the consistency of treacle. The older this syrup is, the better varnish it makes, therefore it is well to make up a good supply. For use, pour a little of the syrup into another bottle, and thin down with either alcohol or amyl acetate until the consistency is convenient for application with a camel-hair brush. Two or more coats can be applied to the print, and it should be carried over the margins so as to seal the edges. The varnish dries more quickly when thinned with alcohol, but it must not then be applied to Autochromes. For these nothing but amyl acetate may be used.

* * *

Spring Weather.

At the moment of writing the weather is rather that of mid-January than of spring, but though delayed, the better weather cannot be much longer in coming. At all events, if the temperature remains low, the hours of daylight are longer and the light is brighter. Nature is just about to clothe herself in fresh garments, and there is the usual springtime feeling that freshness and brightness is in accord with the season. This is perhaps a delicate way of suggesting that in the

studio and reception-room, and above all in the showcase and shop window, a "spring cleaning" is as essential as in the home, the meadow, or the woodland. There is no reason why the photographer, in his sphere, should be lagging behind the housewife or Nature in their own. During bad weather little leakages occur in the glass roofing of the studio, and stains on paintwork and on blinds become apparent as the light brightens. Blinds may need renewing, curtains may be taken down, washed and replaced, while draperies and heavier curtains may be sent to be cleaned or dyed. At all events, a pound or two spent now, even though the outlay may mean some little effort, will prove a profitable investment, for the attractiveness or otherwise of business premises influences one's customers far more than the majority of professional workers realise. We constantly see things allowed in establishments which the proprietors would not tolerate for a moment in their own homes, and we often think an advantage would be gained if a photographer would take up his wife one day, and get her to give a candid opinion on things from the spring cleaning point of view.

* * *

Photographs in Advertising Pleasure Resorts.

One of the features of recent advertising has been the use of booklets and literature by municipal bodies, railway companies and similar corporations interested in drawing visitors to the coast or inland watering places in this country. Even the residential districts around large centres of population are similarly taking means to attract householders, all of which suggests opportunities for the use of photographic illustration which the photographer should take steps to embrace. It must be confessed that many of the views put forward as attractions to seaside resorts are of a somewhat colourless description, chiefly from the fact that they do not partake of anything in the nature of a demonstration of persons actually enjoying their visits to these places. The railway companies chiefly fall back on the artist's ability to show Mr. and Mrs. Jones and the little Joneses at the zenith of their yearly excursion to Wartlebury-on-the-Sea. But the camera should be able to supply illustrative matter of this sort much more convincing in its realism, and one may question whether photographers in seaside places avail themselves of the opportunities of taking such photographs which occur during the months of the early summer before the annual invasion of paterfamilias and his belongings about July or August. The assistance of his friends should give the photographer the means of making figure studies on beach, river, or promenade, which should, if possible, have some landmark of the town as a background, and should prove far more attractive from an advertising point of view than the usual views of photographs of well-known show places which are at present the general rule.

* * *

The Non-Return of Specimens.

Complaints continuing to reach us of the non-return of specimens to those applying to persons or firms whose names appear under a box number, our publishers desire us to repeat an announcement which we hope will apply an effectual check to this abuse of our advertisement pages. Advertisements asking for specimens must give the full name and address of the advertiser, and those replying to announcements of either class must take the sole responsibility for the safe return of their specimens. In future we will not insert under a box number advertisements asking for specimens to accompany the statement of an applicant's qualifications, and we reserve the right to delete such request from advertisements to appear under a box number. This rule, we believe, will relieve assistants of

any cause for complaint, and will defeat the aim of advertisers who, under a cloak of anonymity, obtain specimens which they have no intention of returning. Non-return of specimens, we believe, is due, in most cases, to gross and inexcusable carelessness. On the other hand, we do hold the applicant entirely innocent in the matter. His omission to enclose a stamped and addressed wrapper and to mark distinctly each of his specimens with name, he is not infrequently the sole cause of the injustice of which he so loudly complains. If assistants generally will observe the above conditions, and if they will cooperate with our publishers in refusing to send specimens to a box number, instances of retention of specimens will be things of the past.

* * *

A Substitute for Ground Glass.

A formula which was more in use fifty or twenty years ago than at present may be mentioned for the information of several correspondents asking for a suitable means of backing up large glass transparencies with a semi-transparent deposit. An emulsion of carbonate of lead in collodion permits of this being readily done. A solution of acetate or nitrate of lead is made, and carbonate of soda solution added to it, so as to precipitate the lead as carbonate. The precipitate is washed first with water, and finally with alcohol, and is then added to plain collodion, in which it is well shaken up. The exact proportion to add is judged by one or two trial coatings on a sheet of glass. Although the lead carbonate is about the best pigment, others, such as "Fard's Spanish White" (bismuth trinitrate) or "Baume's White" (alum white) may be used.

* * *

Positives on Bromide Opals.

More use might well be made by progressive photographers of the bromide opals to be obtained from one or two manufacturers in both the matt and glossy varieties. The former provides the more beautiful results, suitable both for landscapes, particularly snowscapes, and portraits. One precaution which needs to be taken in making opals is to avoid any staining of the white margin, with which they are best printed. Even when every care is taken a rim of thickened emulsion makes it difficult to avoid a dark band at the edge of the plate. One method of removing such marking is to apply powdered pumice with a piece of dry flannel to the dry plate. Better, however, to use a bleaching solution of iodine, which is painted on to the discoloured portions with a piece of flannel, and the plate, after a rinse, given a brief immersion in the fixing-bath.

* * *

Reduction of Danish Customs Duties.

While France is increasing her tariff on such an extent that it will ultimately be quite impossible for foreigners to do business in the country, Denmark has gone in for a policy of reduction. Politicians of the latter country seem to be of the opinion that free trade is better for the nation than a system of high tariff walls, and, after much debate, they have revised all their import duties, with the result that, according to the new laws that have just come into force, these show a general reduction all round. The imposts on photographic apparatus and manufactures have also been considerably reduced, and it is to be hoped that the better conditions now afforded to the trade will encourage our own manufacturers to take every advantage of this opportunity of doing business with Denmark. Another advantage which the revised tariff offers is, that all goods are now to be reckoned according to the decimal system, which simplifies the whole subject, enabling manufacturers to calculate more easily the exact amounts payable on the various articles. The monetary unit is a

one of 100 öre. In the country itself one spends a
 one exactly as we spend a shilling in England, yet the
 change value of a krone is about 1s. 1½d., or 18 kroner
 the sovereign. From this one may without any diffi-
 ty calculate the tariff on the principal articles of photo-
 phic manufacture. The duty on photographic apparatus
 70 öre per kilogramme; for mounts of all kinds, 30 öre
 kilogramme; while the same weight of plates and
 ss preparations is charged 28 öre; films of celluloid,
 atine, or similar material, 70 öre; and the duty on
 nting papers of all kinds is 30 öre per kilogramme. It
 calculated that this reduction on tariffs will cost the
 te something like seven million kroner, yet it expects
 be more than recouped by the increased business encour-
 d under the more favourable conditions.

* * *

The Vertical Camera. The manifold uses for a camera placed
 so that the lens points vertically down-
 rds will have been appreciated by those who have had
 asion to employ this method when photographing coins,
 ells, jewellery, or similar small objects which require
 rangement before the lens. At various more or less
 note periods of photography the particular usefulness of
 s device has been emphasised, but even to-day there are
 bably few users of the device. Nevertheless, even when
 gravings or photographs have to be copied at odd times
 daylight, the use of a stand to which the camera can
 vertically fixed greatly simplifies methods of working
 d lighting, particularly when the copying has to be done
 m a large and heavy volume, which could not readily
 put up in the vertical position. When all that is neces-
 y is to open it out and lay it on the table, the work
 the photographer is greatly lightened.

* * *

The Stable Photography. Most people are acquainted with the
 clever focal-plane work accomplished by
 Mr. G. W. Beldam in photographing
 cketers, but some very exceptional examples are now to
 seen in "Fry's Magazine" in a series of articles on
 he Secret of the Golf Swing," by Dr. Carruthers and
 Beldam. In these Mr. Beldam has attempted the
 ously difficult task of making a series of exposures at
 erent periods of the swing of the golf club, and the
 cess he has attained is certainly remarkable. To secure
 different phases of one particular stroke is distinctly
 notable achievement. The bare statement that "by
 arate timing the shutter of the camera was released at
 erent points in each swing" may be satisfying to those
 o are not familiar with the difficulties of such a pro-
 ure, but to photographers it means the accomplishment
 a very difficult feat, and Mr. Beldam deserves all con-
 tulations upon his success.

* * *

The Reflex of the Studio. Opinions differ in the practice of profes-
 sional portraiture as in everything
 else, and we have heard of portrait
 photographers who have made trial of the reflex camera
 the studio and can see no advantage in it. On the
 er hand, those who have given it the longest trial speak
 st enthusiastically of its advantages, particularly in the
 ography of children, or adult sitters photographed
 h some animal pet. The low point of view which is
 essary when using a reflex of the ordinary type is
 an insuperable obstacle to the use of this system,
 e at least one pattern of instrument is made in which
 focussing-screen is at the side in a vertical position,
 if our memory serves us rightly there is nothing to
 vent this camera being placed on its side if it is
 ired to use it after the normal fashion of a reflex. But

one business argument, which we do not recollect to have
 heard before in favour of the reflex, was mentioned to us
 the other day by a photographer who habitually uses both
 the instrument and the business argument. It was to
 allow the mother or friend of the sitter to look at the
 picture on the ground glass, when the inevitable comment
 is, "I see it is in colours," which gives the photographer
 the opening to reply that if the sitter wishes it he can
 supply the print in colours, a suggestion which in many
 instances leads to an increased order.

* * *

Improvement of Enlargements. By one means or another the best of
 results in a direct enlargement are made
 easy nowadays for the photographer,
 chiefly perhaps by the great variety of papers—hard and
 soft working, rough and smooth, etc.—at his disposal.
 So much so is this the case that the photographer doing
 his own enlargements may be led to neglect the power
 which lies at his hands in the direction of a suitable
 illuminant for the enlargement. When arc light or day-
 light is available a negative of the same vigorous type
 which is used for collodio-chloride or carbon printing can
 be made to give an enlargement of suitable softness,
 whereas, on the other hand, the negative which is so far
 on the side of thinness that it is difficult to get even a
 good P.O.P. print from it, can, if enlarged with a weak
 and yellowish light such as that of an oil lamp, be made
 to give a surprisingly good enlargement, and we know
 that in commercial enlarging it is common for an oil-en-
 larging installation to be kept purposely for such almost
 hopeless cases. The papers, too, of cream or ivory tone,
 which are now supplied by almost every maker, help in
 securing softness from vigorous negatives, and this result
 may be further accentuated by employing the ordinary
 method of sulphide toning, which, to a slight but still
 perceptible extent, softens the character of the enlarge-
 ment.

* * *

Exposures in Crowded Streets. A recent query suggests the usefulness
 of a hint which is no doubt one of those
 old wrinkles unknown to many of the
 less experienced workers in photography, namely, the use
 of a very slow plate in conjunction with a small stop when
 a photograph has to be taken in a thoroughfare crowded
 with traffic. In this case exposure may run to five or ten
 minutes or a quarter of an hour, but so long as an eye
 is kept on persons who may halt for some time in the field
 of view, in which case they must either be moved on or
 the lens capped, a photograph may be obtained from
 which all signs of the busy traffic will be absent. A
 process-plate is a suitable one for work of this kind, and
 a stop as small as f/44 or f/64 should be used. A subse-
 quent precaution is to dilute the developer somewhat, as
 plates of this type tend to hardness of gradation.

* * *

Filling the Space of the Print. One of the commonest defects to be seen
 in professional portraiture, not only of
 the lower-priced order, but even among
 the work of men who secure comparatively high prices
 for their prints, is the way in which the portrait, whether
 three-quarter length or head and shoulders, occurs on the
 print. We are not now speaking of any ambitious scheme
 of composition, but simply of the fact that in many
 instances the raising of the figure an inch or so on the
 print would give an altogether improved rendering to the
 portrait. As in mounting a print, it is a good plan to
 leave more space below the print than above it, so the
 same rule, if followed in the case of placing the portrait
 itself within the space of the print, will avoid the appear-
 ance of the sitter being in the act of slipping away which

is often noticeable. In former days, when there was nothing but a cabinet or a carte print or mount, there was some excuse for allowing such a state of things, caused at the time of making the exposure, to persist in the print, but with the present-day latitude in the way of sizes both of print and mount, there is every opportunity to correct mistakes of this kind.

PHOTOGRAPHING BAS- AND ALTO-RELIEFS.

It is no uncommon thing for a portrait photographer to be called upon to depict something quite out of the usual rut of ordinary studio portraiture, and in such circumstances it is not uncommon that, owing to the photographer's unacquaintance with the craft, the result obtained does not give the satisfaction expected. We were forcibly reminded of this fact on seeing a photograph of a bas-relief which had been made by a portraitist whose ordinary pictures were really excellent, though such could not be said of the one in question. It is true that the picture was good so far as the photography was concerned; all the detail was there, but it was like a map or tracing of the design, being quite devoid of the modelling and rotundity of the original. This, by the way, was a head and bust of a female figure, which was said to be nearly life-size. It was certainly not such a reproduction as would meet with the approval of the sculptor who executed the original work. Its fault was simply in the lighting of the bas-relief. Had it been skilfully lighted, the result would have been quite different, and would have shown that it was from an actual bas-relief, and would not have appeared as if it were from an almost flat surface.

We shall now give a few practical hints on the illumination of bas- and alto-relievos when they have to be photographed, so as to avoid this flat appearance, for the benefit of such as may be quite inexperienced in this particular class of work. In the first place, after the subject has been placed in a suitable position in the studio, all direct front light should be stopped out; also all the light from one side of the studio. That being done, the next thing is to arrange the curtains on the other side so that the subject is lighted with a strong direct side-light coming only from a somewhat narrow opening. When thus illumined, it will be seen that the proper appearance of rotundity is obtained, but it may, in these circumstances, be that the cast shadow may seem a little too strong and abrupt. If that is the case the curtains should be opened a little more in advance of the subject—that is to say, nearer the camera, so as to admit a little more front-side light. That will soften the shadows without destroying any of the relief. On no account should light from the other side of the studio or any direct front light be admitted. The light must be all from one direction, and from one only, simply being made broader or narrower as occasion may require.

In the foregoing it has been assumed that the subject to be depicted is a white or light-coloured one, but it may be that it is a dark one, such as bronze or possibly carved oak or other dark wood. In that case the same system is followed, though with some little modification. The light must still be from one direction only, but should not be so abrupt as before. More front-side light should be admitted, and then if the shadows, as is possible with very dark objects, seem too deep and heavy they may be softened by a reflecting screen arranged in such a way that it throws back only just enough light to soften them and no more. The reflected light should be used only to just give transparency but nothing more, as the shadows should be strong but yet possess transparency. In arranging the reflector care must be taken that no false lights are produced. With dark subjects, particularly if they are in high relief, a very full exposure should always be given, otherwise, although

the lighting may be perfect, the result will not be satisfactory, as the shadows will be lacking in transparency, and therefore seem dark and heavy.

In the case of alto-relievos, the same system is followed, but here the lighting should be still less abrupt—that is, more front-side light should be employed and a somewhat wider area, otherwise the strong cast shadows from the more prominent portions may interfere with detail in the others. That will be obviated by so regulating the curtains that the high side-front light is admitted through a wider opening. In the foregoing it has been assumed that the work is done in the photographer's studio. It sometimes happens, however, that it has to be done in that of the sculptor. In that event the photographer is usually relieved of the matter of lighting, as the sculptor will prefer doing it himself in such a way as will give the proper modelling in the subject—usually the lighting will be the same as that in which the work was executed by him. It will then be shown to its best advantage.

Instead of having a bas or alto-relievo to deal with it may be a marble or bronze statue or bust that has to be portrayed. In this case the photographer will feel more at home, because the work does not differ materially from ordinary portraiture. In the case, say, of a marble figure, the lighting should be so arranged that the shadows are stronger than would be desirable in the portrait of a similar, so as to obtain the necessary rotundity. But while the shadows are made strong and pronounced, the lights must not be neglected. They must not be white and bald. If they appear to be so when the shadows seem to be right they may be subdued by the interposition of a tissue paper, or thin muslin, screen between the light and the subject. This may be held in the hand and utilised during a portion of the exposure only.

In the case of bronze subjects it is not quite such a sailing as in the case of, say, marble. Here the lighting should be as before—from one direction only. The light will be a high side-front light, but with a broader area than is desirable with light objects, such as marble or painted. In this way the shadows can be obtained with all the necessary transparency, and usually without recourse to reflectors, though in some instances the latter may be found necessary. One thing to be specially avoided in depicting bronze subjects is reflections from the brighter portions. It is impossible to lay down any set rule in this matter, as so much must necessarily be governed by the general character of the subject that has to be dealt with. But the work will be much simplified if it is kept in mind that the angle of reflection is always equal to the angle of incidence. If the angle be, we will say, of 45 degrees, which as a rule is a suitable one for what we are now considering, the light will be reflected at a similar angle, and quite away from the lens. If it should so happen that the bronze object has several reflecting portions which send the light at several angles it will be a good plan to soften the light somewhat by the aid of a tissue-paper screen, or an ordinary muslin head screen which may be used with advantage.

It sometimes happens that a bas-relief has to be photographed *in situ* in some building, such as a church or cathedral, where the subject is lighted from several directions. Here the photographer will often find himself handicapped in getting the best possible result. By applying the system above explained the work may generally be successfully accomplished by borrowing the studio two or three curtains, and then, with the aid of string, pins, tacks, and the like, the subject can usually be so enclosed that it is practically illumined from one direction, and all direct front light stopped away, or at least so far subdued that it has little or no effect on the photographic plate.

NOTES FROM AMERICA.

Business in Canada is excellent. Last year was good on the whole, with a quiet gap in the spring and early summer, heavy trade in the autumn and early winter, a very slack Christmas season, which usually sell in great numbers for Christmas presents, and a strong revival in this branch of the trade at the beginning of the new year.

The Kodak factory is the greatest manufacturing business in Canada, but there are reports of constantly increasing imports from England of the higher qualities of leuses, cameras, dry apparatus, plates, and papers. Importers here are of opinion that the business of the home country with the Dominion may be increased very materially in the next few years if manufacturers give their attention to the matter, because there is a constantly growing feeling of preference for British-made goods whenever they can be obtained of similar quality and design to those made in the States. They say that the only preference for American-made goods is where they are preferred design.

A Political Note.

It is difficult or impossible to speak with Canadian traders without dropping into tariff reform. They almost all seem strongly convinced that a tariff would be of great value in England; not for the reasons that may appear at first sight, but mainly as a means of negotiation with tariff countries. For instance, they point to the fact that many British goods are imported into the States, in spite of the duty, while many others (of which no equivalent is made in the States) are barred out by tariff difficulties. Means of bargaining would, it is argued, reduce the duty on many things shipped into the States, and encourage trade in many British lines. Thus the argument is not Canadian, but, pro-British.

Tariff Reform in the U.S.

On the American side of the border there seems to be a growing feeling in favour of modified tariff, for many people are realising that, while some are manufacturers, all are consumers. The tariff has fostered manufactures, but has forced consumers to pay enormously "fancy" prices for goods which have no equivalents made on this side. They also feel strongly the injustice of having to pay much higher prices for goods manufactured in America than are paid for the same goods when sold in Britain. The British consumer benefits by the free and competitive prices of "dumped" goods, and the British manufacturer, who can buy "dumped" raw material, beats the American competitor in the markets of the world; so that there is a growing feeling of soreness at the inelasticity of the American tariff and at its effect upon the consumer. But the fact that the United States are still teeming with undeveloped natural resources, there would probably be a very strong tariff reform party; and even as it is, there is the possibility that considerable modifications, favourable to British photographic manufacturers, may be made before very long.

A Canadian Camera

It will be on the market in the early summer is the invention of Mr. W. J. Johnson, who is manufacturing it in Toronto. The Kodak, Limited, holds the patents for the rest of the world. It is called the Cirkut, and makes panoramic pictures as large as an arc as may be desired up to a complete circle. I have seen very fine examples of its direct work, up to pictures 18 ft. by 16 in., and the camera will be made to take 40 ft. by 41 in. The most important picture made up to the present is a panorama of the fleet saluting H.R.H. the Prince of Wales, below the Citadel of Quebec, on his recent visit to Canada. The Prince expressed his high appreciation of the print which was sent to him, and any judge of photography

must agree, for the picture is full of detail and gradation, sharp, well lighted, well exposed, and altogether excellent in technique as well as in historical interest.

Mr. George Eastman's Benefactions.

It was announced at the meeting of directors of the Rochester City Hospital a couple of days ago that Mr. Eastman had given £80,000 to the funds, thus lifting the Hospital out of financial difficulties and enabling it to make large extensions and improvements in the buildings. The local papers point out that Mr. Eastman's known gifts during 1908 amount to £124,000, and during the past few years to £184,000. The first great gift was a few years ago, when he built a home for the Mechanics' Institute, at a cost of £45,000. This was followed by the building of a physical and biological laboratory for the University of Rochester, at a cost of £15,000, after which he gave two parks to the city, at a combined cost of £22,000, and contributed the same amount to the funds of two local hospitals (£10,000 to one and £12,000 to the other).

It is known that Mr. Eastman is a very generous subscriber to local charities and educational institutions, both anonymously and in his own name, so that his benefactions in recent years have gone well beyond the million dollars (£200,000). Another fact, noted locally, is that his gifts are always as unostentatious as possible, and usually are only allowed to be announced when he is away from the city. Though his last subscription was given late in 1908, the directors of the Hospital were forbidden to make the fact public until Mr. Eastman had sailed for Europe.

Cinematographic Enterprise.

Recently I wrote about the enormous development of "moving picture" work in this country. An incident that has just come to my knowledge illustrates the keenness of even amateur cinematographers. Mr. J. Horace McFarland, a wealthy printer and bookbinder, is a great leader in civic reforms and "good road" movements, and is also a most industrious maker of "photographic records." He has 15,000 carefully made, classified, and indexed "record" negatives from his own camera and from those of people he employs, as well as a large collection of cinematographic films. When the great Italian earthquake disaster was announced, he wired to a well-known photographer-lecturer who was on a lecture tour, asking him to drop his lecture engagements immediately and proceed to Italy at once to make the most complete possible record of the disaster, by cinematograph and camera. Carte blanche was given as to time, expense, places to be visited, etc., and in this way it is likely that an American amateur will obtain the most complete and perfect record that is made of the greatest disaster known in history.

The Camera in Civic Work.

Mention of Mr. McFarland reminds me that readers of "The British Journal" know little or nothing of the power his camera has proven in the way of beautifying American cities and removing eyesores.

To a far greater extent than in older lands, one is liable to find in America strange juxtapositions of the grand and the sordid. A great palace of commerce may stand between two vacant plots, partially screened by hideous poster-covered hoardings and devoted to the accumulation of waste and garbage. Mr. McFarland's camera pilloried certain cities so effectively that the officials were moved to lessen the nuisances. Private persons, too, cleared up their waste plots, planted them as simple gardens, trained climbing roses and other plants, instead of circus posters, over such hoardings as needed

to remain, and generally made great improvement. Mr. McFarland then photographed the improved plots, and contributed articles to some of the popular magazines, illustrated with pairs of views of the same scenes before and after improvement.

The next step was to form a league of civic betterment, encouraging its members to use their influence for the removal of eyesores and to employ their cameras on the objectionable,

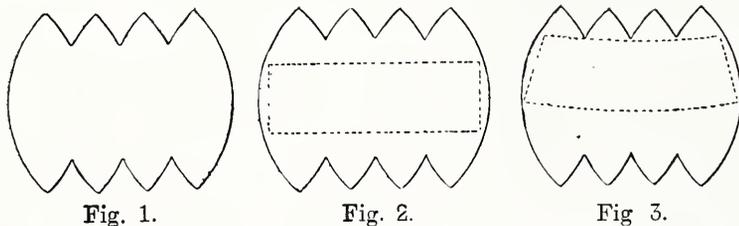
and upon the improved sites, for the encouragement of others to do likewise. The league has had an enormous influence suppressing the advertisements that disfigured places of natural beauty and in making cities more sightly. And in removing the eyesores it has removed many a breeding-place of disease. Truly a great achievement for one initiator, with the camera as his instrument and witness.

H. SNOWDEN WARD, F.R.P.S.

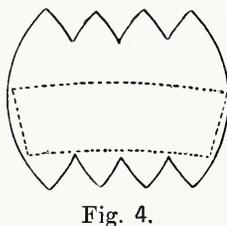
PANORAMIC PHOTOGRAPHY.

[The making of one long panoramic print from a series of negatives is an operation which is capable of frequent application in business photography; and, therefore, although there is nothing essentially new in the method, the following detailed description of the *modus operandi* as contributed to "Camera Craft" by a practical worker should be of value to many less experienced readers.—Eds. "B.J."]

In panoramic photography one has a mine of keen enjoyment; and, in overcoming, after the selection of a suitable natural view, what may be termed the difficulties of panoramic perspective, another source of pleasurable enjoyment for one's photographic skill. This effect of panoramic perspective, considering it as an inherent defect to be minimised as much as possible, results from attempting to portray, on a flat surface, a scene which should be presented to the eye on a curved surface. In making a panoramic picture to be viewed flat, one is practically photographing a portion of the inside of a sphere; and the final result will be comparable to the actual view much as would a



generous section of the rind of a huge orange laid out flat, or as suggested in Fig. 1; with this difference, that the picture would not show any breaks between the segments, but would be rendered continuous and more or less falsified as to perspective. Of course, this does not matter in the upper or sky portion of the picture, but in the foreground it is objectionable. The remedy lies in keeping the foreground as much as possible free from subject matter that is favourable to such distortion; in other words, keeping it somewhat unobtrusive as to material, particularly such as contains well defined lines lying parallel to the base of the picture. Again returning to the comparison with the



orange peel, it is plainly evident that our view point, our lens, should be at such an elevation and at such distance that it will be very near to the centre of our imaginary orange. So located, one will be using that portion of the view corresponding to the part of the rind enclosed within the dotted line as shown in Fig. 2; and the minimum amount of so-called panoramic perspective will be secured. It would require no small amount of space to explain just what causes and constitutes this distortion that is inherent in a set of negatives intended for panoramic printing. Perhaps the idea can be best conveyed by a simple statement to the effect that, in such a set of negatives, each

negative must of necessity have its own individual and separate horizon; that is, its separate horizon as distinguished from the same horizon were the entire view encompassed in one exposure from the same view point. To harmonise as much as possible these "separate horizons" becomes an important part of the work.

Precautions in Placing the Camera.

If the camera be so low or so high that it must be pointed upward or downward, one secures results such as are indicated by the dotted lines in Figs. 3 or 4. In making panoramic pictures by means of successive exposures on two or more plates this fault can be entirely overcome by so setting up the camera

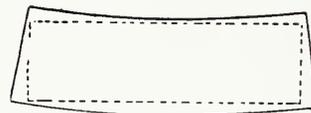


Fig. 5.



Fig. 6.

that the optical centre of the lens is directly over the tripod screw upon which the camera is revolved or rotated for several exposures. If this is not done, let us say in pointing the camera downward as from the top of a hill, the result will appear as in Fig. 5 after the negatives have been printed so as to join up properly in the print. The print in turn will have to be trimmed as shown by the dotted line in Fig. 6, entailing a large loss of subject matter as well as a curved horizon as shown by dotted line in Fig. 7.

Panoram versus Wide-Angle.

On the other hand, for fear that my readers may think the subject is being made too deep and too burdened with difficulties, I would say that a good panoramic picture is much

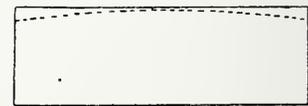


Fig. 7.

same as one would get by taking one of his ordinary landscape prints, trimming away generous portions of the sky and foreground, and enlarging the remainder. The similarity would be more pronounced if the picture so treated were one that was taken with a lens of not too long focus. And the reader naturally asks: "Why not make them in that way?" The answer is: owing to the fact that the wide angle lens, in taking the extreme ends of the picture, similar to looking from the corner of our eye, produces, as it really must, a somewhat false impression upon the corresponding portions of the plate. In addition, many of the most pleasing subjects for panoramic work would require an extreme wide angle lens, which the photographer

it not possess; and sometimes the subject, from the only available standpoint, might even be beyond the scope of any made. The objection to any form of enlarging lies in the fact that good detail and definition are required, the wide angle character of the work necessitating that the eye of the beholder be brought quite close to the picture for the best results.

Suitable Kinds of Foreground.

What has been said above indicates a fairly elevated position for the camera, one that will give comparatively pronounced perspective near the centre of the picture, and one high enough to look very near foreground objects. Clumps of shrubbery, regular rock formation, and the like, will do no harm and help to pick up what might otherwise prove an uninteresting expanse of earth or water in the foreground. Care should be taken, however, to see that such objects either show their base together with a support, or be left out of the picture entirely. Small objects springing from the base line of the picture are distracting, and more objectionable than tops of bushes and the like, in the immediate foreground. In seascape or off-shore pictures the foreground should include a generous portion of the land at one end of the view; and including a narrow bit of the beach along the bottom of the picture will help to preserve the character of the scene.

Dividing Up the Panoramic Picture.

When the view selected and the location of the camera determined, set up the camera and proceed to pick out the several objects for separate exposures. The tripod top should be perfectly level, and any cutting off of the foreground or sky portion of the view should be accomplished by means of the rising and falling of the camera. The several negatives should be so made that they overlap at least one inch. If two pencil marks be drawn on the ground glass, one at each end, an inch from the edge of the frame, they will help greatly. Select the first or left-hand view and observe on the ground glass some object that lies almost upon the line at the left-hand side of the screen; then the tripod screw and rotate the camera until this selected object comes just upon the pencil line at the right-hand side of the screen, and again pick out a new object near the left-hand pencil mark; and so on for the number of plates required. If a very large image of a house should come right where a joining is to be made, avoid making it at that point by starting the first exposure further around to the left, or by making one of the later exposures in the series include a smaller portion of the house, and of course lapping further than the prescribed inch with its neighbours. It is best so to arrange that the joints will be in such parts of the view that a slight want of success in putting them together will not be so plainly observable as it would be the case with the side of a house. Trees, rough roads, anything of an irregular character, are best.

The own way of working is to carry a large circular piece of cardboard and place it between the tripod top and the camera, slightly anchoring it to the former by means of a few bits of string that have previously been gummed on both sides and allowed to dry. After the several exposures have been selected, turn the camera to first position and draw a pencil mark on the cardboard tripod top along the side of the camera, rotate to next position, draw another line, and so on. This obviates the necessity of removing the focussing screen during the actual exposing of the plates, as I have merely to rotate the camera in accordance with the guide lines previously drawn. If I wish to use the card for a new series of exposures, the new set of lines may be drawn with a pencil of a different colour or the lines may be broken, the original series being ignored.

The Best Sequence of Lightings.

To avoid harshness and intense shadows, as well as to secure good detail, I would advise full exposures. When this is not possible on account of moving figures, running water, or the

like, one must depend upon an accelerated developer consistent with the shortened exposure. Each of the several plates should be timed exactly alike; and I might add that the most pleasing effects are secured if the first exposure of the series happens to come at that point of the compass where the sun's rays fall almost on the front combination of the lens, working around for the successive exposures until the sun is directly behind the camera.

Development of the Negatives.

The plates of any one series should all be developed at the same time and in the same tray. A sufficiently large tray not being at hand, one may be constructed out of a few pieces of thin board lined with a sheet of oil-cloth. Such a tray will answer admirably for a temporary make-shift; but the careful worker will find the making of panoramic pictures so interesting that he will provide himself with a well-made one, long enough to hold the three or four plates generally used. Development, of course, depends upon the exposure given and the paper to be employed. My own preference is for an ordinary two-solution pyro formula. By giving full exposures, starting development with a small amount of alkali and adding it tentatively, full detail combined with good printing quality is assured. When the exposure has had to be made slightly shorter than could be desired, dilution of the developer and the addition of a little metol will bring out all that can be secured, and without danger of too much density in the high-lights.

Before going into the matter of printing the negatives, I wish

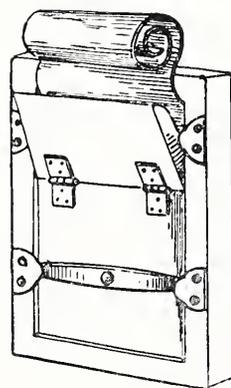


Fig. 8.

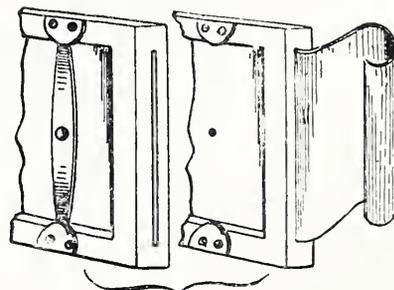


Fig. 9.

to caution the reader that, like the matter already set down, the written word will appear many times more formidable than the actual work. My desire is that the reader may be assured of success with his first essays, to the end that he will be encouraged to continue his efforts.

Preparing the Negatives for Printing.

The negatives being ready, lay them out in their proper order and, with strips of gummed black paper, mask off the tops and bottoms of each to a horizontal line common to them all. Also mask off the extreme end of each negative with some opaque paper, allowing it to extend eight or ten inches beyond. This surplus paper can be used as a shield, roll form, to protect the ends of the printing paper while it is being exposed in the printing frame. An ordinary frame may be used by slightly rounding off the under side of the back at the ends, as shown in Fig. 8, where the protecting roll of opaque paper is also illustrated. Rounding off this corner prevents the paper being crumpled up or broken by the sharp bend it would otherwise have to make when the back is closed. Another plan is to saw a slot in the end of the printing frame with a key-hole saw, as shown in Fig. 9. This allows the extra paper to extend through without being bent, and these ends can easily be protected with two envelopes made of black or non-actinic paper. When in use they should have their ends inserted through the slots in the frame just far enough to be caught and held when the frame is closed.

This last plan is, of course, more suitable for developing paper, as it does not permit of a ready examination of the depth of printing as when using printing-out paper.

Vignetting Which Does Not Show.

The whole secret of success lies in so vignetting together the ends of the negatives that the joints are not perceptible. In all the books and articles heretofore published dealing with the work in hand the use of a straight-edge has been advised for vignetting. That is all wrong, for the reason that the most trifling variation from uniformity in the depth of printing at the vignetting point discloses itself in a straight line that is either too light or too dark, a fatal sign. Were this slightly perceptible difference in depth other than a straight line, it would pass unnoticed, even under close scrutiny. Using my own method, I am often at a loss to determine just where the joint was made originally, when I come to print from the same negatives later. The vignetting should be done with two strips of card, each as long as the frame is wide, two inches wide, and with saw-like teeth along one edge. These teeth should be one-half inch long and a like distance from centre to centre. The printing should be done in the shade or under two thicknesses of tissue paper, pasted over the front of the frame. These vignetting strips are shown in position in Fig. 10.

Adjusting the Vignetting Cards.

Place the first negative in the frame with the paper in position, and lock the back of the frame at that end. Then, holding the frame, open end up, up to a subdued light, adjust one of the

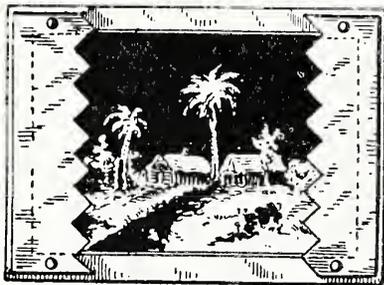


Fig. 10.

saw-toothed cards approximately over the point of junction. Fasten in position with a couple of drawing-pins, roll the balance of the paper in the opaque extension, or slip into the protecting envelope, as the case may be, close and lock the remaining half of the back, and make the exposure. For the next section, the masked edges at top and bottom will permit of a ready adjustment of the paper horizontally; and, again using transmitted light, one can easily match up a tree-top or other outline at the joining point with the section already printed. Closing in turn each end of the frame as before, meanwhile adjusting the two vignetting cards, proceed with the printing. Should a slight mistake be made in the first adjustment of a vignetter card, it can be corrected at any time while examining the progress of the printing. The wavy or zigzag character of the vignettted joints proves very deceptive to the eye, totally obliterating the effect of double printing so often seen in joints made with a straight-edge vignette.

If a number of prints are to be made from the same set of negatives, the work can be greatly facilitated by numbering the vignetting cards and marking the number and position of each on the edge of the printing frame. This done, they can be removed and replaced in their correct position as often as required.

If the printing is being done on developing paper, it will be necessary to hold the frame over a ruby light during each adjustment of the negative and paper; and, for a guide, one must lightly sketch in on the back of the paper just those outlines at the point of junction, as well as the masked-off edges at top and bottom. After one has familiarised himself with the work in

printing-out paper, developing paper will prove as simple and equally satisfactory.

Panoramic Enlargements

To make enlargements from panoramic negatives, mask the ends of each right up to the joining lines, but do so on the glass side of the negatives. Doing this last permits of a slight vignetting effect in the printing. Put the first section in the enlarging camera, make the exposure, but, before removing the paper from the easel, lightly sketch in the prominent objects at the joining point, using a soft pencil and working on the reverse of the print. These pencil-marks are easily removed with the tip of a finger while the prints are wet. Remove the paper from the easel, and put the next negative into the camera. Adjust the ruby cap on lens, pin next section of paper in position on easel so that the sketched outline on surface of paper corresponds with the outline of the image about to be exposed. Expose and proceed in the same manner with the remaining sections. After a very little practice one can make such enlargements very rapidly and with practically no loss of time or material.

RICHARD A. TOWER

M. GUERRY, THE SHUTTER-MAKER.

MR. JOHN ARNALL, a reader of the "British Journal" whose studio is in the Boulevard Bonne-Nouvelle, Paris, writes to us recently as follows:—

"I have been living some years as a professional photographer, and have always been a user of the Guerry shutter. One morning early in 1906 I wanted two or three of these instruments repaired. Knowing few people I took up the Directory in a café, and found the home of the well-known accessory was in the Avenue de la République. Meeting a taxi-cab, I sought the address, mounted five flights of stairs, and was ushered into the presence of perhaps the oldest of professional shutter-makers. Since that time I have been several times, and have quite looked forward to my visits to Avenue de la République. It may interest the readers of the "B.J." to have my impressions. M. Guerry is a fine type of the French mechanic. Nearly seventy years of age, M. Guerry still assembles all his shutters, and his aged wife parcels and despatches them; but he has been a terrible invalid for nearly twenty years. For six years he has not left his rooms on the fifth floor, suffering since the age of fifty from tuberculosis in the bones. Piece by piece each leg has been taken away, one to the hip, the other to below the knee. Now awaiting a further operation for cataract, he is still wheeled by his devoted wife from his *salle à manger* to his *atelier*, where he goes daily through his work. I wonder if any of the readers of the "B.J.," as they pass the ball of the little velvet flap which brings us photographers our daily bread, can picture this pair of *braves gens*.

"His wife points to him and says: 'He was a fine strong man once. Fought as a National Guard in the defence of Paris when the Germans were besieging the town.' M. Guerry escaped the butchery which was meted out to so many of the National Guards after the fall of the Commune. I have listened by the hour to the fine old man's account of the stirring times of his younger days. 'Why at your age,' I asked, 'do you not sell your patents and retire?'

"'Ah, Monsieur, we have much competition now, and we are old, but our orders are more than we can execute.' Some young photographers will not be able to get their Guerry shutters so quickly, but in the competition to be faced to-day let us look back at the gallant old pair who, through peace and war, have furnished us with the best of shutters, and now still bravely work five stories above the busy life of Paris, one never to descend again till he is borne to that long rest that awaits us all after a life spent as industriously and as bravely, I hope, as that of M. Guerry and his brave wife."

THE L.C.C. EDUCATION COMMITTEE have decided to add photography to the list of technological subjects for examination in connection with the award of evening exhibitions in science and technology. The City and Guilds of London provide examinations in this subject, and it is intended to utilise this examination for the purpose of the award of the L.C.C. exhibitions.

**PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.
ANNUAL GENERAL MEETING.**

Annual General Meeting of the Professional Photographers' Association was held on Friday, March 12, at the Royal Photographic Society. In the unavoidable absence of the president, Mr. A. Chapman, J.P., Mr. Alfred Ellis, senior past president, took the chair.

After reading the notice convening the meeting, the Hon. Secretary read the Report of the Committee. (The text of the report will appear next week.—Eds. "B.J.")

In the discussion that followed, Mr. T. C. Turner (Hull) said at the committee meeting that had preceded the present meeting the fault had been referred to of getting the editors of provincial newspapers to insert letters and notes of warning in other forms of the fraudulent free-portrait system. It had occurred to him that if the matter were sent to him in the form of a cutting from a responsible trade or other newspaper there would be a better chance of it being inserted. Coming to him in that form, the editors would be less likely to look upon it as an advertisement or something of that nature intended primarily to benefit the photographers in their business. Perhaps the editor of the "B.J.," to whom they had written already, might be induced to increase our indebtedness by publishing a series of short articles bearing on the subject, explaining the nature of the fraud, exposing the methods employed, and indicating the legal and other means available for dealing with it. These articles would be valuable to photographers, who would be glad to see them republished in the columns of the provincial press which would reach thousands of people of the class who are being victimised.

Mr. Turner then gave an interesting account of the doings of a firm of free-portrait mongers who had worked his locality, and of the methods of obtaining orders and of extorting their demands, saying that this firm never faced legal proceedings, and upon the latest threat of an appeal to the law abandoned the case.

Mr. P. Lankester (Tunbridge Wells) thought it was not generally known to photographers that these travelling agents could not legally canvass unless they had a pedlar's licence.

Mr. A. Ellis said the local police should be aware of this fact, and that photographers when they found their town being canvassed should give information to the police.

Mr. Lang Sims agreed with Mr. Turner's suggestion, but was of the opinion that only a small proportion of the class of people who are victimised either bought or read a local paper. He thought that a local professional photographers' association, such as that established at Blackpool, could do more effectual work by putting notices in their windows, distributing handbills, etc.

The Hon. Secretary said the first difficulty the Association had was that these swindles took place in country towns, and it was quite impossible to conduct a campaign from London; but there was not the slightest doubt that the local photographers of any town could effectually stamp out the disease at a very slight expenditure, if they could be induced to act together. Unfortunately, however, photographers did not seem capable of fraternising even when their individual and collective interests demanded that they should do so, and too often when any one photographer took the matter up with the others, instead of coming to his aid, passively, if not actively, opposed him. A local association could get plenty of assistance if they showed themselves in earnest. The matter came within the scope of the trade council or association. There was no doubt to be obtained from that source. The local press would do it if enough fuss was made to make the matter one of local interest, and the police would help—in most places were anxious to do so—if an opportunity were made for them to take action. The fault of getting the injured persons to give evidence was referred to in the report, but, he thought, a little tactful stirring up of the emotions of the ladies who had been fooled ought to get over their shyness. The committee were quite willing in any case where there appeared a chance of successful proceedings to pay a reasonable proportion of the legal expenses. It was not policy to require them to bear the entire expense. They had to leave some responsibility on those who were immediately benefiting in order to ensure that the proceedings were carried out without unnecessary expense.

Mr. H. C. Spink (Brighton) suggested that a leading photographer in each town should be appointed as a kind of agent to bring to the notice of the committee any matters affecting the interests of photographers of the town and act under advice.

Mr. Ellis thought that was impracticable. The committee were not able to judge, either of the personality or standing of most of the members. The selection would create a great amount of jealousy, and they would probably be told in many cases that they had selected absolutely the last man in the town they should have selected.

Mr. F. A. Bridge said in most towns there was a chamber of commerce, trade council, or tradesmen's association. It was their business to deal with matters that adversely affected the trade of the town, and those who carried it on. He was quite sure they could get efficient assistance from these bodies.

Mr. W. Illingworth (Northampton) spoke in favour of the establishment of local branches of the Association.

The motion for the adoption of the report was then put and carried unanimously.

The Treasurer's statement of accounts, showing an excess of income over expenditure of about £10, and accumulated funds of £194, was read by Mr. Lang Sims, and its adoption carried.

Messrs. C. St. J. Vaughan and Frank Turner were re-elected auditors, and were thanked for their past services.

The Chairman then announced the names of the president and committee for the ensuing year.

President: Lang Sims.

Members of Committee:

London.	Country.
Bridge, F. A.	Birtles, T. (Warrington).
Chase, H. Gordon.	Comley, Hy. J. (Stroud).
Ellis, Alfred.	Gill, Wm. (Colchester).
Elliott, Ernest C.	Hawkings, W. H. (Plymouth).
Fry, S. Herbert.	Illingworth, W. (Northampton).
Hull, H. Edmonds.	Lankester, P. (Tunbridge Wells).
Langfrier, L.	Moffat, F. P. (Edinburgh).
Mackie, Alexander.	Protheroe, L. R. (Bristol).
Scamell, Edgar.	Robinson, R. W. (Redhill).
Skillman, C. H.	Spink, H. C. (Brighton).
Spreight, R. N.	Turner, T. C. (Hull).
Willson, R. Fellows.	Warrington, W. (Liverpool).

Mr. Ellis then referred to the work done by the president during his year of office, and said that the thanks of the members should be conveyed to him. This had, however, already been done in committee, and he had also been presented by the committee with a gold replica of the centre of the president's badge of office. It was his duty now to vacate the chair in favour of Mr. Lang Sims, who had been elected as their president for the ensuing year.

Mr. Lang Sims thereupon took the chair, and, in investing him with the presidential badge, Mr. Ellis wished him a happy and prosperous year of office. He also remarked that if Mr. Lang Sims did as well in his new office as he had hitherto done as treasurer, they would be well served indeed.

Mr. Sims heartily thanked Mr. Ellis for the kindly terms he had used in installing him in the chair. He also thanked the members for the great honour placed upon him, and he trusted he would carry on the duties of president to their entire satisfaction, and if he did that he felt sure it would be to his own.

He would like to preface his address by reference to those gentlemen who had gone before him. He held in his hand, he said, a copy of the original appeal made to the profession for the formation of the Professional Photographers' Association. They would be surprised to hear the names of that provisional committee, which were: Thomas Bedding (chairman), Alexander Mackie (Vice-chairman), Harold Baker, H. Walter Barnett, Robert Beckett, F. A. Bridge, G. R. Cleare, H. J. Dalby, J. Dane, R. H. U. Ellis, E. Stanmore Gibbs, W. Green, H. Hallier, Fredk. Hollyer, H. E. Hull, E. D. Lavender, E. Milner, H. W. Newton, W. G. Parker, Lang Sims, W. E. Wright, William Grove (Hon. Treasurer), Alfred Ellis (Hon. Sec.), and P. E. Marshall (Hon. Solicitor). Of that number there were only five who are now connected in an official way with their association. The appeal then made to the profession generally gave as its principal objects:—

To watch parliamentary and public action, affecting the interests of professional photographers.

To consider the Factory Act in its influence on photographic labour.

To secure uniform and equitable terms of fire insurance.

To maintain the photographer's right to the negative.

To regulate the apprenticeship system.

To suppress price cutting.

To protect photographers in the sale of poisons.

To regulate manufacturers' discounts, etc., etc.,

and he thought when they looked at this they might well congratulate themselves on the large number of these items which had been tackled by them more or less successfully. They had had with them as many as 62 shining lights of their profession officially, that is to say, the men who had been on the committee, and who had used their influence in furthering the success of the Association. The object of the Association quoted had, he claimed, been carried out to the advancement of the profession. In looking back, they must feel with him that their association had been fortunate in its presidents, and when they scanned the list and noted that four out of the seven were still with them, their united wish was that they might long continue to uphold the interests of the profession which they each adorned. Mr. Bedding was now in America. He hoped he might be successful and prosper. William Grove and Martin Jacolette were gone for ever, but their influence would, he thought, ever remain. William Grove, by nature mild, courteous, and kind—a worker rather than a talker. Martin Jacolette was of a different type; robust, energetic, and outspoken, both splendid units of a committee. The Association had accomplished many things as an association that could not possibly have been done by an individual; its power and influence had been demonstrated in many ways, which have been dealt with in successive annual reports. They should, too, welcome the evidence of more interest shown in their annual election of officers and committee. It was seldom that the secretary received a nomination from a London or country member. This might, of course, indicate that the members of the committee were considered by the members to be sufficiently representative, and that no change was desired, but he thought it would be healthier if there were some competition to get upon the executive, and he felt sure that those members having seats would value them more if there was some competition to obtain them.

As regarded the future, their report indicated there was much to be done, but the members could rest content with the assurance that when opportunities arose of doing something for the benefit of the profession to which they all belonged, their president and executive would do all in their power to further those interests, and uphold the principles and ideals which had been aimed at since the foundation of the society in 1901.

Mr. Dickinson proposed a cordial vote of thanks to the committee for their services rendered during the past year. From the reports they had had he was quite sure that the members of the committee had more than done their duty during the past year. Mr. Frank Turner seconded.

Mr. S. H. Fry responded, and said how glad they all were of the opportunity they had had of doing the work for the members, and he and his brother officers were glad to know that their efforts were appreciated.

The Chairman said they welcomed very heartily the new members of committee. They were very pleased to see them present that evening, and he felt certain from what he had heard they would be very useful members of the executive.

Mr. Ellis proposed that a very hearty vote of thanks be given to the hon. secretary and hon. treasurer. Mr. Mackie gave a considerable amount of time and labour to his duties, as also did Mr. Lang Sims, and they were deserving of their highest appreciation and thanks. Mr. Lankester seconded.

Messrs. Mackie and Lang Sims replied in acknowledgment.

An interesting letter was read to the meeting from Mr. Arthur L. Taylor, of Lake St. Cairns, N. Queensland, giving his experiences of professional photography in that part of the globe.

The meeting then terminated with the usual vote of thanks to the chairman.

On the night previous to the meeting a semi-private dinner of the members of the committee of the Association was held at the Florence Restaurant, Rupert Street, the president, Mr. H. A. Chapman, presiding. Among those present were: Messrs. Alfred Ellis, T. C. Turner, Frank Turner, Richard N. Speaight, Lang Sims, W. Illingworth, S. H. Fry, Gordon Chase, H. C. Skillman, F. Wiedhofft, R. Fellows Willson, A. Edwards, George E. Brown, and A. Mackie.

The toast of "The Association" was given by Mr. George E.

Brown, Editor of THE BRITISH JOURNAL OF PHOTOGRAPHY, who said that it was a pleasure to congratulate the Association upon a year's work done. He ventured to think, under conditions which were frequently not the most encouraging.

The difficulties by which the professional photographer is harassed at the present time were of a kind which were exceedingly difficult to deal with, while in many instances photographers had come into the business without sufficient training for it and found themselves at a loss to make their way. The work of the Association had thus been doubly difficult, but he thought there was nevertheless, a record in its favour on which it had reason to be congratulated. If it had done nothing more than obtain, as it had obtained, the modifications in the bill for the alteration of the law of copyright it had fully justified its existence, and he hoped that the very valuable services which it had rendered to the whole professional photographic world in that particular matter would never be lost sight of. He proposed the toast of "The Association," coupling with it the name of the president, Mr. Chapman, and the hon. sec., Mr. Mackie.

Mr. Chapman in acknowledging the toast said that the stress and burden of the day of what had been accomplished by the association had not been borne upon his shoulders, but upon the shoulders of those who had been more closely in touch with them in the villages of London. The amount of good that had been done, as they might not have all seen, was most creditable, but speaking for himself he was only able to pay flying visits to town and wished he could take them more often. He wished that one and all who obtained their living by photography could mould themselves into one great society for the welfare and benefit of their profession. He decided to make one or two suggestions that might, perhaps, be an attention; though it was very difficult in the long, long years that he had been in the business. He had found it had been very difficult to obtain the confidence of those in the same line as himself. He did not know how it was, but a little jealousy, a little feeling one way towards the other, hindered the good fellowship and continued welfare of them all as a body. He would that it were possible to eliminate these little spirits of jealousy. As Dickens put it, the eightpenny ones would not talk to the shilling ones, by reason of being cut by the half-crown ones. He thanked Mr. Brown for so kindly proposing the toast.

Mr. Mackie said they were all very grateful to Mr. Brown for his sympathetic references to the work done and the accuracy in which it had been summarised. They all worked in their profession and Mr. Brown had always been one of their best friends, or rather the organ he represented, and they had not merely to thank him for his sympathy, but THE BRITISH JOURNAL OF PHOTOGRAPHY for the active support given. The difficulties Mr. Brown referred to were undoubtedly too true; united they were strong, divided they were weak. Mr. Brown alluded to the work they had done, including the Copyright Bill, and he thought he was justified in saying that if the Professional Photographers' Association had done nothing more during the whole of its career than have successfully brought this to a clear issue, it had justified its existence and justified the whole of the money collected.

The President said he had much pleasure in proposing the toast of "The President-elect." In humorous terms, he said that the gentleman had his deepest sympathy, for he did not know what he had taken upon himself.

Mr. Lang Sims in responding expressed thanks to all for the cordial reception of the toast, and said he did not quite agree with the chairman's remarks. He, however, knew he meant well, and he could assure the committee that he did not fear his year's office, which the members proposed to honour him with on the morrow. It would be his endeavour to do the best he could in the interests of the Association, for as they knew from its very inception he had taken some small interest with others in endeavouring to improve and advance the status of the profession as a whole, and he thought that if they had not quite succeeded they had done remarkably well, especially when it was realised that the present membership of the Association numbered 600 photographers. Other members could look back to those years before the Association started and realised that it was hardly possible such success could have been attained. They had to try to do all possible to improve the position of photographers, and in the high position in which they proposed to honour him he would endeavour to follow

footsteps of the presidents who had preceded him. Some excellent men had gone before him, and he felt the honour was too great for him to take upon himself, but he would certainly do his utmost to fulfil his duties in the manner of perfection as had been of his predecessors. He thanked the members again for the high appreciation and honour shown him, and for the manner in which they had received the toast.

Mr. S. H. Fry, in proposing the toast of "The Past Presidents," said he had been carefully primed up in his subject and informed of the names of the past presidents. He should like to preface his remarks by saying that he did not quite take the note of pessimism intimated by their president in proposing the health of the President-elect. He liked to agree with everybody if he could, but he could not quite agree with some of the remarks passed, and he hoped the new president would not take too seriously the opinion of an officer who had preceded him. He hoped the new president would not get this tincture of pessimism. They wanted a little more boldness. He deplored the somewhat milk-and-water tone of their annual report, and he did hope the new president would add a sparkle into their mineral water. Mr. Ellis, their senior president, than whom no one has done more for the Association, had had a policy, and he had pushed it home. Mr. Turner in turn has pushed his policy home, and he did hope that they would continue in a way that would advance the Association to greater strength, and that each succeeding president would emulate the past presidents and have a good fighting policy.

Mr. Ellis quite agreed with Mr. Fry that although the photographic profession, like many other professions, was somewhat shrouded by a cloud there was no need for them to take a pessimistic view of the Professional Photographers' Association. They must bear in mind first that their profession was in some respects different from the majority of trades and businesses of this country. It behoved them, one and all, to do their best for their profession, and it should be the ambition of every president of this society to endeavour to bring it as near as possible into line with other professions, such as the medical and similar professions. They should endeavour, if possible, to make their profession such as to become a desirable society, making it absolutely impossible that anyone could practise without proper qualifications and evidence of fitness for the profession. That should be their one great standard to have continually before them, and he hoped that idea would be pushed forward in every possible way. He regretted that during their short existence they had lost some of their best men. He was not wishing upon this to cause a damper upon the present gathering, but simply just to bear in mind a little remembrance of those who had worked for them, and who had gone before them.

Mr. T. C. Turner (Hull) said he desired to associate himself with the sentiments expressed by Mr. Ellis. There was not the slightest doubt the Association was a personal factor, a governing influence in the matter of the photographic profession, and the proof of this was that the most alive men belonged to their Association, and they should have great hopes in the future from the fact that the Association is and has been attracting to itself the best men, artistic and business alike, and there was not the slightest doubt in his mind that they would gradually gather to themselves so large a body of professional photographers of the country that they would become an even more living force than they were to-day.

Mr. Ellis proposed the toast of "The Press." "The Press" to him meant, to a great extent, "The British Journal of Photography," because ever since the foundation of their society that journal had been very kind to them, and had been practically their lifeline to the photographic profession. In drinking this toast he desired, therefore, to couple with it the name of their esteemed friend, Mr. George E. Brown, the Editor of the "B.J.," and he desired not only to wish to offer their regard for that gentleman, but to acknowledge their deep indebtedness to the "B.J." for its help and assistance. Without the help of that paper he felt that they would not have been known to anything like the extent they were at present. Through that paper they had become known not only in Great Britain, but as far as India, South Africa, Australia, Asia, China, and practically all parts of the world. They had also to acknowledge, in addition, the kindness of the provincial press in helping them to suppress one of the worst nuisances of the profession, that of the free portrait trade.

Mr. Brown replied in suitable terms and thanked the members and also Mr. Ellis for his kind words. He was not absolutely unselfish in advancing the interests of the Association. Their interests were identical, so that whatever made for the prosperity of the P.P.A. was to the interest of his paper. He also thought the interests of the Association were furthered by the Association's quarterly "Members' Circular."

Mr. Lang Sims proposed the toast of "The Visitors," coupling with it the names of Mr. Kendall and Mr. W. A. Sims, who replied in suitable terms.

Mr. Mackie regretted their honorary solicitor, Mr. Percy Marshall, was not able to be with them that evening, but he felt sure he expressed the best thanks of all to that gentleman for his kindly efforts in the direction of furthering the interests of the Association.

During the evening songs, etc., by the following, enhanced the enjoyment of the evening:—Mr. Kendall, "My Old Shako," "A



MR. R. LANG SIMS,
The New President of the P.P.A.

"Chip of the Old Block"; Mr. Lang Sims, "Eileen"; Mr. Frederick Henley, "The Sentry's Song" from "Iolanthe," "The Jug of Punch"; Mr. Alfred Ellis, Humorous Stories; Dr. Nikola, Sleight-of-hand tricks; A. W. Edwards, "The Sergeant of the Line," "The Arrow and the Song."

Mr. R. Lang Sims, who has been elected to the presidency of the Professional Photographers' Association, has been one of the first to be connected with that body and one of the most consistent and hard working members of the committee. Though still a young man, Mr. Sims commenced studio work in 1879 with Mr. Godbold at St. Leonards-on-Sea, and after being with the London Stereoscopic Co., took a position in the year 1880 with Messrs. Heath and Bullingham, of Plymouth, establishing his present business at Brixton in the year 1886. In this quarter of London he has for many years been a prominent man in local politics and administrative work. He is a member of the Lambeth Borough Council and chairman of the present library committee of that body. In 1907 his services as whip for the members of the Conservative party on the Council were recognised by a presentation of plate. Mr. Sims

is also the Immediate Past Master of the Lambeth Borough Council Lodge of Freemasons, and a member of the executive council of the Lifeboat Saturday Fund.

Exhibitions.

THE AFFILIATION EXHIBITION AT THE R.P.S.

AN exhibition of works by members of the affiliated societies was a happy thought, and we are pleased to say that it has proved an artistic success. It is the first concerted action, we believe, of the various societies who, although they make up an important body, cannot so far have had much in common with each other. Even this show would have failed in any advantage except to the London affiliated societies, were it not for the fact that it is to go the round, en bloc, as an accompaniment to a lecture by Mr. W. J. Morgan, R.B.A. As it now appears it is a very pleasing collection, numbering many works that have already earned praise in Regent Street. A good many appear to be new, however. "Il Maestro," by T. Fitz-Gibbon Forde (Sunderland P.A.), is a very striking portrait of a fine head, and "On the Wear," by Eastern Lee (Wearside C.C.), is a charming view of good composition and excellent effect. These two things strike us as being the best of those we have not seen before.

A most interesting feature of the exhibition is the number of sketches furnished by Mr. Morgan to demonstrate his meaning when criticising the pictures. His sketches are good and "slick," and in every case appear to be apt and of valuable suggestion. But we doubt whether the most "modern" of pictorial photographers who promote developments will endorse the artist's views as we do. Mr. Morgan brings the wayward and erring picture back to the safe lines of tradition. He places figures and heads where artists have been used to expect them; he cuts off foregrounds, suppresses angles and hard lines, and so on—as an artist would; but all that is quite opposed to the modern developing spirit which has crossed the sea to settle here, and which seeks for something quite different—something that boasts its chief merit in being *different* at all costs from what has gone before, even the cost of beauty, thus putting photographers upon the level of millinery which has produced the bee-hive hat. We trust Mr. Morgan's sketches and criticisms will do something to strengthen, by endorsing, British hopes and aims.

Patent News.

Process patents—applications and specifications—are treated in "Photo Mechanical Notes."

The following applications for patents were made between March 1 and 6:—

CINEMATOGRAPHS.—No. 4,982. Copying device for cinematograph band films. Alfred Duskes and Duskes Kinematographen and Film-Fabriken G. m. b. H., 231, Strand, London.

CINEMATOGRAPHS.—No. 5,004. Improved construction of cinematograph, kinoscope, or like apparatus. William Speirs Simpson, 175, Fleet Street, London.

DEVELOPMENT.—No. 5,025. Improved developing, washing, toning, or like purpose photographic apparatus. William Laurence Parkinson, Tower Building, Water Street, Liverpool.

LANTERN SLIDE CARRIERS.—No. 5,090. Improvements in or relating to lantern slide carriers. Robert Rigby, 46, Lincoln's Inn Fields, London.

TRIPODS.—No. 5,159. Improvement in photographic camera tripod legs. John Wilkinson and Alfred Wilkinson, 4, St. Ann's Square, Manchester.

FLASHLIGHT.—No. 5,230. Improvements in photographic flashlight apparatus. James Hill and John Edwin Sharples, 55, Market Street, Manchester.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or

abroad, in the case of patents granted under the International Convention.

THIOMOLYBDATE SULPHIDE TONING.—No. 12,341, 1908 (June 6, 1908). Further experiments with thiomolybdates and allied salts—the of which for toning photographic prints on bromide and gaslight printing papers forms the subject of the present inventor's form patent, No. 22,218 of 1907 (published in "B.J.," November 6, 1907, p. 855)—have shown that these salts can also be used for toning photographic prints on ordinary silver printing-out paper. Toning is effected after the print has been fixed in hypo (sodium thiosulphate) or any equivalent reagent, and the effect is to restore the original density of the print to a large extent, and to tone it to a rich purple-brown or black tone, comparable with the tone hitherto obtained by the use of salts of gold and platinum.

As an example of the toning solutions, we may take ammonium thiomolybdate in an aqueous solution with ammonia added in approximately the same proportion as for toning bromide prints. The average time required for prints in the toning bath is about five minutes. Both the strength and proportions of the reagent and the period in the bath will of course vary with the nature of the prints to be toned and the effects desired.

The fixing bath may be a solution of hypo, either made alkaline with a little ammonia or not, or the fixing may be effected in other known baths, such as those containing sodium sulphite or ammonia. The print is thoroughly washed after fixing, and is then of an unpleasant yellowish-brown colour. The toning solution when applied restores the density of the print and tones it to a pleasant tone, which varies according to the form of printing-out paper used. As there is, however, some loss of depth in prints fixed and then toned by this process, it is necessary to print them somewhat deeper than would be done for ordinary gold toning. Gelatin-chloride papers take a tone which is a rich photo-brown when dried and purple-brown on drying. Collodio-chloride papers give a tone which is nearly black on drying, like prints toned with platinum salts: these latter papers should be printed only a little more deeply than when gold toning is used, and hypo is the best fixing agent. Albumen papers give about the same tone as the collodio-chloride ones, but should generally be printed more deeply than these. Plain salted papers usually give greyish tones varying to a warm brown according to the nature of the sizing substance used in the paper.

After toning, the prints may be rinsed and then immersed in a bath of ammonia (3 to 5 ccs. of .880 ammonia to 100 ccs. of water) for about two minutes, in order to clear the whites of the prints. After this, a final washing for about 15 minutes in water completes the process.

With some printing-out papers it appears to be unnecessary to wash out the soluble silver salts from the print before fixing; the omission of this step seems to make no difference to the prints toned by this process.

But with most papers it will be found safest to wash the prints first in running water until it is no longer made milky, and then to immerse the prints in a bath of sodium chloride (common salt) of about 10 per cent. strength for a few minutes (ten minutes, for example), then to again wash thoroughly before fixing. Instead of sodium chloride, other haloid alkali salts or mixtures of them, such as are already known and used in treating prints before toning with gold chloride, may generally be used in the present process, but sodium chloride is as a rule all that is needed; sodium phosphate (Na_2HPO_4) may be used with advantage instead of sodium chloride in some cases, and the method of use is just the same, except that it is rather important (though not absolutely essential) to make the solution of the phosphate with distilled water.

When prints are found after a time to change colour or to become some extent, or if the whites tend to become yellow, this is usually due to insufficient fixing or to fixing in a too bright light, or to insufficient washing. Such slight defects can be avoided by care and thoroughness in the treatment of the prints, and are not defects in the toning process.

When ammonia baths are used for fixing a great deal of time may be saved in the process, as is already known, because the prolonged washing necessary to eliminate hypo from the prints when hypo is used is needless. The prints need only be rinsed after ammonia fixing before they are toned by the present process. It is better to use, say, three or four successive baths of ammonia made up to a

to 5 per cent. strength for fixing, and the print should be left in each bath for three or four minutes; even with this precaution the time occupied in the fixing and washing is much less than when hypo is used. It is well to gently rub over the surface of the print with cotton wool or the like after the final washing to remove any deposit which may have been formed by the action of the ammonia on the tap water.

Besides the thiomolybdates, thiotungstates and the like recommended for toning according to the former patent application, salts such as thioantimonates have been tried, but the results are usually not so good. Harry Edmund Smith, 3, Ezra Buildings, Ezra Street, Columbia Road, London, E.

SLIGHT DEVELOPMENT.—No. 16,203, 1903 (July 30, 1908). A plate-holder 1, preferably made of metal or other material unaffected by the chemicals used in the developing of the photographic plate, is here shown with the body portion 2 containing the plate 3, the plate being suitably held in place by the springs 4. 5 is a frame extending around the body portion 2 of the holder, and having the inwardly turned U-shaped flange 6 extending around the frame 5. There are grooves in the frame 5 across the top thereof, in which are inserted the bars 8 and 9, the bar 9 being capped with a cloth strip 10 along the upper edge. 11 are springs inserted in the grooves under the bars 8 and 9, and pressing the bars upwardly against the flange 6 where it extends across the top of the frame 5, the frame being slotted at 12 along the top thereof for the insertion of the screen 13. 14 is an outer frame having the bottom thereof corresponding in shape to the plate-holder 1, and encasing the lower end of the plate-holder. 15 are teats or indentations along the bottom of the casing. 16 is an inwardly turned U-shaped flange extending around the outer frame, this frame being slotted along the top thereof at 17. 18 is a groove along the top of the frame on the front side thereof, the groove having a felt strip 19 instead herein to close the recess between the flange 16 and the outer frame along the top. 20 is a felt strip inserted in a suitable groove

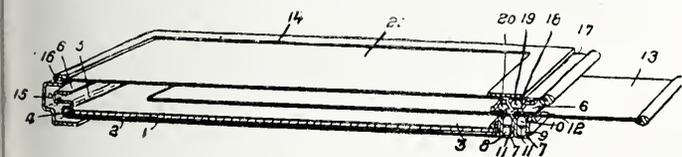


Fig. 1.

along the top of the outer frame on the back, and pressing against the top of the plate-holder 1 to prevent the admission of light between the outer frame and the holder. 21 are spring clips projecting to the rear from the sides of the outer frame 14, these clips springing behind the plate-holder 1 and securely holding the same against the outer frame 14. 22 is a transparent coloured slide inserted through the slot 17 in the top of the outer frame 14, and sliding in the U-shaped recess formed by the flange 16 and completely covering in the plate-holder 1.

To develop a plate in daylight, after it has been exposed in a camera, the holder containing the plate and having the regular opaque slide 13 covering the plate is placed in the outer frame 14 by fitting the bottom of the holder into the correspondingly formed bottom of the outer frame, and then springing the top of the holder between the clips on the sides of the outer frame, so that the clips spring behind the holder and hold it in place.

The slide 13 is then withdrawn from the plate-holder, leaving the transparent coloured slide 22 protecting the plate from any injurious rays of light.

The outer frame with the holder secured thereto is then immersed in a developing solution, the teats along the bottom of the outer frame spacing it from the holder, so that the developing solution may enter from the back around the bottom of the holder, and in turn over the top, where it will spread over the plate in the interior thereof and develop the same, the transparent coloured slide enabling the operator to determine when the plate is properly developed and ready for removal to the fixing solution. Ralph Emerson de Lury, Ottawa, Ontario, Canada.

PRINTING FRAMES.—No. 27,087, 1908 (December 14, 1908). This invention relates to an improvement in or is applicable to that class of photographic printing frames in which the back is retained by curved springs as are pivotted at one end as at *c*, and the opposite end *c^x* depressed and passed under the clips *d*: being securely

retained in position by the central portion of the spring pressing on the back.

It has been found in practice that if springs made of steel, or metal liable to corrosion, are employed, which are usually enamelled, plated, or otherwise protected from corrosion, the protecting material is soon rubbed off the ends of the springs by the friction on the clips exposing the bare metal which rusts or corrodes. In order to avoid this, brass springs have been employed, but these are not reliable, and frequently break.

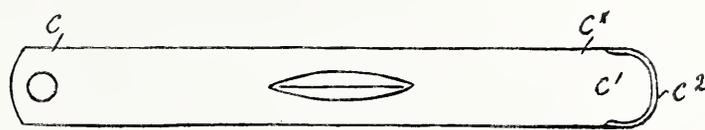


Fig. 1.



Fig. 2.

According to the invention, and to enable springs to be employed without the disadvantages hereinbefore named, a depression is formed in the centre *c¹* of the end *c^x* of the spring *c*, with the edge *c²* slightly turned up so that when the ends *c^x* are passed under the clips *d*, the edge, which is narrow, is the only part of the spring that engages with the clip, thereby preventing the enamel being worn off the end of the spring. John Wilkinson and Alfred Wilkinson, St. Oswald Street, Rochdale Road, Manchester.

SCREEN-PLATES FOR COLOUR PHOTOGRAPHY.—No. 11,698, 1908 (June 4, 1907). The present invention relates to an improved method of producing a "dot" screen—in contradistinction to a line screen—the actual shape of the dots being of minor importance, as they may be square, round, or of other shape. The object is to form a screen in which the dots shall be evenly arranged, each dot being of even intensity of colour, and the surface of the whole screen being a perfect plane, whereby no distortion is caused, the dots being side by side and arranged without any superposition or blank spaces in the desired relative position and order so that the different colours of the screen balance each other and form a perfectly neutral surface giving the sensation of white.

To obtain this result the following principle is utilised:—

If on any support or background impermeable to greasy materials are printed lines, points, or figures, in such greasy material, which must be sufficiently liquid to enable it to be applied to the support by any suitable printing process, and if on the whole surface of the support on which the greasy substance has been distributed, is applied a varnish which does not dissolve or mix with the greasy material, such, for instance, as a solution of gum lac in alcohol, the solution or varnish will coat well the whole surface of the support, but naturally will not adhere to it, except at the places where there is no greasy material. Everywhere where it meets the soft greasy material it will cover it, without, however, becoming connected to it or incorporated into it.

Consequently, if after the varnish has dried the support thus treated is submitted to the action of a solvent of the greasy material, such, for instance, as benzine, or turpentine essence, the previously applied greasy printing or impression will be dissolved with the greatest ease by slight rubbing or sponging, and the solvent will carry away and remove from the support, together with the greasy substance, also those portions of the alcohol varnish which covered the greasy substance but were unable to adhere to it or consequently to the support, so that only the adhering portions of the varnish will be left on the support.

This principle, applied to photo-printing as already stated, enables polychromatic screens for colour photography to be manufactured in an optically correct manner.

A convenient method of carrying out the process is as follows:—

A bichromated gelatine or like film on a flexible or rigid support is exposed in the ordinary manner to light behind a screen and in contact with the same, the screen being constituted either by alternately transparent and opaque lines parallel to each other, or by square or other shaped points, according as it is desired to

obtain a ruled coloured screen or a screen with regular or irregular coloured points. This plate is subjected to the ordinary washing and preparing operations, then it is amply impregnated with a coloured aqueous solution of one of the three colours which are to form the final screen, for instance orange red, which amply colours the gelatine in the portions which have remained soluble and were not exposed to the action of light during the printing of the plate. Then the latter is inked by ordinary method with a greasy substance of suitable fluidity, used for this kind of impressions, which greasy material will be preferably of black colour, so as to enable the work to be more easily followed. The greasy substance will adhere only to the portions which had been exposed, which will be exactly those which have not absorbed the red orange colour. Pulls are then printed by means of a quick printing machine with mechanical inking, in the well-known manner. This printing is effected on gelatine-coated glass if the original plate is on a flexible support, and on gelatine film if, on the contrary, the printing plate is rigid, but in any case the two gelatine surfaces will be left for the desired time in contact, so as to obtain sufficient intensity of the transferred orange red lines.

If a ruled screen has been used for the original plate the printing will result in a series of transparent lines coloured red orange, separated from each other by greasy lines of opaque black colour. Before complete drying of the greasy lines colourless alcohol varnish is poured on the printed surface, and then as soon as the varnish is dry the plate is submitted to the action of a solvent, such as turpentine essence, which will eliminate the black greasy lines and those portions of the alcohol varnish which, owing to the greasy substance, have been unable to adhere. The plate thus treated will then have only a series of red orange lines covered with alcohol varnish and separated from each other by colourless lines not covered with varnish.

On the screen thus formed is printed, making use this time of a second collotype plate saturated in its non-exposed portions with, for instance, a blue-violet aqueous solution, a second temporary greasy network intended ultimately to be removed like the first, care being taken that the lines of the second impression intersect those of the first at a right or other angle. The same will happen for this second impression as happened for the first, that is to say, there will be obtained a series of continuous greasy lines separated from each other by violet-blue lines, but the latter will not be continuous, as at the points where the printing plate was in contact with the colourless varnish covering the orange-red lines on the screen, the colourless varnish will prevent the contact of the two gelatinous surfaces, and consequently will prevent the colouring in blue-violet colour of the gelatine at the points covered by the varnish.

Before the complete drying of this second impression a layer of colourless alcohol gum-lac varnish is applied to the screen, the varnish adhering only to the points not covered with greasy substance, that is to say, only to the points coloured blue-violet.

A washing with turpentine will eliminate the greasy material and leave on the plate a series of continuous red lines, and a series of broken blue-violet lines crossing the red lines, the said two series of lines being covered with colourless varnish. There will be left between the two series of lines colourless intervals intended to receive the third green-colour, which can be applied with the greatest ease, for instance, by bringing the plate into contact with a thick layer of gelatine or any other pad saturated with green solution.

The screen having been thus prepared, that is to say, carrying its three colours, of which two are covered with colourless varnish, it will merely remain to remove this varnish, which is now superfluous, and which can be effected with the greatest facility by subjecting the screen to the dissolving action of absolute alcohol, or by any other suitable method of elimination. There will thus be left on the screen only the original layer of gelatine entirely coloured over the whole of its surface, without superposition or black portions, with an infinite number of coloured lines or dots arranged in due position, calculated for the purpose of an optically correct photographic selection, and having an absolute transparency, since the layer of gelatine has no foreign substance, alcohol varnish, or greasy substance, which could affect its transparency.

The colours can, of course, be arranged on the plate in any order, proportion, or number.

The screens obtained could be directly sensitised for the purpose

of obtaining prints in colours adhering to the screen network, used as independent screens and brought into contact with the sensitive panchromatic layer of an ordinary photographic plate. Lou Dufay, Villa Jeane Simonne, Rue Andre, Chantilly, France.

CINEMATOGRAF CUT-OFF.—No. 21,308, 1908 (October 9, 1908). The invention consists of a safety light cut-off for cinematographs, consisting of a shutter hinged so that it can be swung to open, or close, the opening for the light passing to the film. A so-called "catch-plate" is pivotted so as to be caught and moved by the continued paying out of one portion of the film after breakage of the film, and there are means connecting the shutter and the catch plate to a common spindle or axis about which the catch plate is pivotted, so that the movement of the catch plate caused on the breaking of the film closes the shutter, the weight of the catch plate and shutter and the arrangement of the connections of the same being so adjusted that there is a slight excess moment tending to hold the shutter open when in the fully opened position whilst a slight movement caused as just mentioned alters the position of the catch plate, shutter, and connections so as to produce a greater excess moment to close and keep the shutter closed by gravity. John William Harris, 86, Pemberton Street, Dewsbury Road, Leeds.

New Trade Names.

WESTON.—No. 310,198. Chemical substances used in manufacturing photography, or philosophical research and anti-corrosives. The Weston Chemical Co., Ltd., 13, Abchurch Lane, London, E.C. 4, manufacturers. February 5, 1909.

KANTELU.—No. 309,273. Photographic camera exposure recorder. James Hillmann, Rodwell Lodge, Basils Road, Stevenage, Herts., stockbroker's manager. January 1, 1909.

VAIDO.—No. 310,399. Photographic apparatus included in Class 1. Arthur Lewis Adams, trading as Adams and Co., 24, Charing Cross Road, London, W.C., manufacturer. February 11, 1909.

New Books.

"Electric Lamps." By Maurice Solomon. London: Archibald Constable and Co., Limited. 6s. net.

Although this text-book is only written in reference to the photographic use of electric lamps, it nevertheless contains a great deal of information for the photographer who uses electric lighting either for the illumination of his premises or for portraiture in the studio, from which it is evident that the author deals both with the various incandescent electric lamps and with the arcs and mercury-vapour tubes. The earlier chapters of the work are taken up with the general principles of illumination by artificial light and the measurement of the illumination produced, a very different thing, of course, from the candle-power of lamps. The manufacture and properties of the electric filament lamps next come under consideration, and lead to some interesting comparisons between the carbon-filament lamps, the Nernst lamps, and the new lamps, such as the Tungsten lamps, in which there is a metallic filament. The facts, as we find them comparatively stated, have a practical significance for the user, e.g., on p. 165: "By over-running a carbon filament lamp one obtains always a worse life at a better efficiency; by over-running a Nernst lamp it is possible that the worse life is obtained without any advantage in efficiency." The non-electrical reader may not be able to follow the author everywhere when he discusses the causes of such differences, but the practical facts are clearly enough stated.

In the chapter on the relative cost of systems of lighting the writer emphasises the difficulty of obtaining figures which are really useful guides, the conditions under which a light is used, the life of the lamp, cost of renewals, etc., introducing many factors which require to be taken into consideration. In comparing electric light with gas (p. 304), he writes: "Although, when the cost of lighting is considered, the gas mantle is still the cheaper, the difference is now no longer so marked, and the gulf is not now so broad that it cannot be bridged by the other advantages which electric lighting possesses." Such a statement as this has been made possible by the new and economical tungsten and tantalum lamps, but there is still plenty of scope for inventors of still more efficient electric lamps before the theoretical yield, one candle-power for .08 watt, has been

hed, and the author concludes a very clear and incisive review of present-day systems of electric lighting by expressing the hope that England will be found in the van of progress of the industry which was founded by Sir Humphry Davy, but has been chiefly developed by French, German, and American technicians.

"Photographische Praxis." By Hans Schmidt. Berlin: Union Deutsche Verlagsgesellschaft.

In this work the author has provided a "second-step" manual for the German amateur photographer, and in consequence we find matters of mere elementary importance relegated to the background to make room for the subjects which may be expected to interest an amateur who has already obtained some knowledge of his subject.

Thus the types of lenses and shutters come in for rather detailed consideration, and more than one half of the book is taken up by a discussion of the properties, selection, and testing of these and other items of the photographer's equipment. In fact, so thoroughly is this section treated that a large supplemental plate appended to the book to serve as a means of testing both the resolving power of a lens and the speed of a shutter. The later chapters deal with the equipment of the dark-room, the testing of plates and papers, exposure, development, and the characteristics of developers, and, lastly, the making of prints and enlargements. In all these sections of his subject the author gives a large measure of attention to the reasons for and against the various methods.

"ESSENTIALS IN PORTRAITURE."—A little book which every portrait photographer ought to put on his shelf and take down for reference when he has an odd half-hour is the latest number of the "Photo-miniature," just issued under this title. It deals very fully and by means of much useful illustration with the factors concerned in the making of a good photographic portrait—tone, texture, light, and shade. The author, Mr. Sadakichi Hartmann, has drawn upon works of the old masters to give point to his analyses of some very modern photographic portraiture. The volume is not one to be glanced over and put aside, but its study will repay the earnest portraitist who is eager to find out wherein the greatness of a portrait consists. The "Photo-miniature" is published in America by Tennant and Ward, 122, East 25th Street, New York, and in London by Dawbarn and Ward, 6, Farringdon Street, E.C.

A SPECIAL MEMORIAL NUMBER of "La Fotografia Artistica," dealing with the recent Sicilian earthquake, has been issued, and contains reproductions of a large number of photographs taken before and after the disaster. The number is published at the price of 2 lire by Cav. Annabale Comminetti, 1, Via Accademia, Turin, and the proceeds from the publication going to a fund for the relief of sufferers from the earthquake.

CATALOGUES AND TRADE NOTICES.

MAY, ROBERTS, AND CO.—A very comprehensive list of amateur photographers' requisites has been issued by Messrs. May, Roberts & Co., and can be had by addressing them at 7, Clerkenwell Road, London, or 16, Westmoreland Street, Dublin. The list runs to over 100 large pages (11 x 8 inches) and contains particulars of a number of useful appliances which are the specialties of the firm.

PHOTOGRAPHIC DYES.—A most useful catalogue of the Hoeschst dyes, all specially manufactured for photographic purposes has just been issued by Messrs. Fuerst Bros., 17, Philpot Lane, London, E.C. The catalogue conveniently divides the dyes into sensitizers (pinachrome, etc.), for filters, dyes for staining gelatine, etc., dyes for dark-room lights, and dyes for three-colour taking and projection filters. Other useful data are those relating to the solubility of the various dyes. Altogether, this list of the notable manufactures of the firm. Messrs. Fuerst Lucius and Brüning is one which every one employing dyes for manufacturing or experimental purposes will wish to have on hand. Messrs. Fuerst Bros. send it post free on application.

THE TELLA CAMERA COMPANY, of 68, High Holborn, London, W.C., have just issued their spring-clearance list of second-hand photographic apparatus and accessories, which is well worth the attention of those who are now overhauling their photographic outfit in view to making necessary additions thereto. The list includes a large variety of cameras (hand, stand, field, reflex, etc.) and lenses of most of the well-known makers, together with shutters, rollers, changing-boxes, tripods, enlargers, lanterns, and a number of useful sundries. These are all offered at prices considerably

below cost, and, as the firm state that all are in good working order, should prove value for money to their purchasers. The Tella Company state also that they take every description of photographic apparatus in exchange for new or second-hand goods of any make.

THE CITY SALE AND EXCHANGE, of 90 to 94, Fleet Street, London, E.C., send us a copy of the list of bargains which are now being offered to the photographic public at their annual spring sale. A special feature of the list is the variety of studio cameras of various patterns and sizes which are offered at considerably reduced prices. The other items include a large variety of cameras (hand, stand, and field), lenses, enlarging apparatus, lanterns, and numerous sundries, together with an assortment of microscopes, field glasses, etc.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, MARCH 19.

Salisbury Camera Club. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Sutton Photographic Club. "Alpine Photography." C. J. Marshall.
Plymouth Photographic Society. Exhibition of Thornton-Pickard Prize Slides and Apparatus. R. Hesketh.
Mill Camera Club. Club Portfolio Night.

SATURDAY, MARCH 20.

Midlothian Photographic Association. Annual Exhibition.

SUNDAY, MARCH 21.

South London Photographic Society. Excursion to Hayes and Keston.

MONDAY, MARCH 22.

Stafford Photographic Society. "Little Troubles and their Remedies." The President.
Exeter Camera Club. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Bradford Photographic Society. "Hints and Examples in Mounting Prints." A. Bracewell.
South London Photographic Society. "Light and Shade." P. Bale Rider.
Southampton Camera Club. Lantern Slide Competitions.
Kidderminster and District Photographic Society. Members' Lantern Slides.
Scarborough and District Photographic Society. "A Swiss Holiday." J. H. Rowntree.
Redhill and District Camera Club. 8 p.m. W. Tatton Winter.

TUESDAY, MARCH 23.

Royal Photographic Society. Technical Meeting.
Devonport Camera Club. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Leeds Photographic Society. "Carbon Demonstration." The Autotype Co.
Hackney Photographic Society. "Rome and Back in a Fortnight." H. Hutchinson.
Chiswick Camera Club. "Oil and Bromoil Printing." H. S. Hopkins.
Wimbledon and District Camera Club. Exhibition of Members' Prints.
Worthing Camera Club. "Negative Retouching and Faking." Mrs. Walter Gardiner.

WEDNESDAY, MARCH 24.

Sale Photographic Society. Bolton P.S. Folio.
Croydon Camera Club. "An Evening with the Camera and Microscope." J. Bawcomb.
Acton Photographic Society. French Lantern Pictures. A. E. Staley & Co.
Bristol Photographic Club. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Leeds Camera Club. Members Exhibition of Photographs.
Edinburgh Photographic Society. "The Donisthorpe and the Ozobrome Processes." J. F. Duthie, James Oliver, and W. Hayne.
Coves Camera Club. "Zermatt and Beyond." W. R. Kay.
Borough Polytechnic Photographic Society. "The Autochrome Process." W. H. Spare.
North Middlesex Photographic Society. "In Search of the Sun." C. P. Butler.

THURSDAY, MARCH 25.

Liverpool Amateur Photographic Association. "Poetry and Prose of the English Lake District." Dr. John W. Ellis.
Handsworth Photographic Society. "Photographic Exposure." E. A. Biermann.
L.C.C. School of Photo-Engraving, Bolt Court. "Aspects of Technical Photography." A. Mackie.
Hanley Photographic Society, Y.M.C.A. "Yesterday and To-day." Burroughs, Wellcome & Co.
Woolwich Photographic Society. Dutch Lantern Pictures. A. E. Staley & Co.
Rugby Photographic Society. "Bly: The Minster of the Fens." A. Bailey.
Cardiff Windsor Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Chelsea Photographic Society. "Bloaters or Hanwell." L. Hill-Bailey.
Melbourne (Dulwich) Camera Club. "Natural History Photography." P. Fredk. Visick.
North-West London Photographic Society. "What is a Safe Light?" H. S. Date.

ROYAL PHOTOGRAPHIC SOCIETY.

MEETINGS held Tuesday, March 16, the president (Mr J. C. S. Mummery) in the chair.

A lantern lecture, entitled "The Romance and Humour of Invention," was given by Mr. A. H. Dunning, who dealt, in a very interesting way, with many inventions of a mechanical kind, some of great industrial importance and others amusing in their quaintness. On the proposition of the chairman, a hearty vote of thanks was accorded to the lecturer.

Commercial & Legal Intelligence.

CANVASSING FRAUDS AT ARBROATH.—William Hutchinson, Market-gate, Arbroath, was fined £2, or a month's imprisonment, at Arbroath Police Court last week. His connection having severed with a Glasgow firm of portrait artists and frame manufacturers, he secured a photograph for enlargement and 2s. 6d. from a woman, representing that he was acting on behalf of his old firm. He appropriated the money, and the woman, of course, received no enlargement. The prosecutor stated that accused had obtained no less than £2 13s. 6d. by such methods.

FOUR MONTHS FOR A FRAUDULENT CANVASSER.—As much as between £4 and £5 a week was estimated by a witness at the South-Western Police Court, recently, as the sum which a man had been making by defrauding servant girls by taking money for photographs which he never supplied. The prisoner, Joseph Lemoine, at one time engaged on the music-hall stage, living in Greyhound Road, Kensal Rise, was charged on remand with obtaining money by a trick from Alice Cover, a housemaid, at 7, Briar Walk, Putney. The prisoner carried on an extensive system of fraud, extracting money from domestic servants by representing that it was a payment for a dozen cabinet portraits. The girls were led to believe that a Regent Street firm of photographers would subsequently arrange with them to call at the studio. The prisoner carried with him as sample plates a number of cabinet pictures, which Detective Muller said were only cuttings from illustrated newspapers pasted on cardboard. A representative of the firm stated that the prisoner must have been making about £4 or £5 a week for several months. Mr. de Grey committed him to prison for four months, with hard labour.

PHOTOGRAPH CANVASSER'S CLAIM.—At Blyth County Court, last week, Thomas Scott, now of Consett, sued the Northern Photographic Company for alleged wrongful dismissal.

Plaintiff said he was engaged on November 16 as a canvasser for the defendants in the Hirst district, at 25s. a week, the money to be paid fortnightly. He was out daily, and called at the Hirst office for his wages at the end of the first fortnight. It was pretended that the defendants had no money on hand at the time, and plaintiff was asked to call on the Monday. This plaintiff did, but he had to return on the Tuesday, and he then saw one of the principals, Mr. Dorman. Mr. Dorman asked, "How have you the conscience to call for £2 10s. when you have only returned £2 2s. 6d. in business?" Eventually Mr. Dorman asked plaintiff how much he would take to clear out, and plaintiff offered to accept £4. Nothing came of it, however, and at the end of three weeks an agent called upon him for the samples belonging to the firm. Plaintiff continued to canvas during the whole of the following week. His claim was for four weeks' wages at 25s. a week, and one week's wages in lieu of notice, £6 5s. altogether.

Joseph Dickinson, manager for the company at Ashington, stated that during the first week plaintiff only obtained one order for 9s. Witness told plaintiff that would never do for the company, but at plaintiff's request he was allowed to go on another week. In the second week he got another order for 9s. Witness told plaintiff he had to consider himself finished. Plaintiff refused to sign the clearance paper, and said he would have a fortnight's notice.

His Honour held that the plaintiff was wrongfully dismissed at the end of the second week, but he considered that the amount paid into court, £3 15s., satisfied the claim.

Costs were given for defendant.

LEGAL NOTICE.—A notice of intended dividend has been issued in the case of Joseph Harriott, photographer, of 10, Chapel Street, and 15, High Street, Warwick. Proofs must be sent to the Trustee, Mr. C. J. Bland, 8, High Street, Coventry, by the 29th inst.

MR. PHILIP G. HUNT, Postcard Printer, of 34, Paternoster Row, London, E.C., and Balham, has recently taken over the negatives and connection of Messrs. Renaud and Co., postcard publishers, of Chorlton-cum-Hardy. They comprise views of North Wales, Aberystwyth, and Manchester district, Yorkshire, Ireland, Bournemouth, and Weymouth, among other places of interest in the United Kingdom. Customers requiring postcards, view-books, etc., printed in collotype, "Real Photo," "Toned Glossy," and "Coloured" processes should write to Mr. Hunt for prices and samples for the coming season.

News and Notes.

PATHÉ CINEMATOGRAPHY OF AUSTRALIA.—Advices by this week's Australian mail are to the effect that the Commonwealth Government, which has already made arrangements with Pathé Frères, Limited, to show pictures of Australian life in the chief capitals of Europe, has been informed that the firm intend to extend their operations to the Federal States. This will necessitate an important manufacturing installation, and it is believed that employment will be given to a considerable number of expert workers. In the meantime experts are engaged with the films illustrative of the Commonwealth's resources, and which are being taken by the firm in conjunction with the Federal Government.

THE GENIAL TANQUEREY.—The "Yorkshire Post" has had sent to it some correspondence between a gentleman in Hunslet and the Société Artistique de Portraits, A. Tanqueray, Directeur, of Paris. The gentleman in Hunslet received from Mr. Tanqueray a typewritten circular, dated January 23, headed "Portrait and frame free," in which there was offered one of "a limited number of our portraits, handsomely framed," the Paris firm having decided, "in order to introduce this new style of work in your country," to send a limited number of sepia portraits "to prominent people absolutely free of charge." The next paragraph of the circular, however, says that the Paris firm will "make you" such a portrait handsomely framed "entirely free of charge," though it adds, "the only favour we ask of you in return is to recommend our portraits to your friends and acquaintances." The man in Hunslet sent a photograph, and on February 3 received a typewritten note saying the portrait was completed, and asking for "eight shillings to pay for all expenses of fixing, packing, Custom House duties, express charges from Paris to your home, and all general expenses." He had not bargained for the charge, and refused to pay it, demanding the return of his photograph and the gratis enlargement. He duly received the former, but not the latter. On reading the correspondence, the "Yorkshire Post" fails to see that there was any actual breach of contract. The circular was entirely misleading, no doubt, but it was really to "make" and not to "send" free of packing and other charges.

GOLFING PHOTOGRAPHS.—Mr. A. C. M. Croome writes in the "Morning Post" of a most interesting series of photographs in "C. B. Fry's Magazine," representing Harry Vardon driving a golf ball. So exactly does one picture take up the tale where its predecessor left it that unless the artist, Mr. G. W. Beldam, had stated the contrary, one would imagine that the series had been taken by a cinematograph machine. As a fact, Vardon drove ten balls; each time Mr. Beldam shot him at a slightly different moment in his swing, and the ten balls were all retrieved from practically the same place about a furlong down the centre of the course. In distributing one's admiration one hardly knows what to place first, but last. The machine-like accuracy with which Vardon repeated his motions is equalled only by the delicacy with which Mr. Beldam timed his part of the business.

SIXTEEN LEHIGH VALLEY RAILROAD EMPLOYEES, at Hazleton, U.S.A., lost their jobs recently as the result of a railroad detective photographing them while drinking in defiance of orders. The spotter had his camera inside his vest, and from a pocket in his trousers manipulated the bulb. He could stand carelessly at the bars of saloons and not arouse suspicion, but all the while he had the camera peeping at his victim, who was snapped while taking a drink. It is said that nearly all of fifty-two employees summoned before Superintendent Raleman for a hearing pleaded guilty, and were let off with a reprimand when they promised to abstain from intoxicants hereafter. Sixteen who denied their guilt were discharged.

THE CAMERA HOUSE ATHLETIC CLUB held their second annual dinner at Anderton's Hotel on Saturday, the 6th inst. Mr. W. F. Butler presided, and after dinner a concert was given, which was voted a hearty success. The professional talent was exceedingly strong, the comic songs of Mr. George Buck being enthusiastically encored, while the waltz song from "Tom Jones," rendered by Miss Brogan, was excellent. Among other artists, Mr. Percy Stanhope, with a very loquacious entertainment, was well received. Mr. Fred Everill, Mr. Jefferson Nell, and Mr. Markham Ashberry all helped toward the

ending of a very pleasant evening. During the evening the usual lists were given, that for the King and Queen being very heartily responded to. In spite of the inclement weather, the number present was over 150, among them many ladies helping to make the evening a very pleasant one.

PHOTOGRAPHIC SURVEY AND RECORD OF SURREY.—The annual meeting will be held on March 20, at 4 p.m., in the club room of the Borough Polytechnic, 103, Borough Road, London, S.E., when the report of the council and accounts for the past year will be submitted. At 7 p.m. there will be a lantern lecture dealing with the work of the association. The meeting is open to all who are interested in the work and aims of the survey, and it is hoped that members, in addition to being present themselves, will secure the attendance of friends. The secretary is Mr. Frank F. Wood, 11, Milton Road, Clifton, who will at any time be glad to give information to those interested in the work or who are desirous of becoming members of the association.

Correspondence.

We do not undertake responsibility for the opinions expressed by our correspondents.

Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

THE BANE OF CHEAPNESS.

To the Editors.

Gentlemen,—Last spring the question was asked, "Is photography a profession or a trade?" Instead of a definite answer the subject went into prices charged for portrait postcards. Permit me to answer the question this way. In some hands photography is a respectable profession, with others a trade, and with some only a temptible employment.

The first I define as those who have a place of business, and let be known, and depend on such customers as visit their rooms for their work, and who never descend to solicitation, and have no passers nor clubs. All honour to such, but they are few. The second class are mere traders, who try dodges to catch customers. The third party will write and ask all the Provosts of Scotland for a sitting, the fourth will ask all the J.P.s. They are so anxious to have a portrait of all these worthies just to look at!! Another watches the death-roll and writes condoling with friends, and asks if they will have a photograph of the deceased, because they can enlarge it so cheap and nice, and, of course, leave the local photographer alone. The fifth was to reveal the names of these traders it would surprise your readers and shame the traders.

The third and contemptible class have degraded photography down to the lowest level, and beneath a trade. Some of this class have degraded the trade, while others have not. The public are gulled by their cheap rubbish. Some are local (for a time), others are on "the tramp," with a tent, or hire a shop or cellar, gather all they can, and then depart to pastures new. The "company" may be only one man. Of course, cheapness and rubbish are the foundations they build on. Even a local man will advertise small numbers of cabinet photographs at 3d. or 4d. each. How they live is a puzzle. Poor creatures! I wonder they don't learn to cobble shoes or shave faces for a night, and thus eke out a living. (I give them the hint gratis.)

When there is another class—viz., those whom I will call mean imitators. In a small town of 5,000 to 7,000 there may be a dozen of these sham amateurs who cater for all the work they can get. You may find the chemist, tailor, cobbler, draper, postman, hawker, boy, etc., etc. Just fancy the meanness of a chemist doing live postcard stamp photos at 6d., and yet none dare sell chemicals, or be trained as a chemist to sell poisons. Of course, all these go for the cheap lines, and the productions are soon faded away, to the regret of any that value them. But in this low gutter trade of photographs any pedlar can buy a camera and commence employment. I don't know any trade that is so degraded in work, want of skill, and low prices. I cannot describe all the evils, and I need not suggest a remedy. I have noticed what others have written in the "B.J." I will say, that it is time the public were protected. All the means of canvassing, with its detestable frauds, should be abolished. Not only those properly trained should be allowed to charge the public any price. All amateurs should pay a licence and be fined if

they charge for their work. Then a trained man who has a place of business, when he cuts down prices, should be asked the reason, and a deputation of P.P.A. wait on him and raise a subscription to tide him over a difficulty if he has any. Is the above impracticable? It is hard lines to see our once reputable calling, not only "gone to the dogs," but to the donkeys. For obvious reasons I sign myself

DISGUSTED.

A TEXT-BOOK FOR AMATEUR LECTURERS.

To the Editors.

Gentlemen,—It was unfortunate that the reader who wanted a book for a lecture on the history of photography was pressed for time. "Photo-Miniature" seems too trivial for the purpose, whilst others are beyond reach of most of us. I strongly advise him to get "Romance of Modern Photography" (5s., Seeley and Co., London), which treats pleasantly and exhaustively of all he asks, and is illustrated with rare photographs. Illustrations include mammoth American photograph, first Daguerreotype, first paper negative by Fox Talbot, first wet plate by Scott Archer (1851), criminal photographs, colour photographs, cinematographic films, etc. The book was published last year, 1908.—Yours, etc.,
E. WEST.
64, Ravenhurst Street, Camp Hill, Birmingham.

FAILURES IN SULPHIDE-TONING.

To the Editors.

Gentlemen,—I observe the extract from "Photo Notes" which appears on p. 198 of your issue of the 12th inst. I am not sufficient of a chemist to say whether the statement is correct that hypo is formed as the result of decomposition of sodium sulphide, but I am assured by more than one authority that such is not the case. Assuming that there is such an action, and that we start with, say, the usual 2 per cent. solution, and that as the result of such decomposition we eventually have half sulphide and half hypo, or even a preponderance of the latter, I do not see that the refusal of prints to darken is accounted for, and certainly a very large proportion of hypo added to a normal solution of sulphide does not have any such effect.

The following record of experiments may perhaps be of interest:—

Prints were bleached in the usual ferricyanide and bromide bleacher, washed, and toned in a 1 per cent. solution of sodium sulphide, to which hypo was added in the proportions of $\frac{1}{2}$, 1, 2, 4, 8, and 16 per cent., and not in a single instance did the prints refuse to darken up, although it will be seen that in the last case there was sixteen times as much hypo as sulphide, and sufficient to form an ordinary fixing-bath—in other words, the sulphide did its work before the hypo had time to attack the bleached image. The effect was inappreciable until a strength of 4 per cent. was reached, and from this point the image gradually became yellower, but even with the 16 per cent. bath there was a considerable darkening up, although the colour was a very unpleasant yellowish brown. It would thus appear to be established that the refusal of prints to darken in the sulphide bath is not necessarily due to the presence of hypo, either from decomposition of the sulphide or otherwise.

Theoretically, it would seem possible for traces of hypo in the prints to react with the ferricyanide of the bleacher and interfere with the toning, but on washing a "Royal" bromide print for fifteen minutes—a very short time for such a thick paper—the toning was quite perfect. The effect of adding hypo to the bleaching bath was then tried, with the following results:—

Half-grain and 1 grain to 4oz. of bleacher had scarcely an appreciable effect; 2 grains and 4 grains to the same quantity of bleacher had the effect of destroying some of the finer details; and 8 grains absolutely prevented any darkening in the sulphide. The bleached image in this case was still of the ordinary yellow colour and of apparently the usual depth.

It seems thus to be proved that contamination of the bleacher with hypo is a more probable source of the trouble than a similar contamination of the sulphide bath.

This decomposition of the sulphide and impure sulphide theory has been so frequently put forward that perhaps this record of a few very rough experiments will induce someone with time at his disposal to investigate the subject thoroughly.—Yours faithfully,

Chiswick,

J. BROWN.

March 17, 1909.

MEASURING SHUTTER SPEEDS BY THE METHOD OF MR. W. H. SMITH.

To the Editors.

Gentlemen,—Referring to your article on shutter testing in the "B.J." of the 5th inst., and having seen the diagram of Mr. Smith's shutter tester shown by Mr. Salt at the Croydon Camera Club last night, it occurs to me that, as shown in the diagram, while the length of time the shutter is open (less a fraction of time for the inked indicator to reach the drum) is recorded, no test of the relative efficiency of the shutter during the opening and closing is recorded.

May I suggest this could be done by having inked indicator always on the drum, the indicator to be shaped somewhat thus

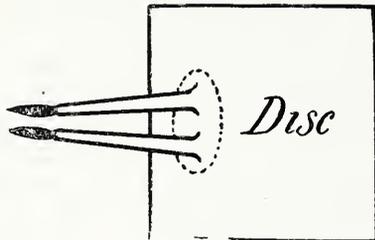


Fig. 1.

Then air reaching the disc and causing the joints to expand would, while recording the duration of exposure, also record the length of time the shutter was working at full aperture by some such lines as these:—

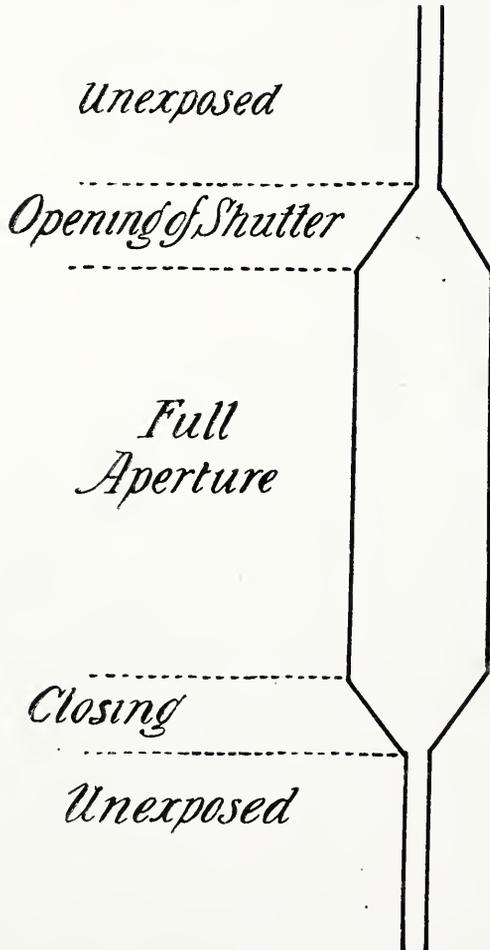


Fig. 2.

--Apologising for troubling you, yours truly,
7, Westhorpe Street, Putney, S.W. ARTHUR W. EVEREST.
March 11, 1909.

ASSISTANTS' PROSPECTS.

To the Editors.

Gentlemen,—The number of advertisements appearing in the columns of the "B.J." only shows the very good medium and how much used the paper is as an employment bureau for those in the trade. I should rather imagine that "Underpaid Assistant" is one

of those despairing ones who go about with a long face. There are plenty of excellent positions open to men who are not afraid of work and who do not expect too much for a start. I am firmly convinced that no photographer, despite the bad times the trade has experienced during the last year, need be out of work for long, for there are numbers of openings for men with enterprise, both at home and abroad. There are no doubt far too many assistants who have not a thorough grasp of the trade, and it is for them to seek to improve their knowledge. It is quite evident who the firm is that your correspondent refers to, and we consider that their style of advertising is remarkably good; and further that, instead of taking the bread out of anyone's mouth, they are really creating a demand for photography and finding work for assistants.

We very much doubt if "Underpaid Assistant" will ever become an employer if the style of his letter indicates his character. He had better "buck up," as we say in Yorkshire.—Yours truly,

NIL DESPERANDUM AND Co., York

BIBLICAL KNOWLEDGE AS A QUALIFICATION FOR TECHNICAL EDITORS.

To the Editors.

Gentlemen,—Under the heading "Composition in Portraits," you say, on page 192 of your last issue, "Of the making of books there is no end." So said somebody once, but who, and when we do not know."

May I be permitted to point out, gentlemen, that in literary circles it is accepted as an axiom that a quotation must be made correctly, or not at all?

May I, further, ask why, when Editors of photographic journals quote from the Bible, the quotation is invariably incorrect?

And, again, may I ask why, in quoting from that book, they invariably acknowledge that they do not know from whence comes the quotation?

Surely, these questions answer themselves!

A short time ago the agile and accomplished Editor of your contemporary, "Photography," came an awful "cropper" over a quotation (incorrect) from the Book of Job, although he admittedly fancied that in his weekly "Questions and Replies" he himself was the very personification of Job. Nor did he know whom he was quoting.

To personify Job, as he does, is more than I think you can claim, gentlemen, for you once got so impatient over trifling questions addressed to you as to reply in your columns to a trusting correspondent who wanted to thin Canada balsam to "add a little turpentine and stand in a warm place." The italics are mine and the inference is plain.

But, after all, you are too clever for me. You have left me a line of retreat. You say, "So said somebody once, but who, and when, we do not know." Nobody knows. This is your line of retreat; you can explain it away.

The statement, gentlemen, which you have not quoted, and which is more to the point than is yours, is, by consensus of opinion, attributed to Solomon.

I often admire your caustic and pretty wit, and two very recent instances will illustrate my point, viz.:—Dr. Kenneth Nesbit's ventilator, in your last issue, and Mr. McIntosh's now immortal sporan. But, in the present case, as regards wit, you are not and cannot expect to be, in it with Solomon. Any way, if you do not give the credit to Solomon, you might have given it to "The Preacher." You say, "Of the making of books there is no end," but "The Preacher" puts it with far greater incisiveness and wit when he says, in Ecclesiastes xii., 12, "Of making many books there is no end."

I trust that the "awful example" set by yourselves and the Editor of "Photography" will be enough to warn the Editor of the "P.N." and "P.N.," and of "The Photogram," to keep clear of quotations (?) from a book which does not appear to have been thought of in the curriculum of education of editors of photographic journals.—Your obedient servant,
W. R. BLAIR.

Duffield, Derby,
March 15, 1909.

[The only grain of comfort we can derive from Mr. Blair's justifiable, yet gentle, remonstrance is that it may, indeed, be a means of saving both our more youthful and senior confrères from like misadventures.—Eds. "B.J."]

Answers to Correspondents.

PHOTOGRAPHS REGISTERED:—

Harrison, J., Perrers Road, Hammersmith, London, W. *Photograph of Rev. Dixon, Bantam-weight Boxer*
 Verbury, J., Hanover Street, Edinburgh. *Three Photographs of the Rev. Lewis Davidson.*
 Hoffman, West Cliff Studio, Freeland Road, Clacton-on-Sea. *Photograph: Wave Splash, Clacton-on-Sea.*
 Turnbull, 620, Eglinton Street, Glasgow. *Two Photographs: Canadian Curlers and Ice Rink Club; and Canadian Curlers, both at Crossmyloof Rink Glasgow.*

THORBURN.—We are unable to say. We should advise you to put your query to the "Cinematograph Journal," or, better still, perhaps, to the makers of the apparatus.

FOR.—1. The factor is 40. 2. See the table and rules in the "Almanac," p. 931.

LINE.—Try E. Herridge and Co., Staines; or Birmingham Building Warehouse, Great Hampton Street, Birmingham.

L. O.—We do not know for certain, but we imagine the solution simply one of potassium bromide, containing some boric acid and an additional restrainer. We would suggest that some potassium rate could be used for the same purpose.

E.—We are sorry we are unable to help you. We can only refer you to the British firms who in our columns announce these articles, they are made up into frames.

TEO. PRINTS.—Would you kindly tell me where I could obtain stereoscopic views of the "White City," also the great "Earthquake"?—**EN.**

Try Underwood and Underwood, Heddon Street, Regent Street, W.

TO.—1. We gave you the names of the only two books of importance. See also "Composition in Portraiture," reviewed last week, and also under "New Books" on another page. 2. Flashlight or a flash lamp is used, as a rule.

—1. We can only refer you to the formula on page 821 of the "Almanac." The Vanguard "Lustralene" ought to meet your wants. 2. The more ether added, the finer the grain.

P.O.P.—I have about 9 doz. postcards and some P.O.P., stale and discoloured as sample sent herewith; they are over twelve months old. Can you advise me of any profitable way of using this material? I believe it is not easy to restore it to proper condition. Is it any use bleaching the paper and removing the silver, or resensitising by any process, or can you suggest any profitable way for it?—**STALE.**

We should say that the only profitable way of dealing with the paper is to fix it and add the fixing bath to your residues. It may be possible to turn the paper to some account, but we cannot suggest any method, and we doubt if any attempt to utilise it would cost more than the purchase of new paper.

LANTERN SLIDE.—I should be greatly obliged if you will inform me as to the cause of the deterioration of the lantern slide enclosed, also if there is any remedy; the slide is three years old and has been kept in a dry place.—**STAIN.**

The effect is no doubt due to condensation of moisture in the lantern. The slide should have been varnished. There is no remedy so far as we know.

QUESTION OF CHARGES.—The following extract from a letter received this morning may be of interest to your readers:—"I belong to a literary society which enrolls some excellent amateur photographers, but, owing to the crippling charges which are occasionally made by professional photographers, we are depending more and more upon co-operation amongst ourselves. I am a great admirer of 'Live and let live,' and fully recognise the artistic and material excellence of much photographic work done for me, but gold can be bought too dearly." The writer of the criticism: "A photographic charges wants a monument in a village church four or five miles distant photographed. He desires three 10 x 8 B. and platinumotype prints, full of detail, suitable for reproduction. The price I am charging him is 31s. 6d. and cost of the hire of conveyance. After correspondence he agrees to pay my charge for the prints and half the cost of conveyance. Now, I know from previous issues of the "Journal" when the question of prices crop up you say: "You must be the best judge of that, and charge according to

the class of business you do," which, of course, is very true, but exceedingly vague. I believe I am recognised as a photographer doing a refined class of business. Will you kindly give your opinion on the charges?—**VELLUM.**

We should consider the charge very moderate if the work is good. While the price is less than many would charge, it is more than some would quote. As we have said on many previous occasions, there are no universal rates for this class of work.

SALARY.—I am about to finish my apprenticeship. If, after stating what I can do, you would kindly advise me as to the salary I could reasonably ask in applying for situation, I would feel greatly indebted to you. I can retouch very well, work up enlargements in sepia and B. and W., Aristo and bromide printing and toning, copying. I have taken several photographs, both in studio and outdoor, but I have had very little personal operating to do. Although I assist very often out of doors, I have not had much practice in the studio. Still, I could assist and "take" in absence of principal, if necessary. I might say that in retouching and working-up enlargements the modelling and stipple is, without doubt, excellent. Age 21. What salary may I ask?—**APPRENTICE.**

Without seeing specimens of the work you can do we can give no definite opinion as to the salary you should ask. As you seem to have had no experience in studio work we should think you should not ask more than about 25s. a week to begin with.

ARTIFICIAL LIGHT.—I want to add night portraiture for bazaars, etc. Will you kindly inform me: *a.* How many incandescent gas burners are necessary if the usual half-circle reflector is used? *b.* To work with a No. 2 Multisecto (Fallowfield's patent), is a Ross half-plate R.R. working at *f*/5.8, suitable, or must it be a portrait lens?—**IN THE DARK.**

a. Eight or ten can be used, but the more burners there are the shorter will be the exposure. The usual reflector will be useful in the even diffusion of the light. *b.* The R.R. lens can be used, but it will require about double the exposure that a portrait lens would.

HYPOTHELIATOR, ETC.—1. I have seen instructions for quick washing of plates by repeated immersion in a very weak solution of permanganate of potash. Would this method do for eliminating hypo from bromide prints, or would it leave a stain? 2. If I coated some wooden trays with asphalt, pure rubber, and mineral naphtha, as directed in the "Year Book," would it do for developing plates and fixing same? also for bromide developing, fixing, and washing (of course using separate trays). or would the coating come off and spoil my work in any way? 2. Where can I obtain the asphalt, rubber, etc., and what is the cost?—**TRAYS.**

1. It can be used, but care is needed to avoid brown stains in the prints. Such stains are almost certain to be produced, though they are readily removed with a weak solution of oxalic acid. But our advice to you is to give a thorough fixation of the prints in 4oz. per pint hypo, and wash in running water. In these circumstances, even if the washing is short, the prints will have every chance of being permanent. 2. The trays would be suitable. 3. You can buy the materials from a large drug store, or from a house such as Messrs. John J. Griffin and Sons, which supplies photo-engravers.

CAMERA.—Can you give me any information about this little camera I herewith send you? 1. What aperture does it work at? 2. How can it be used as a Graphoscope? 3. Where can films be obtained for it?—**T. H. D.**

1. The aperture with cap and stop on appears to be about *f*/30, and without stop about *f*/9. 2. The camera is evidently intended for use with a roll film, and when used as a "graphoscope" a positive film image would be inserted in place of the negative, and the backing plate of vulcanite and the circular plate in back of camera would both be removed. The lens cap being also taken away and the camera held back to the light the image could be observed through the lens. Strictly speaking, this would not turn it into a graphoscope, as that properly consists of a large lens through which both eyes can observe the photograph. 3. We cannot answer this. You had better write to some of the big dealers and ask them if they can help you. The camera is an old idea and we fear that films may no longer be obtainable.

GREEN TONES.—Could you through the medium of your valued paper inform me of a formula for toning bromide prints to

a bright green—one which could be relied upon for an even tone when doing large batches?—"BRISTOL."

The best formula we know is that given in the "Almanac," page 810, but we think you will find some difficulty in getting even tones in the case of large batches. For this purpose a green carbon tissue would be more reliable.

TITLES ON NEGATIVES.—Enclosed please find post-card. We should be pleased to know the method that is employed in printing titles on them.—"ANGLAIS."

The usual method is to have the words forming the title set up in type and photographed on a "process" plate. The subject negative having been made with a clear margin round it, a strip of the title negative is laid down on this margin by stripping, and the clear margin then filled up with "photopake" or other blocking-out mixture except over the strip of title, which is made dense enough in the first instance to print white. If a clear portion in a landscape negative cannot be found (in cases where the title has to appear on the view) a portion must be cut out with a sharp knife.

RETOUCHING MEDIUM.—Can you say why the retouching medium, after successful use for some time, now reduces the density of negatives on application with finger-tip in the usual way?—"ENTHU."

This defect may arise either from thickening of the medium (in which case thin with amyloacetate), or more probably, the negatives are now being insufficiently washed after fixation or intensification. Impurity of the washing water is another possible cause. It is advisable to wipe the negatives whilst wet (after washing) with a tuft of cotton wool. Again, the trouble may be avoided by applying the medium all over the negative, when the reduction will be imperceptible.

B. DOS SANTOS LEITAO.—There is only one maker, Messrs. Sanger Shepherd and Co. See their catalogue in the current "Almanac."

CARBON PROCESS.—Will you kindly tell me (1) a book published on carbon printing and developing, and the price for same; (2) how much would an outfit for the working of carbons cost and the best house to deal with for same?—H. S. BURTON.

(1) There are several good text-books: "A B C Guide to Auto-type Permanent Photography," by J. R. Sawyer, 1s.; "Carbon Printing," by E. J. Wall, 1s.; "Practical Carbon Printing," by Thos. Illingworth, 1s. (2) From a few shillings upwards. See the list of makers on p. 1,330 of the current "Almanac."

COPYING PAINTINGS.—I have a number of oil paintings to copy in a room situated as sketch (size about 24ft., size of skylight about 10ft. by 6ft.) from about 12 o'clock to 2. Sun is about — position. Could you tell me about best position to place pictures, also about the exposure in good light, 12 to 2, with anastigmat Staley 10 $\frac{3}{4}$ in. lens at $f/44$, reducing to about one-eighth, using Imperial "Process" plates, H. and D. 12, or would you recommend a different plate?—H. C.

As the room is square, we should say the best place to put the pictures would be diagonally between B and D, as seen in the sketch. Instead of using process plates, you would, in copying oil paintings, find isochromatic ones far preferable. One or two trial plates would tell you better than we can as to the exposure necessary.

LENS QUERY.—I am intending to open a photographic studio here (size 27 by 12), and would be very much obliged if you would inform me what lens would be most suitable for general work—that is, cabinet bust, three-quarter, and full length—and also that most suitable for whole-plate groups and single figures (both in studio)?—BEGINNER.

If you are limited to one lens, the most generally useful in a studio 27ft. long would be a portrait lens ($f/4$) of about 14in. or 15in. focus. A good one of that focus will cover the whole plate, and can be used also for full-length cabinets.

NEGATIVES STRIPPING.—(1) The probable reason of films stripping from glass after negatives come out of stock less than a year old? The negatives in question were hardened in alum bath after fixing. (2) We believe you recommend the use of formalin in preference to alum. What strength solution is advisable (a) for plates, (b) for papers? (c) Can the solution be used repeatedly?

(d) Must plates be washed free from hypo before its use? (e) the case of P.O.P., will prior use affect toning? (3) The address of firm from whom to obtain strong 12in. glass cylinder?—E. E. F.

(1) Over-hardening will cause stripping, which will be helped by storage in a warm dry place. (2) For (a) or (b), 5 or 10 per cent. solution—i.e., formalin 5 or 10 parts per 100 parts of water. Yes. (d) Not necessarily. (e) The bath can be used before toning. (3) A chemical apparatus house, such as A. H. Baird, Lothian Street, Edinburgh.

COLOURING.—1. Would you recommend the working-up and colouring of enlargements as a lucrative profession to capable artists? 2. Is the profession of B. and W. artists already overcrowded? 3. What is the average wage of a B. and W. artist?—EASEL.

1. No, we cannot, as competition in that class of work is very great at the present time. 2. We should say that it was, judged from the number of advertisements of those wanting employment that appear in our columns weekly. 3. The greater portion of this kind of work is now paid for as "piece work."

A DISPUTED ORDER.—I am a photographer, but have lost my studio, and am now in a very poor way, taking postcards. A stationer came to me and asked me to take one dozen views of the rectory snow (cover in all about four miles). He said he would give me several gross at 1d. each. I took him proof, with which he was pleased, and ordered 1,000. He would not pay in advance for the whole or portion of them. Being, as I say, in a small way, I could not get the blank cards, etc., without some cash; told him so, and offered to take 25 per cent. for cash, but he would not pay. In a week's time I was able to do 200, and he then said he would not have them, as it was too late, and did not do business in that way. Can I make him pay for the taking of the negatives? What would be a reasonable charge?—POSTCARD.

If you did not stipulate that the cards were to be paid for wholly or in part in advance, we do not see that you could claim payment till the order was completed. Postcards such as these are of passing interest only, and if you were a long time in executing the order it is not altogether surprising that it was cancelled. In that case, it is doubtful if you can recover anything for taking the negatives. That is a matter the County Court will decide if you think it well to take it there.

DEVELOPING P.O.P.—Would you kindly give me a method of development of partially printed P.O.P. prints? I saw one some time ago, which said soak the prints in a 10 per cent. solution of bromide of potash for five minutes, then develop with M.Q. I tried this method, but prints almost immediately developed quite black. Also, I tried a method as given in "B.J. Almanac"—hypo-quinone, 24 grs.; citric acid, 60 grs.; soda acetate, 1 $\frac{1}{2}$ oz.; water, 30 oz.—but before development was complete the back of the print went a muddy brown colour. I have not got a print handy to send one. Your advice on this would be esteemed.—S.D.

The mistake you made in the first (bromide) process was in the developer. This should be the highly restrained formula given on page 835 of the "Almanac." Most of the acid-developer formulas are apt to stain the backs of the prints. You should look up the numerous articles on this subject which have appeared in the "Almanacs" during the past year or two.

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COLONIAL NUMBER. SECOND YEAR.

This special issue of the BRITISH JOURNAL is posted direct to photographers throughout the British Colonies and foreign countries.

SUMMARY.

1909 Photographic Market. The announcement of our intention to review the new apparatus and materials just coming upon the English photographic market has compelled us to devote a considerable proportion of this issue to this purpose. (Pp. 241-258.)

Hint to Colonial Readers. We publish some photographs and slides sent to us by recipients of last year's and the present Colonial Number." (P. 238.)

Process Workers. Under this week's "Photo-Mechanical Notes" the new bitumen process for chromo-litho work is dealt with: with some other hints. (P. 259.)

In order to give an idea to our Colonial readers of the present preferences as regards mounts and mounting among photographers of the better class we describe the tendency of the recent movement towards more artistic mounting and describe specifically a commercial mount of the better class. (P. 236.)

Some tested formulæ, which, for good reasons, differ somewhat from those commonly recommended, are given on page 232.

A new method of obtaining the effects of sulphide-toning as well as of other warm tones in bromide prints from lantern slides has been worked out by Mr. Welborne Piper. (P. 231.)

The photographic conditions in British Columbia to be realised by photographic traders are the subject of a comprehensive article by Mr. L. Haweis) which commences page 233.

A brief review of the state of things photographic in Japan is given for us by Mr. Thomas B. Blow, of Kyoto. (P. 236.)

The excellent work done by the Professional Photographers' Association is described in the annual report of the committee printed on page 239.

Some of the practical methods which the photographer may avail himself of in arranging the studio "foreground" are mentioned in an article on page 230.

A practical note on the use of acid amidol for stand development is contributed by Mr. G. T. Harris. (P. 235.)

A note on the advantage of reflections in the floor of the studio for photographic portraiture appears on page 230.

EX CATHEDRA.

To Our Readers Here and Across the Seas.

In this special and enlarged issue we are able to present a review of the most recent introductions upon the photographic market in the way of apparatus and materials. This special section will be found to contain reports of goods introduced as recently as a day or two before the final closing of these pages for the press, and we can therefore offer it to our colonial and foreign friends as the most convenient and up-to-date source of reference they can have, and also as a demonstration of the great energy and enterprise of the English makers and vendors. Yet even our review, lengthy as it is, does not exhaust the output of new goods appearing in the present season. Later issues of the "B.J." must be left to describe other introductions, but we hope that photographers in all parts of the globe into whose hands this number directly comes will see in it a link between themselves and the many British firms whose names figure prominently in these pages.

Farmer's Reducer.

This well-known reducer is very commonly prescribed to be made by adding a little ferricyanide solution to the ordinary fixing bath, and quite recently we have seen the strange advice given to use an acid fixing bath. Both recommendations are bad ones, because too much hypo speedily decomposes the ferricyanide, and the presence of an acid very greatly accelerates this decomposition. The hypo solution used should not be more than one quarter the strength of an ordinary fixing bath; that is, it should not exceed a strength of 1oz. in 20, and acids should be most carefully kept out of the way. A little alkali will do no harm, in fact it may assist the reducer to work, but an acid will only upset the action. Its effect will be manifest by the speedy change of colour of the reducer from yellow to blue, whereas a properly compounded bath will keep yellow for quite a long time.

Control of Over- Exposed Plates.

Of late years a fallacy has obtained to the effect that wrong exposure cannot be counteracted by any modification of development, in spite of the fact that not long ago, when development by inspection was the rule, many workers very successfully demonstrated methods of combating very extreme over-exposure. Recently it occurred to us that it might be worth while to try the method of development used when making warm-tone lantern slides. Two very rapid plates were exposed, a small stop being used so as to bring the times of exposure well under control. One plate was exposed for 5 seconds, which proved to be a correct exposure for normal development, and the other plate given twenty times this exposure on the same subject. The second plate was then developed with

a very strong metol-hydroquinone developer, to which equal parts of ammonium carbonate and ammonium bromide were added in the proportion of about 12 grains of each to every ounce of developer. Development was very prolonged, and the result was a negative as good as the other in all respects, excepting that it was rather thin and of a warmish tone. This was intensified, and in the end the ten minutes' exposure negative printed a little harder, if anything, than the five seconds' exposure.

* * *

Polished Furniture in the Studio.

In looking over a somewhat large number of professional portraits the other day we were impressed with the fact that, fine as they were, they would have been still more effective had they been free from a certain spottiness caused by reflections from the polished furniture. The almost glassy surface of new French polish reflects so much light that in some cases the reflections on the chair or table are the brightest points in the picture. It is quite possible to use furniture which will give a rich effect—very much to be desired of course—without this distracting spottiness. The late Valentine Blanchard, we believe it was, who kept in the studio a few pieces of fine glass-paper, and when the caretaker had diligently beeswaxed the chairs, he would take off a little of the shine by the judicious application of this. Many people are now using, in their houses, furniture which is wax polished instead of being brightly polished, and the effect is exceedingly good, while the furniture is not so likely to show every finger-mark. Chairs, tables, and other furniture used as accessories might with advantage be so finished. While we would suggest less polish on the furniture, we would, however, advocate more on the floor. If a parquet floor is laid down, or the very excellent substitute, the modern linoleum, indurated or inlaid, it may be waxed, and when in good condition will give reflections in full-length portraits and groups which greatly increase the interest and pictorial quality of the work. With such a floor, one little word of caution is necessary. Do not have small rugs laid on it, or some unfortunate client, thoughtlessly stepping quickly on to such a rug, may find himself losing his grip of the floor.

* * *

Wooden Developing Dishes.

Few workers know the comfort and convenience of wooden developing dishes. They are very inexpensive, for though they may cost as much to make really well as a "porcelain" dish costs, they last well and are not liable to fracture as is earthenware. For developing batches of plates they have the great advantage that, the bottom of the dish being flat, the plates do not slip about and over each other. They are considerably lighter to handle than earthenware, and in the winter are warmer for the hands and also for the developer, the temperature of which naturally drops as soon as poured into a cold dish. To be effective such dishes should be well made, carefully grooved and dovetailed together, and should be made of well-seasoned hardwood. On the whole, a wooden bottom is to be preferred to glass, for the same reason that the wood is preferable to earthenware. We have recently had some small dishes made for holding a number of hand-camera exposures side by side in a row, the bottom of the dish being fitted with small wooden pegs to keep the plates from sliding over each other when lifting them out for examination during development. Wooden dishes need handling with a certain amount of care, for though they will not break, their joints, if subjected to any strain, will tend to open and become leaky. Paraffin wax may be run into the joints with a hot flat-iron, but under ordinary circumstances such luting is quite unnecessary.

FOREGROUNDS IN PORTRAIT PHOTOGRAPHY.

WHILST not of such moment as the background, since it occurs only in full-length figures, yet the foreground can do almost as much towards making or marring the result. Continuous foregrounds are perhaps the best for landscape and plain grounds. They are, however, somewhat in the way, and certainly tend to untidiness. About the best way of dealing with them when attached to backgrounds on stretchers is to tack a light lath on the extreme end of the foreground and another under the foreground, midway between the frame and the front lath. The lath will not show, nor will the slight ridge made by the middle piece, when the foreground is in use, be noticed. The lath, which should be of one-inch by quarter-inch stuff, should be longer by about six inches than the width of the foreground. The latter, when out of use, is lifted by this middle strip and hooked on to two hooks, fixed in the correct position on the frame. Whilst this method is very quick and effective for grounds on frames, "there being nothing," as the advertisements say, "to get out of order," those grounds that are on the theatrical-roller system, i.e., have the roller at the bottom, are more difficult to arrange. The other method of rolling at the top is, nor can be, satisfactory, unless expensive metal rollers are used. With the former system the roller is placed to hang an inch or two off the floor, and the foreground is tacked, or preferably glued, to the roller. The cords are arranged in the usual way (for full details of this system see "B.J.," December 15, 1905, or "B.J.A.," p. 100, 1907), and it will be found that foreground and ground roll up together.

Continuous foregrounds, however, add greatly to cost, and one separate foreground is frequently used for several different canvases. A piece of washable background—both of dark grey colour may be used, but it soon ruck up and looks bad. At each end of one studio we know the floor has been covered with plain green cork carpet. This can be used for almost any ground, interior or exterior, and, without being incongruous, wears well, and washes easily. For very light grounds or plain blacks the foregrounds are used as first described, and are, of course, placed over the cork. Another substance likely to be equally useful would be a plain middle tone cocoa matting, or a carpet felt could be laid. The plain surfaces of these materials are much better than any but a very retiring pattern carpet for interiors, and are equally satisfactory for exteriors.

With the panelled background now so frequently used in the best studios, parquet, or an inlaid "lino" of panel pattern, is suitable, but has the drawback that a separate foreground must be provided for all the outdoor scenes.

An almost plain carpet can be used to good effect occasionally, or a self-coloured rug may be pressed into service. The new wool carpet squares are very excellent, the ground being in several designs self-coloured, with a colored border only.

The chief drawback to what might be termed universal foregrounds as opposed to the painted ones is the all-over sameness which is so unnatural for out of doors. If accessories, such as a wall seat, or anything occupying a certain amount of space, are used, this will not matter, but where the angle between background and floor shows very much a better and more pleasing effect will be obtained by breaking up this sameness. A grass mat in not too sharp focus is useful, or imitation leaves may be used with effect; and for child pictures flowers may be strewn about. Bought from the millinery department of a store this would be expensive in sufficient numbers, but inquiries in the right quarters will generally enable one to buy damaged specimens at something like one penny each. One of the illustrations in the first edition of the late H. P. Robinson's book,

Historical Effect in Photography," is an albumen print of a girl on a most elaborate "real" foreground, consisting of gravel path, turf, and ferns. This arrangement was made up of fresh-gathered greenery, etc., arranged on a table placed on castors for convenience in travelling to the studio. Whilst not expecting many moderns to find time or take the trouble to make up such a foreground, yet the table, at any rate, is worth notice. For children or animals they are a great advantage. A supply of small pebbles, at any rate, can be kept at hand without much trouble, and with logs of wood are very useful. A box of clean hay, though very messy afterwards, leads to

some happy romps with the children. The pebbles are particularly useful for a seashore background. Such a background must, however, have its own foreground, since the tone of the sands is so light, and any break would be badly noticeable. A good sea background is a *rara avis*, but in the event of one being possessed, wonders in the realistic line can be done with the help of the foreground. The pebbles are simple, but odds and ends such as corks, a bit of net, and seaweed should be at hand, whilst coming more under the head of "accessories" we should like to mention a fisherman's "crab-pot" as a valuable aid to posing children singly or in small groups.

NEW TONING METHOD FOR BROMIDE PRINTS AND LANTERN SLIDES.

A method of producing warm-toned lantern slides by giving prolonged exposure and developing with a highly restrained developer, usually containing ammonium carbonate, and some other ingredients, is well known to all photographers, and not very many practise it. Some consider it to be a troublesome process, as the precise tone that will be attained can hardly be prophesied with any certainty in the case of a large negative, and the actual tone cannot be seen until the slide is dry. Further than this, the process is with some plates rather slow one. It can, however, be reduced to a system for any particular brand of plates, and while recently working with such a system for use with Messrs. Wratten and Wainwright's recently introduced lantern plates, it occurred to me that a method of producing a warm tone by development of a freshly exposed plate should be equally practicable, and possibly less troublesome, in the case of a black-toned slide that had been bleached to a bromide or cyanide of silver, and on trial this supposition proved quite correct. It appears that if we produce a black-tone slide and then bleach it with potassium ferricyanide and bromide, we are amenable to precisely the same process of warm-tone development that in the ordinary way we should apply in the case of a bromide. The procedure is, however, far more convenient, and we can work in a good light, and development and exposure can proceed at the same time. I have not experimented very much with the process, and the procedure up to the present has been to compound a developer that will give the tone required by the ordinary method, and then apply it to the bleached slide and allow development to proceed in full light. Possibly it would be better to adopt the ordinary method of exposing the slide for a given time and then develop in a safe light. As a negative is used, the exposure could be adjusted with great accuracy, for it should be the same for a given colour for any negative. In any case, the method has given very satisfactory results, and the process can certainly be recommended with the attention plates referred to above. The toned plates should be fixed and well washed. They lose a little in fixing, but regain their original density on drying.

These experiments on toning lantern slides naturally suggested that the same procedure might be applicable to bromide prints, and on trial this proved to be the case. An exactly similar method was adopted, but in the case of the bromide prints I found that strong black-tone prints gave the best results. There seems to be a little difficulty in getting red tones on prints, but no doubt this is possible. Using a strong iron 10 rodinal developer with as much ammonium carbonate as could be got into it—the quantity seems to be limited in the case of this developer by the formation of a precipitate—on exposing during the whole period of development, I obtained browns and sepias not very different from those

generally expected with hypo-alum toning. They are certainly much better than the tones usually produced with ordinary sulphide toning methods, while the process is just as easy. It is quicker than hypo-alum toning, and might easily be carried out on a big commercial scale. It is only necessary to find out how far and in what way the tone can be controlled and the conditions that will give the most useful results. Whether fixing is necessary I am unable to say, but I recommend it as a desirable precaution. Much must, however, depend upon how nearly the process of development is carried to completeness. Warm tones can, of course, be obtained on bromide papers by long exposure and restrained development, just as in the case of lantern slides, but it is not easy to obtain good tones, and in any case the procedure is a very long one and somewhat uncertain.

Another developer that has given excellent results is hydroquinone, with ammonium carbonate in place of the usual alkali solution. The following formulæ have worked very well:—

A.—Hydroquinone	160 grs.	36.5 gms.
Potass. metabisulphite	90 grs.	20.5 gms.
Potass. bromide	20 grs.	4.6 gms.
Water	10 oz.	1,000 ccs.
B.—Ammonium carbonate	1 oz.	100 gms.
Water	10 oz.	1,000 ccs.

A mixture of equal parts of these two solutions forms a very useful developer.

As regards the bleaching solution, one consisting of 10 grs. bichromate and 5 minims hydrochloric acid in every ounce has given the most satisfactory results in my hands. After bleaching the prints are well washed, and are then immersed in the developer and allowed to develop in a good light. Development is slow at the start, but when it has once begun it progresses rapidly. The tone darkens as the time of development is prolonged, and this is one way of controlling the colour. Another is to modify the developer by varying the proportions of A and B. With two parts A, one part B, and one part water development is slower, and we can stop at a light red-brown tone. With two parts A and three parts B development is quicker, and a deep brown is quickly reached.

Very good warm browns are produced when potass. ferricyanide is the bleacher, while with the ferricyanide and bromide bleacher purplish browns are more readily obtained. When copper chloride is the bleacher black tones only are produced, which effect is somewhat of a mystery.

The density reduces a little in fixing, but it must be remembered that the tones become much darker on drying, and even if a print appears to have lost too much in the fixing-bath it will probably be all right when dry. Natural surface or glossy

papers give the richest results; matt papers are apt to appear rather muddy in the shadows, just as they do with sulphide toning.

It may be noted that the actual procedure adopted in this new toning process is open to unlimited variations, and the

range of tones obtainable is probably unlimited also. We use many different bleachers and many different developers, the only essential common feature in all cases being the use of ammonium carbonate either as the accelerator or in addition to the usual accelerator.

C. WELBORNE PIPER

SOME TESTED FORMULÆ FOR COMMON PHOTOGRAPHIC PROCESSES.

THE following formulæ can, from personal experience, all be recommended as reliable. In some respects they differ from the usual well-known formulæ; but there is a reason for the difference in all cases, and the modifications that have been made have all been devised to produce either more constant results or solutions with better keeping qualities.

Sulphite of Soda: A Stock Solution which Keeps Well.

As is well known, a solution of sulphite of soda will not keep very long, and very quickly becomes useless for such a purpose as the preparation of an amidol developer. The following solution will, however, keep a very long time. It can be relied upon for some months for any of the purposes for which sulphite is commonly used:—

Sulphite of soda	2 ozs.	200 gms.
Potass. metabisulphite	2 drams.	25 gms.
Water	10 ozs.	1,000 ccs.

These should be dissolved in water at about 90 deg. F., and, when dissolved, the solution should be raised to the boiling point and then allowed to cool.

N.B.—This solution is the one referred to as the "neutral sulphite solution" in the following amidol and pyro developer formulæ.

Amidol (Diamidophenol) Developer.

The following will be found to be an excellent developer for bromide paper or lantern slides:—

Neutral sulphite solution	1 oz.	100 ccs.
Water	3 ozs.	300 ccs.
Amidol or diamidophenol (added, dry)	8 grains.	1.8 gms.
Potassium bromide (10 per cent. solution)	10 minims.	2 ccs.

It will be noticed that this solution contains 2 grains amidol and $\frac{1}{4}$ grain bromide to every ounce of developer. This is a good strength for most positive processes, but for negatives the quantity of amidol can be doubled with advantage.

The advantages of this formula over others in which plain sulphite is used are, first, the fact that we take advantage of the keeping qualities of the neutral sulphite solution, and can always prepare fresh developer at a moment's notice by adding the dry amidol and the bromide as required. Second, that the mixed developer will keep better during use than the ordinary formula, and can be used for a greater number of prints in succession.

Pyro-Soda Developer.

Make up two solutions according to the following formulæ:—

A.—Neutral sulphite solution	14 ozs.	700 ccs.
Pyro (sublimed or cryst.)	160 grs.	18 gms.
Water to make	20 ozs.	1,000 ccs.
B.—Soda carbonate	4 ozs.	200 gms.
Water to make	20 ozs.	1,000 ccs.

Take equal parts A and B, and add two parts water.

This developer will produce negatives free from pyro stain, and 4 to 6 minutes' development at normal temperature with full exposure will yield soft negatives full of detail and well suited to enlarging. The advantages of the developer are

its cleanliness and the extraordinary keeping qualities of the A solution.

When stronger negatives are required, the developer can be made up by taking equal parts of A, of B, and of water, or equal parts of A and B alone can be used, this giving a developer containing 4 grains pyro to the ounce.

The mixed solution can be used for several plates in succession, if a little extra time is given for development in each case.

It will be noticed that in making up A solution 14 parts of sulphite solution must be added to 6 parts of water, which is equivalent to adding 7 parts to 3. If less sulphite solution is taken, a slightly quicker developer is obtained, but the result will show pyro stain in the lights.

It is as well to use freshly made neutral sulphite solution in making up the A solution if absolute freedom from stains is desired.

Rodinal Developer for Very Rapid Exposures.

Very brief focal-plane exposures are of necessity much underexposed, and the use of a very dilute developer involves a development of many hours—possibly twelve, or more.

A 1 in 40 rodinal developer containing $\frac{1}{4}$ grain bromide in every ounce will produce fairly good results in a comparatively short time, half an hour's development in a tank being sufficient for most ordinary cases, while an hour and a half will generally suffice in a case where the conditions are at the worst. The shorter time will suffice for a 1-250th second exposure made in a good light at an aperture of about $f/6$, while the other time should give very fair results when the light is very dull, other conditions being the same. A good result is considered to be one suited to bromide enlarging with an incandescent lantern.

Greater density than is desirable for this purpose will require still longer development.

The water used should be either boiled water that has been allowed to cool down or distilled water. The latter is best, but the former is quite serviceable, and far better than unboiled tap-water, which requires longer times of development.

Chromium Intensification.

This method of intensification has many advantages over the older ones with mercury. The risks attaching to the use of such a virulent poison as mercury bichloride are avoided. The process can be applied to lantern slides, or bromide prints, as well as to negatives, without introducing warm tones. The results are not affected by traces of hypo left as the consequence of imperfect washing, and the process can be repeated several times if extra density is required.

Make up the two following solutions:—

A.—4 per cent. solution of potassium bichromate	
= 1 oz. bichromate in water to make 25 ozs.	
= 40 gms. bichromate in water to make 1,000 ccs.	
B.—2 per cent. solution of hydrochloric acid	
= $\frac{1}{2}$ fl. oz. strong acid in water to make 25 ozs.	
= 20 ccs. strong acid in water to make 1,000 ccs.	

Separate solutions must be made, as a mixture of the two will not keep well.

For use with bromide prints and lantern slides, or with new

that only require a slight increase in density, about equal at given by one application of mercury and ferrous oxalate, equal parts of A and B and bleach the image in the mixture.

Then wash until all yellow bichromate stain has vanished a clean buff-coloured image is left: about 20 minutes in any type of washer will be enough for this. Then apply a developer containing no bromide.

The best developer is amidol or diamidophenol, but metol or quinone is also very serviceable. It is as well to use a developer of about twice the strength (i.e., half the dilution) of the ordinary one used for negative work. Exposure to light is not necessary, but the process of development can be hastened by placing it in a strong light; there is, however, a risk of over-acting in strong sunlight. The plate should not be exposed to anything but very weak light prior to covering it with the developer, otherwise development may be greatly delayed or prevented altogether.

After development, the plate is well washed and dried. The process can then be repeated, if necessary; but the increase in printing density is generally much greater than it appears to be when judged by inspection only, so a trial print should be made.

At the outset the image is seen to be very weak, the bleaching solution should be modified. Instead of taking equal parts of A and B, make up bleacher as follows:—

A	5 parts.
B	2 parts.
Water to make	20 parts.

This solution can only be used once, and must only be mixed before use, as it rapidly loses its bleaching power. The bleached image is treated precisely as described before.

Stains.—Stains may be produced by applying the process to perfectly fixed images, by undue exposure to light during printing the bleached image, by imperfect washing between printing and development, and by excessively strong light acting on the developer during development. If a plate is properly fixed, but not well washed, no stain will be produced if the developer is allowed to act long enough. If the solution turns brown from the action of the hypo, it should be replaced with fresh.

Sulphide Toning.

The usual method of sulphide toning bromide prints is to immerse in a solution containing potassium ferricyanide and sodium sulphide, and then treat the print with a solution of soda sulphide. The results are often unsatisfactory, and the following methods can be more strongly recommended:—

Old Sepia Tones.—Soak the print in water until limp, and immerse in following bath for six minutes, keeping dish in motion and print well covered all the time:—

Ammonium bichromate	1 oz.	50 gms.
Ammonium bromide	1 oz.	50 gms.
Water to	20 oz.	1,000 ccs.

Pour off this solution and rinse print once under the tap, then bleach in bath B:—

B.—Ammonium bichromate	$\frac{1}{2}$ oz.	25 gms.
Ammonium bromide	$\frac{1}{2}$ oz.	25 gms.
Potass. ferricyanide	2 oz.	100 gms.
Ammonia .880	1 dram.	6 ccs.
Water to	20 oz.	1,000 ccs.

When bleaching is finished, wash out yellow stain and treat the brown image left with a 5 per cent. solution of pure white crystalline soda sulphide.

Warm Sepia Tones.—Proceed exactly as before, with the exception that bath C is substituted for B:—

C.—Ammonium bichromate	1 oz.	50 gms.
Ammonium bromide	1 oz.	50 gms.
Water to	20 oz.	1,000 ccs.
Nitric acid (concentrated)	20 mms.	2 ccs.

If either B or C get slow in action, the former can be revived by adding a few drops of ammonia and the latter with a drop or two of nitric acid.

The mixed solutions will not keep well, but they can readily be made up when required if we keep stock solutions of 1 in 10 bichromate, 1 in 10 bromide, and 1 in 5 ferricyanide. The sulphide keeps best in a 1 in 5 solution, but cannot be relied on for very long.

An Improved Farmer's (Hypo-Ferricyanide) Reducer.

Many workers fail to make Farmer's reducer of hypo and potassium ferricyanide work satisfactorily, and complain that it affects the image unequally, and unduly increases contrast. They are further troubled by the speedy decomposition of the mixed solution. If, however, equal weights of potassium ferricyanide and ammonium bromide are substituted for the plain solution of ferricyanide, and if too much hypo is not used, there will be small cause for these complaints. The following is a good formulæ:—

A.—Potassium ferricyanide	1 oz.	100 gms.
Ammonium bromide	1 oz.	100 gms.
Water to	10 ozs.	1,000 ccs.
B.—Hypo	1 oz.	50 gms.
Water to	20 oz.	1,000 ccs.

One part of A to eight parts of B will give a reducer of a very useful strength for general purposes. Where very slight reduction is required, A can be diminished to half the quantity, while it can be increased if a strong effect is required. Care must be taken to apply the reducer only to plates that are either full of hypo solution, or else quite free from it. If the hypo has been only partially removed by washing, the reducer will have an uneven effect. When required only for the purpose of removing surface fog the plate should be merely dipped in the solution, and then be immediately held under the tap. Solution A keeps very well for a long time, but the mixed reducer will not keep, though far better in this respect than the ordinary formula.

BRITISH COLUMBIA AS A FIELD FOR BRITISH PHOTOGRAPHIC ENTERPRISE.

THE appearance of the Solomon Islands walking down Piccadilly or Fleet Street in a seedy top-hat and a smile would probably elicit a less favourable comment, or more comment of the other kind, than he would on his native soil. He would understand a little of the ridicule of an enlightened populace as he would the moral concern of the police. He would not at once comprehend why on Fleet Street he should be subjected to insults, or why on his native strand, beneath the spreading breadfruit trees, he could bask, happy in the admiration of the

dark sex, and the envy of his fellows. Other countries, other manners!—that's a fact.

For, indeed, I once read that in some of the South Sea Islands there used to be, and for all I know to the contrary there may still be, a brisk trade done in antiquated, damaged, and otherwise disreputable top-hats. At this time, I am not sure whether these art-savages even had the chance of other discarded head-gear, such as bowlers or wideawakes, caps or panamas. But if top-hats were the fashion, it is tolerably

certain that other styles would have been at a discount. Why they wanted top-hats, or what perspicuous beachcomber started the craze, I do not know, and it does not matter. But what does matter, and matters very much, is that they wanted them, they paid for them, and they got them.

And the moral of that is, as the Red Queen might have said to Alice, "If you don't supply the demand, you can't demand the supply."

* * * * *

Trade calls—by wire, 'phone, and mail; by mutual interest and tariff-rebates; by the thousand-and-one exigencies and economies of modern life—but only one thing is called to prosper, and that is the need supplied.

Now, if I have lingered over and elaborated, possibly *ad nauseam*, such an obvious truism, it is because that in the matter of things photographic English houses, as a whole, are not supplying Canada with the goods she needs. For three reasons: Firstly, because in many respects the exact needs of the country are not known; secondly, because the knowledge of how best to supply those needs is imperfect; thirdly, because although having the goods and knowing how best to supply them, they are unable to compete with Uncle Sam and his methods.

A Continent of Countries.

In the first place, the exact needs of the country are, in many respects, not known, because Canada, for all commercial purposes, is not a country, but a continent of countries. The conditions of the East and West are not those of the Middle-West and North-West. Extremes of temperature and water are the vogue. In the North-West Territories, for instance, the water is reported as exceedingly hard; but step over into British Columbia, and you have varying conditions of temperature and climate all the way to the coast, where the water is so soft at times and in places that after washing it becomes almost impossible to be rid of that soapy feel usually associated with unrinsed hands. Although in the interior of B.C. there is what is known as the dry-belt, in which Kamloops, a divisional point of the C.P.R., is situated, the coast climate is mild and something damp, as might be expected with a rainfall in the neighbourhood of forty inches in latitude 50 deg. The coast—and this properly includes Vancouver Island—is largely the resort in the winter of those who wish to avoid the rigours of the North-West; and although cold snaps occur, very low temperatures are the exception. Consequently, it is unreasonable to expect, within limits, the same work from the same emulsions on the coast as away up in Edmonton.

Water Supplies and Emulsions.

I could multiply parallels, but one suffices; and I would like to remind photographic manufacturers that hard and soft water affect their emulsions, not in the same way, of course, but to just as large an extent as hard and soft water affect tea. In the tea trade even Macaulay's schoolboy would have known that the contents of a packet of tea, priced and figured alike but taken one from each of two districts where the water materially differs, will be found to be variously blended in order to obtain as nearly as possible the same result, namely, the satisfaction of purchasers in both places. Is it too much to suggest that photographic manufacturers avoid sending goods where the quality of the water will be against them? The water of most localities may, if you know how, be improved for the purpose of infusing tea; this may also be done, to a limited extent, for chemical processes, but few photographers can be expected to take this precaution in the matter of washing-water, during which operation, for reasons more or less obscure, a blister-crop most usually makes its appearance.

Plate-makers have already taken some account of the heat their goods are likely to be subjected to. Hence, one firm will advertise that its plate emulsion is almost "special hard" for the tropics. Should not some inquiry be made into the water

of the district where makers intend to push their goods? If they know that their plates are liable to frill, and do not know how to remedy this in their manufacture, they should at least plump for a hardening-fixing bath. If they know that their paper is liable to blister, they should at least say something about a preference for the hypo-alum bath, and a caution against sulphiding. It is true that in many cases an alum bath occupies a position in the makers' published formulæ, but ever more stress should be laid upon its necessity in certain water localities, or the emulsion should be of such a character as to render such procedure unnecessary under all except extraordinary conditions. In this and other ways many disappointments would be avoided on both sides.

It is, however, to be noted that most photographers who do not know the name recognise the conditions, and know how to compete for them. On the other hand, it is up to the manufacturer, for his own sake, to make his wares as universally useful as science permits; that is, he must make the manipulation of his plates and papers as easy as possible, in order to checkmate the amateur who, having treated his products unfairly, proceeds to use them. He, at any rate, will not be bothered with them under the conditions he fairly or unfairly imposes, and thus becomes a patron of some other product which will have the advantage, in his eyes, of sustaining a reputation for results in spite of treatment which (to give him the benefit of the doubt) adverse circumstances may not enable him to better.

At the same time, I wish to convey no erroneous impression of the conditions prevailing on this coast, N.B., or anywhere else in Canada, any more than I would belittle manufactures which, having been pushed here, have fallen down on account of unfair treatment, general unreasonableness, or lack of patience on the part of the user.

To give a concrete instance, I give the figures from an official analysis of the water supplied to the city of Vancouver, which analysis shows the extreme softness of the water, due to the freedom from carbonates and sulphates of calcium and magnesium. This water must not be taken as an average of those of the Pacific Slope, since purity of water is affected by the atmosphere, soil, and general surroundings:—

ANALYSIS OF VANCOUVER CITY WATER.
December, 1908.

Colours	Clear.
Turbidity	Nil.
Reaction	Neutral.
TOTAL SOLIDS	2.52 GRS. PER GALLON.
Volatile	0.98 " "
Fixed	1.54 " "
Chlorine	0.42 parts per 1000.
Ammonia, free	0.001 " "
Ammonia Albuminoid	0.009 " "
Nitrates	0.07 " "
Nitrites	Trace.

In further indication of the account which requires to be kept of water conditions, the following may be quoted from the February "Bulletin" for the present year, issued by the Aurora Company in connection with its printing papers:—

"Our demonstrators have frequently called our attention to the great difference in water in various parts of the country (the States and Canada). There is being used for photography everything but salt water. Water in one locality will be found to be upon analysis just a little different from water in any other locality, due largely to the nature of the ground over which it flows or comes in contact with. If the water is contaminated to a great extent it will not produce a perfectly balanced chemical solution. Where water conditions are very bad all active emulsions used in the manipulation may be mixed with water purified by boiling and then allowing it to settle. The importance of good water cannot be over-estimated, as the impurities found in some water make a perfect chemical balance impossible, and the

mical balance of any formula is destroyed the results obtained by the use of same are bound to suffer." part from theory, for instance, there are at present being sold here two English brands of plates in particular, one of which is, according to some accounts, perfectly satisfactory proving a hardening fixing-bath is used, according to others unsatisfactory, which statement of opinion I have in one or two cases traced to the fact that the user prefers the simplicity of the simple hypo fixer. For the other brand of plate, however, as far as my own experience and inquiries are concerned, a special fixer appears to be generally unnecessary; and, in the case of photographers whose drying arrangements are effective, it is suggested that the acid fixer has little practical advantage over the plain hypo bath. After all, there is no real advance apart from simplicity, as every improvement, photographic and other, testifies. But in all this there is nothing new; moreover, in every case the individual decides what plates, papers, and formulæ suit him best. The most a manufacturer can do is to render his goods generally applicable as he can to the conditions he knows exist, and leave as little room for accidents as may be. If it were not so, to what otherwise attribute the magnificent business built up by the Kodak Company, known over the whole of this continent as "The Trust." Catering so extensively for the amateur, every new move is in the direction of simplicity of methods and machines whose use points to the elimination of all probable error; of supplying the exact needs of the country; of reducing all processes to a rule-of-thumb and leaving as little

as possible to the barbarous imagination of the unlearned community of beginners.

Simplifying Working Conditions.

But the "Trust" is not confining itself to the amateur trade. It has invaded for many years tentatively, and latterly forcefully enough, the ground previously covered, but in most cases neglected, by other firms. Like Homer, they also nod occasionally, as when, for instance, they list goods at retail prices in the Old Country cheaper than the professional can buy them in this country wholesale. But their wares are good, and they have boasted that if they are not, and if they do not win out on quality, let the best man win. For instance, the "Seed" plate, almost universally accepted in Canada and the States as the best plate, is put out with formulæ which, for the professional, at any rate, are a model of excellence and caution. You may expect this of the "Trust." They have the goods and they have the ground, and they have the ground because they know it and supply its needs. But they only exist as a "Trust" owing to a lack of competition. If they cannot buy out the competition, failing trade agreements, they, as other firms of other trades, must cut prices and give discounts, and this they are beginning already to do, not extensively, but, again, tentatively; but only because they know the ground is worth having, and not because they have large stocks of unsaleable goods to unload.

L. HAWES.

(To be continued.)

TANK DEVELOPMENT WITH ACID DIAMIDOPHENOL.

TANK development has been so much in the air of late that I feel there is no need to apologise for adding my further experiences with it to the mass of information already existing. When writing on stand development in these pages some months ago I mentioned the satisfaction amidol had given me on one occasion when developing a considerable number of plates in dipping-baths, and although this was some ten years ago, I have, curiously enough, never used amidol in a similar manner since, until last autumn. Having had a long experience of tank development with pyro-soda, I elected to try diamidophenol by way of a change, and also with the object of finding out whether I was missing any more advantageous method by adhering to pyro-soda.

The formula I made up was:—

Sodium sulphite	500 grs.
Potassium metabisulphite	100 grs.
Potassium bromide	10 grs.
Diamidophenol	50 grs.
Water	40 oz.

Three dipping-baths were used, each containing 40 oz. One of these dipping-baths had 400 grs. of sodium sulphite and 200 grs. of potassium metabisulphite in place of the quantities given above, and any plates suspected of over-exposure were first developed in the more restrained bath. The time of development was the normal solution necessary to give good printing density averaged about ten minutes.

I used this formula continuously in developing my landscape plates last autumn, and could find no single fault with it. In all things considered, more reliable than pyro-soda. The negatives were of excellent quality and gradation, and no developing marks of any description ever made their appear-

ance. When using pyro-soda for tank development I have occasionally been troubled with transverse marks of slightly less density than the rest of the plate; these crossed the plate towards the top and bottom of the tank, but were so faint that they showed only in the sky portion of the negative. I made every endeavour to trace the cause of them, but without success. As I have said, it was only occasionally they troubled me, and after one plate developing with these marks the plates following would be quite free, although developed in the same bath. With acid diamidophenol I never saw anything approaching uneven development.

The practice of acidifying amidol and diamidophenol solutions has undoubtedly improved their usefulness in a very marked manner, not only by increasing their stability in solution, but by the ready way in which rapidity of development may be regulated. Personally, I regard either acid amidol or acid diamidophenol as the best all-round developer one can possibly use.

Historical Note.

I would like to take this opportunity of drawing attention to the fact that acid amidol solutions were advocated and used by the late A. R. Dresser some sixteen or seventeen years ago, and he published a formula containing amidol and potassium metabisulphite in the pages of the "British Journal of Photography," or in the "Almanac." He used rather a large proportion of metabisulphite to secure keeping in solution, and neutralised it at the time of development to the extent he thought desirable. It is interesting to note that he prognosticated a great future for amidol as an all-round developer, and especially as a developer for bromide paper.

G. T. HARRIS, F.R.P.S.

HIGH-CLASS SECOND-HAND APPARATUS.—Messrs. Adams and Co., 1, Charing Cross Road, London, England, have opened a new department for the sale and exchange of high-class photographic apparatus. The aim of the department is to be able to supply first-

class apparatus only, thoroughly examined, so that it may be purchased with confidence. At the same time Messrs. Adams will be pleased to exchange well-known good instruments for their own distinctive manufactures in cameras and other apparatus.

PHOTOGRAPHIC CONDITIONS IN JAPAN.

THE progress of commercial and professional photography in Japan has been very rapid, and has taken a firm hold of the people. Portraiture (including groups) is the principal phase of it, and I should say that there will be nearly as many professional photographers in the moderate-sized and large towns of Japan as we find in England; but they do not exist in the villages at all. Quite fair average work is done, but almost entirely in silver, and the work is small, being principally confined to C.D.V. and cabinets, and a fair number of bromide enlargements are made. A few of the higher class men in cities like Tokio, Kyoto, Osaka, Kobe, and Yokohama work in platinum, but carbon is almost unknown, though during the last two years ozobrome has taken a place. It will be seen, therefore, that quite a large quantity of photographic material has been required, and until quite recently all has been imported, principally from England, Germany, and the United States. Now an attempt (and it seems a serious one) is being made to produce dry-plates in Japan, but so far none are on the market; but I believe engineers and experts from England are now in Japan superintending the erection of the factory and machinery, which I am told is the joint concern of the large firm of Asanuma and several of the leading photographers. It may be interesting to trace what has been done in the dry-plate way in Japan. The first attempt was made by Mr. Yoshida many years ago in Tokio, but it had no success: this was, of course, in the days of hand-coating. Then Mr. Burton, in conjunction with Mr. Kajima and others, started a little factory; but this was never commercially successful, and only very slow plates were ever made, and it closed: this was some four or five years before Mr. Burton's death. Then it is reported that the large photographic house of Konishi made an essay, but the goods, I think, were never put on the market. So up to the present every plate has been imported, and Japan must have been an excellent market for England principally, the plates used being Marion and Ilford mostly, but later the American "Seed" plates have taken a firm hold. It is very questionable whether plate-making in Japan will be a great success; certainly there will be over three months in each year when it will be practically impossible to work on account of climatic conditions. Though papers are now being coated in Japan, yet still there is a very large import. Konishi is the principal paper-coater. He makes a paper called "Celloidin," a silver paper, usually toned with platinum; and another silver paper called "Pullatype," to imitate platinum; also P.O.P. No bromide is yet made, so all is imported. It is said that bromide paper will be produced at the dry-plate factory above mentioned. Platinum papers are also made, but the quality leaves something to be desired. The first attempt was made in Burton's time, with salts imported from the Platinotype

Company; but this plan soon ceased, and the salts now are made in Japan. There is still one branch of paper construction to be mentioned. Vast numbers of about 12 by 10 scapes have been produced by one or two firms for colouring and to be sold to the foreign tourists who pass through Japan in such numbers each spring and autumn. This trade is a very large one, and the prints were made entirely on albumen paper; this is now being replaced by collotype prints, and for the better class work bromide paper is used. The colouring is very skillfully done in aniline colours. The tourists take also large numbers of coloured lantern slides, which are made principally by the wet collodion process. The whole of this trade is in the hands of a few firms like Tamamura and Kimbei, of Yokohama, and Tamamura, of Kobe.

Chemicals.—Some of these are made in the chemical works in Osaka and Tokio, but the bulk are imported almost entirely from Germany.

As to lenses, Dallmeyer and Ross held the field here till the advent of the Jena lenses, and are still very much used. Zeiss lenses are now everywhere, and the Goertz follows. The firm of Krauss and Co., of Paris, had the enterprise to establish a branch house in Tokio years ago, and so one sees many Krauss-Zeiss lenses on the market and in use.

Mounts are, I believe, all made in Japan, of course, from imported materials, or mostly so.

I think these remarks cover most of the commercial ground, and it will be seen that Japan is still a good field for an English manufacturer. I think it has not had the attention it should have: it would pay the large firms to send their traders here.

The amateur side is not so favourable. The Japanese have not been bitten by the snapshot fever. The number of photographic societies is small, and though time has not permitted me to get exact figures, yet in Kyoto there are three societies with fifty to sixty members, about the same in Tokio, and about six other societies scattered in the largest towns throughout the country. Their work is nearly all in silver, and some of the best has been illustrated in, I think, "Photograms of the Year" from time to time; but the Japanese amateur has not struck out any special line for himself, as one would have expected from the very original art that the country possesses.

Colour photography has found very few votaries (indeed of course, here I am excluding the foreigner in Japan)—two or three in Tokio, whose work I have not seen; one in Kyoto, Mr. Nakai, who has done a few marvellous things. Mr. Nakai, though a professional, is as keen in this as any amateur, and is a very skilled worker in all branches.

THOMAS B. BLOW

MOUNTS AND MOUNTING OF TO-DAY.

Up to about five years ago one could think of photographic mounts without the question of the method of mounting entering one's mind—but the advent of the adhesive dry-mounting process opened up such wide possibilities as to gradually completely alter the style of mounting in good-class studios. So much so has this been the case that more change has taken place in the mounts used by professional photographers during the past five years than during any similar period. And it may, therefore, be useful to Colonial readers in particular, to describe the chief general feature of these changes,

and then to particularize somewhat some of the styles in commercial mounts which are now enjoying a large measure of application.

Limp Mounts.

Dry-mounting has rendered commercially possible the use of a limp paper mount. Amateurs, together with a very few of the more advanced professionals, had, indeed, used such a mount, but the slight amount of adhesion that could be obtained without cockling the mount militated against its general use. A good

unt was, of necessity, a fairly stout one—and thus it was that new method has been made the most of by going to the other extreme, and one has seen Japanese vellum paper taken up by the majority of the leading men. The machine used for the mounting could also be used for making a plate-mark impression, and, for the time, it appeared as though the mount people were merely to act as agents for the papermakers.

The Cosway Style.

Just about the same time as dry-mounting came into general use the so-called Cosway style of printing was introduced. This should be explained for the benefit of those who have not yet seen it, is effected by the use of negatives of borders similar to designs wherewith Cosway and other portrait painters of his period surrounded their pictures. By the use of masks these border negatives (which are obtainable, by the way, from the Photochrome Company) are printed on the one piece of paper—generally in sepia, platinotype, or carbon. The double prints thus made are most frequently mounted on Japanese vellum and signed, either in pencil or else by means of an embossing die, with the photographer's name.

And a Modification

It will readily be seen that such a method had two disadvantages. One, that it tended to a general sameness in the shows of competing photographers, and the other, that there was too much business in it for the mount manufacturers! The latter, therefore, led to suggest that if the border design were made a part of the mount instead of a part of the print, it would save the double printing, and, moreover, the photographer's name and address could, if desired, be incorporated in the design. These mounts, either printed in copperplate or in litho imitation thereof, are offered by most of the mount manufacturers at the present time, though in the full dark variety are perhaps not quite as popular as they were. They are obtainable printed either in sepia or a cream toned paper—or in black on a white paper—generally hand-made, and frequently left with the rough deckle edges. The margins are generous, a cabinet print being placed on a 12 by 10 paper—and, what is specially praiseworthy, the manufacturers have at last realised that the proper place for a print is slightly above the centre of its mount, and the design has been printed accordingly.

Folder or Portfolio Mounts.

Resulting from the use of the limp paper mount is the folder or portfolio cover, enclosing the photograph. Photographers in a certain way of business have blocks from specially drawn designs embodying their names, printed on the covers, but the smaller man has offered to him ready-made designs wherein his name can be printed in ordinary letterpress type.

Art Paper Mounts

The use of Japanese vellum paper as a mount was soon followed by that of "art paper"—why photographers term it thus is a mystery; the printer and papermaker know it as "cover" paper. These papers, chiefly of Transatlantic origin, come in attractive neutral colours in many shades of brown, grey, and green—and also with surfaces of varying texture. They were used by amateurs for the mounting of pictorial photographs before they were adopted by professionals; but dry-mounting has made them available for commercial use, and they are now deservedly popular. The papers are sometimes used singly, but more frequently two papers are used, one to give a tint around the photograph similar to the dia-tint paste-down of the old-fashioned plate-sunk mount. So successful have been these mounts employing two shades of paper that at least several manufacturers are producing them "ready-made," so as to save the photographer the trouble of making them himself.

Other Mounts.

Although the above described mounts are now in general use, it must not be thought that the older forms are obsolete. On the contrary, new designs are still being brought out, and designs, too, that are in accordance with the desire for a plain and tasteful setting for the photograph. Gold is now very sparingly used—even the bevels of mounts are coloured to harmonise with the mounts instead of being gilt, as they would have been up to but a few years ago.

In order to convey to distant photographers an impression of

the styles in mounts for better-class photographs now available, a representative of the "British Journal of Photography" paid a visit to some of the leading houses in the mount trade. It was seen that the universal tendency is towards mounts without ornament, but beautiful in themselves. Any decoration is of the simplest kind; colour and texture of the mount-board are almost wholly relied on to supply the really charming effects now obtainable. It is general now to find the space for the print a little raised above the centre, thus avoiding the dropped appearance when the print is actually central in the mount. There is a great vogue for mounts which in design and substance serve also as frames. Whilst circle prints are fast going out, ovals and mounts for oval prints are in great favour, and many styles are made up for both oval and rectangular pictures, in each of which varieties they are frequently also made in combinations of grey and white for black prints, or cream and brown for sepias. As regards the tendency to light or dark in the better-class mounts, one large house with every means of testing the pulse of professional use, described light mounts as in rather greater favour than dark boards. From these general impressions we may turn to particularise, premising our remarks by the intimation that every mount we refer to is one of some distinctive style or special merit; none are of the cheapest kind.

Messrs. Marion and Co., of 22-23, Soho Square, London, have been mount manufacturers for so many years that it was of especial interest to observe the newer styles of their production. In almost every mount of theirs, and of other firms which we shall mention, ample margin is provided all round the print, more at the bottom, for the sake of avoiding the dropped appearance.

A very popular cream mount with plain rectangular plate-mark enclosing a rectangular or oval design printed delicately in sepia is provided in Nos. 2,096-2,108. No. 2,206, with pebbled margin and crinkled edge, is a little less formal. Nos. 2,162-4 are 10 x 8 mounts for "square" or oval cabinets, the only decoration being an embossed plate-mark of simple design, which looks well both in matt, white, and brown board. Nos. 2,024-32 are in rough white with a plain moulded plate-mark and bevelled edges, made for oval, circle and "square" prints and very delicate and nice. No. 2,310 is a similar but more expensive mount with rounded corners and moulding-like embossed plate-mark.

"Antique" paper mounts with the natural rough edge and plain plate-mark (Nos. 1,772 to 1,780), Messrs. Marion still find popular for good work, though they are not cheap. No. 1,796 is a pale buff mount of this class. For dark "Antique" papers, e.g., No. 1,980-1, sold about 12 x 10 for cabinet prints, there is still a large call, though now the "linen surface" mounts in dark (No. 2,195), medium (No. 2,149), and white (No. 2,144) are coming in and give very artistic effects. A mount of frame character is No. 2,187, also of linen surface, with embossed centre surround for the print and bevelled coloured edge. No. 1,890 is a board of similar substantial weight with embossed dark edge for the print, oval, circular, or "square." No. 2,212 is in like style, but narrower shape and linen surface. In folder mounts they have some most harmonious designs, numbers of linen-surface papers, with paper inset of natural edge and with attached thinner paper for the print. Very dainty are the No. 1,990 dark covers with light inset board bearing medium tint extending a little over a plate-mark. These latter mounts are supplied separately, Nos. 2,060-67, for "squares" and ovals in a series of sizes. Our references to Messrs. Marion's excellent series must close with that to No. 2,033, a very dainty folder with light inset mount bearing delicate design.

Messrs. Houghtons Ltd., whose entrance into the mount trade as universal providers but a year or two ago has set them right abreast of the new styles, showed to us a series of boards embodying a frame effect. They (No. 9,002) are made up in three colours, grey, brown, and buff, and provide a neat margin of colour round the print and a similar band, with bevel to match, round the edges of the mount. In the series No. 7,003 (brown, buff, and light and dark grey) the print gets the same neat border, whilst the edging of the mount takes the form of a moulded corrugated border.

In the No. 7,018 series a somewhat plainer but quite as effective style is adopted, the space for the print being plate-marked in place of being provided with a different tint. The outside moulded border harmonises very nicely with the green, white, brown, or buff board. Still another variety is provided by No. 7,002, in which the moulded border surrounds the print (oval or "square")

immediately, the outside edges of the mount being bevelled to match and the corners rounded.

In thin vellum effect mounts, either with plain plate-mark or with a neat design within the plate-mark, series Nos. 8,005 and 8,006 are very nice indeed, whilst in folder mounts of "art" paper with inset and tissue, the 8,010 series of Houghtons contains some very choice varieties. This firm also supplies a very small and choice selection of mounting papers (the "Ruskin") sold singly or made up into mounts.

The firm of Jonathan Fallowfield, 146, Charing Cross Road, London, has long been a leading house for mounts, and its recent styles in white canvas-surface and thin mounts, as also in portrait mounts with moulded tint border round the plate-mark, are deserving of notice. This well-known house further makes a specialty of the midget and smaller slip-in mounts as used for the very small sizes of pictures made with the Fallowfield "Multi-secto" back. These they issue in an enormous series of sizes, shapes, and styles.

Messrs. L. Trapp and Co., Milton House, Chiswell Street, London, E.C., make a special line of art mounting papers, one notable series of which is the "Duplex," the two sides of which, as the name indicates, are of different tints. They are very choice

linen-surface boards. "Cosway" mounts in light and dark figure in four varieties, a light one of which (No. 1) we speak like. The "Tokio Vellum" mounts with bevelled plate-mark a most pleasing surface, whilst in the "art linen" papers (Nos. 1 to 4), the No. 3 (light brown) presents a very handsome appearance.

Messrs. Trapp's "Empire" mounts are made in six tints (Nos. 1 to 6), a dark green) and of linen texture, with a space of different for the print, and a similar border to the mount. In folder mounts, too, the firm's linen-surface and white papers are to excellent effect, e.g., the "Gainsborough" series.

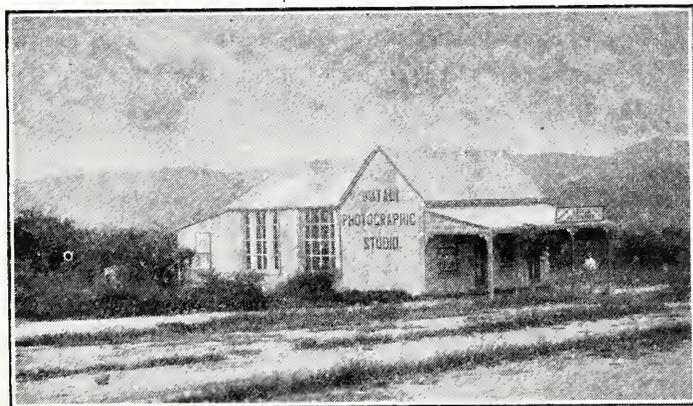
Lastly, we should not omit to mention the folder mounts of Messrs. F. E. Jones and Co., 22, Gray's Inn Road, London, which are up with very nice regard indeed to the harmonious blending of the tints and the effective display of the photograph. These particular mounts have the inset paper, as also the tint paper attached to it, with their natural edges or may be had without this rough edge at a somewhat lower price.

But our notes have already over-run the limits of their scope even though we have had to pass over mount houses such as O. Sichel and Co., 32, Bunhill Row, London, E.C., Carl Ernst and Co., 27-31, Earl Street, Finsbury, London, E.C., both of which should be included when making inquiries for mounts.

SOME PLACES WHERE THIS COLONIAL ISSUE GOES.

[Thinking that photographs of one or two establishments which will receive this "Colonial and Foreign" issue of the "B.J." would be of interest, we recently addressed a few requests to houses taken at random from different sections of our list. We are able to find space for some of the views sent in reply, and for some extracts from the letters which, in almost every case, have expressed the writer's satisfaction at having the British photographic market, as it were, brought to his door.—Eds. "B.J."]

"We are practically on the fringe of Empire," writes Mr. J. M. Mein, of Main Street, Umtali, Rhodesia, "and far from the latest improvements. Nearly all my portraits are done in C.C. paper,



Studio of J. M. Mein, Umtali, Rhodesia.

which, I find, gives most satisfaction. Our chief difficulty is the intense heat—125 deg. to 130 deg. F. in the studio."

Another Rhodesian reader, Mr. L. F. Moore, of Livingstone, in



Establishment of L. F. Moore, Livingstone, N.W. Rhodesia.

addition to his business proper of dispensing and photographic chemist, is auctioneer, stationer, tobacconist, an official of the High Court of N.W.R., and editor and proprietor of the only weekly

paper of Barotzeland and N.W. Rhodesia. He writes: "So far as I know, I am the only dealer in this territory in photographic goods. My chief business is developing and printing. Films are cheap in use; plates do not amount to 10 per cent. of the whole. But the films perish quickly in this atmosphere—very humid from November to March, desiccatingly dry the other six months. We could do with a good line of carton, not too expensive, developers which will solve quickly. Also a good dark-room lamp, more portable than the hock-bottle pattern

"My trouble in dealing with direct English firms is that it is not always possible to make up an order which justifies trouble and expense of shipping, and therefore we have to deal with the coast Bulawayo. We should prefer to deal direct, and I suggest the

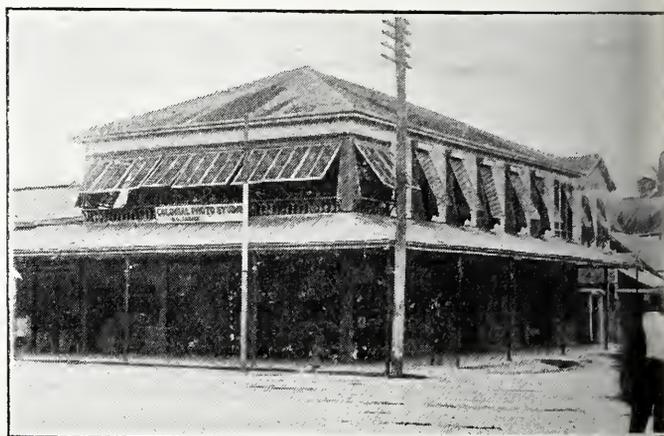


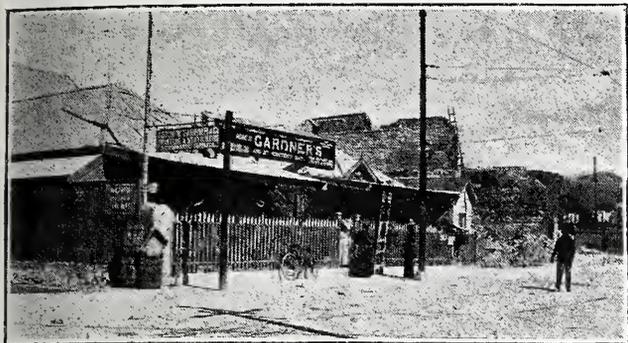
Photo-Stores of Q. G. Jardin, Georgetown, British Guiana.

pointment of an agent at the coast, who would receive and forward both orders to the maker and goods from the maker, and thus reduce freight charges to the minimum."

From Georgetown, British Guiana, Mr. Q. G. Jardin sends a photograph of his "Colonial Photo. Stores," where he has been established some twelve years. The only plates used are Ilford "Ordinary," "Empress," "Special Rapid"; P.O.P., also Ilford bromide papers, Wellington. Much self-toning paper is used. Films are very much asked for, but no one imports them, on account of their rapid deterioration in the climate. If imported in small supplies by every mail a trade might perhaps be done."

In Kingston, Jamaica, the photographic department of Messrs.

V. Gardner and Co. is in the charge of Mr. A. Hitchins, formerly of Marion and Co., who writes that his firm's chief trade in the West Indies is in Seeds and Ilfords. He suggests the advisability of a firm supplying with every box of plates sold hints and directions for their use under the trying conditions of the tropics. The photo-



Temporary Premises of A. W. Gardner and Co., Kingston, Jamaica.

graph shows the temporary place of business of his firm during the rebuilding of the store wrecked in the earthquake. As evidencing, however, the business done in photographic supplies, it may be mentioned that Messrs. Gardner provide dark and enlarging rooms for amateurs, institute instruction classes in general photography and special branches such as photo-micrography, and aim to make their office a rendezvous of amateur photographers in the West Indies. As a matter of fact, to come nearer home, we can spare space only for a reference to the house of Collis and Williams, of Valletta, Malta, founded in 1890 as a chemist's, and now in the proprietorship of Mr. A. L. Barrett. The firm has supplied photographic goods for the past twenty years, the makes being almost entirely British. "Maltese professionals," writes Mr. Barrett, "appreciate the soundness and reliability of British-made goods. With amateurs (who are chiefly English and migratory) the trade is in cameras of the most portable type, especially for roll films. Soldiers and sailors who do portrait work for their regiments and ships launch out into stand-cameras of portable design. There is little call for sundries which are not necessities. Some English manufacturers make the mistake of appointing a single photographic dealer 'sole local agent.' Professional jealousy prevents other dealers passing their large orders through such an agent. They therefore encourage other makers to their utmost, and when they have to obtain the taboos they find themselves charged full retail price, or nearly so, and have the feeling that probably the 'sole agent' is working off his oldest stock for their benefit, or else they find that the 'sole agent' is so fearful of old stock that he only holds enough for his own wants and cannot supply dealers."

THE PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION. ANNUAL REPORT.

The following is the report of the Committee of the Professional Photographers' Association adopted at the Annual General Meeting reported in our last issue:—
 There have been sixty-five admissions to membership during the year, but there have been fourteen losses through resignation or members having removed, leaving no address, and there are twenty-two names of members on the list who are owing last, as well as this year's subscription. According to past experience, a considerable proportion of these will still be in default at the time of taking up of the list for the new "Handbook," and will have to be omitted.
 The prevailing depression in trade has naturally severely affected professional photography, and in many cases where the subscription is more than twelve months in arrear it is probable that the member has given up business without informing us of the fact, and our communications are retained by his successors, and not returned to us through the post as they should be.
 A feature of the year is the increase in proportion of applications for membership from photographers in business in India and the Colonies. Although obviously members over the seas are not able to avail themselves of some of the advantages of membership enjoyed by home members, as some compensation the Committee con-

sider it their duty to give their assistance to such members in directions that in the ordinary way would be outside the scope of a trade association, and, taking into consideration the difficulties under which many photographers in distant parts of the Empire have to conduct their operations, have instructed the Hon. Secretary to include as reasonable matters for assistance questions which strictly fall within the technical rather than the trade side of the photographic business.

The Committee have not relaxed their efforts for the suppression of the free-enlargement system and other canvassing systems of hardly less objectionable nature; but, although in many cases the advice and assistance given to our members have been the means of paralysing the business for a time in a locality, many of the cases brought to the notice of the Association, where there has been a reasonable prospect that proceedings would be successful, and where we were quite prepared to bear a large proportion of the costs, have fallen through entirely on account of the impossibility of inducing those swindled to come forward and give evidence. These frauds are generally perpetrated on people in humble life, who refuse to come forward either on account of being ashamed of acknowledging their folly or from a natural fear of anything to do with law and lawyers. As one of the most efficacious methods of advertising the nature of the fraud is the report of a prosecution or an action in the County Court in the local press, the Committee urge upon members the importance of reporting to the Hon. Secretary at once any good case they may hear of where the injured person is willing to give evidence, and where, with the assurance of a contribution from the Association, there is a chance of a successful prosecution.

The Committee note with satisfaction that a number of the professional photographers at Blackpool have formed a local Association for the purpose of dealing with a local matter affecting their interests that could not be effectively dealt with except by local action. Similar local grievances exist in many towns, especially seaside towns, that could be equally well attacked if the photographers of the town acted together, and it is quite certain that such practices as the free-portrait swindle could be rendered unprofitable in any locality by means that are available and might be adopted if the local photographers could be induced to act together. The Committee commend the example of the Blackpool photographers to the members.

The Committee have had occasion to issue impressive warnings to members in regard to dealings with advertisers in the technical newspapers of secondhand apparatus where the amount for the article advertised has to be prepaid, or where in other ways the advertiser has his customer at his mercy, but, in spite of these warnings, an increasing number of cases is brought to our notice where our members have failed to obtain redress for their grievances without recourse to law. It is usually found that even when the law provides a remedy, the circumstances of the case are such that it is quite impracticable to take proceedings owing to the cost and trouble necessary to incur being out of proportion to the amount involved.

At the invitation of the Newspaper Society, it has been agreed to hold a conference to go into the question whether some better understanding could be arrived at with regard to the dealings of the Press with photographers, and especially with regard to the question of payment for unauthorised productions. It is hoped that some arrangement is possible that will be advantageous to both sides, particularly in the direction of preventing the necessity of appealing to law in matters that should and could without difficulty be made subject to custom.

The draft of the proposed new Copyright Bill, promoted by the Artistic Copyright Society has now been issued in its completed state, and has been printed *in extenso* in THE BRITISH JOURNAL OF PHOTOGRAPHY. A comparison of this with the original draft which was also printed in the "B.J." will bear testimony to the success of the efforts of our Copyright Sub-Committee in securing reasonable copyright conditions for photographers.

The Association's work in connection with the matter is at an end, but, should the Bill become law, as the provisions are so different from those of the present law, it is reasonable to anticipate that the Office of the Association will have a very busy time in assisting members to grasp the new principles, and in helping those who have gone astray through not doing so.

The Insurance arrangements of the Association with the Fine Art and General Insurance Co. continue to be taken advantage of, the number of policies against Fire and Employers' Liability taken out by members being about 240, the annual premiums being approximately £200, and the commission of 5 per cent. allowed us by the Company helping our funds to the extent of nearly £10.

The thanks of the Association are due to the Royal Photographic Society for allowing the meetings to take place at their house, and to the Editor of THE BRITISH JOURNAL OF PHOTOGRAPHY for publishing notices, reports, and other information relating to the Association. The Committee also wish to express their indebtedness to the Hon. Solicitor, Mr. Percy E. Marshall, for valuable assistance rendered.

By order of the Committee,

ALEXANDER MACKIE,

Hon. Secretary.

89, Albany Street, London, England.

Patent News.

Process patents—applications and specifications—are treated in "Photo Mechanical Notes."

The following applications for patents have been received between March 8 and 13:—

CINEMATOGRAPH-PHONOGRAPH.—No. 5,528. Combined cinematograph and phonograph for (a) recording, and (b) reproducing movement and sound simultaneously. Arthus W. Deurance, Teesdale Cottage, Elms Park, Loughborough.

CINEMATOGRAHS.—No. 5,554. Improvements in the manufacture of ribbons for the projection of living or moving pictures. Sherard Osborn Cowper-Coles, 82, Victoria Street, Westminster.

STUDIOS.—No. 5,614. Improvements in and relating to photographic rooms, studios, and the like. Antoine Bogey, Andre Guggia, and Joseph Lambert, 18, Southampton Buildings, London.

CINEMATOGRAPH-PHONOGRAPH.—No. 5,682. Improved means for securing synchronous movement in moving-picture and talking-machines. William Cecil Jeapes, 55, Chancery Lane, London.

DISPROPORTIONATE PHOTOGRAPHS.—No. 5,736. Apparatus and means for making disproportionate photographs. John James Wright, 237, Eastbourne Avenue, Gateshead.

COPYING.—No. 5,801. Improvements in photographic copying machines. Paul Hamburg, 65, Chancery Lane, London.

CINEMATOGRAHS.—No. 5,945. Means for taking and exhibiting cinematograph pictures. Otto Pfenninger, 105, Hythe Road, Brighton.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

Owing to the large demand made upon our (increased) space this week by the reviews of new apparatus and materials we are compelled to hold over the usual descriptions of articles or processes of which the patent specifications have just been published.

New Trade Names.

PERFECTA.—No. 301,963. Photographic cameras. The Thornton-Pickard Manufacturing Co., Ltd., Atlantic Road, Altrincham, Cheshire.

New Books.

"A BOOK ON LIGHTING, IN STUDIO AND AT-HOME PORTRAITURE."—There are so few books on the lighting of the sitter that this new work by M. Klary, a well-known photographer of Paris, should be welcome, since it explains by means of plenty of diagrams and examples, the methods which the author has used with much success for years past. The instruction is concise and to the point, and the volume is obtainable, price 6s., from Messrs. Marion and Co., 22 and 23, Soho Square, London, England.

Commercial & Legal Intelligence

NEW COMPANIES.

AMERICAN BOUDOIR STUDIOS, LTD.—Capital, £1,000, in £1 shares. Objects: To take over the business of art photographers carried on by H. O. Dean and C. Clark, at 119, Upper Tooting Road, S.W., the American Boudoir Studios. Private company. Registered office, 119, Upper Tooting Road, S.W.

Correspondence.

MR. W. H. SMITH'S "SHUTTER SPEED" RECORDER.

To the Editors

Gentlemen,—I am afraid Mr. A. W. Everest's suggested modification, though distinctly ingenious, would not be found practicable. I gather the idea is, that the spreading action of the two brushes would be roughly proportional to the opening of the shutter, and the amount of air consequently passed. Assuming such spreading action would occur, the method has disadvantages. The brushes would have to possess resistance to opening or they would drive widely apart at the first impact (my own impression is they would merely flatten on the drum), and a fairly strong current of air would be necessary, involving friction between the sector-leaves and probable slowing of speeds.

Mr. Everest also infers that in Mr. Smith's model the reading will be less by the fraction of time occupied by the inked indicator in reaching the drum, but it is doubtful whether this would introduce error. A column of air is set in motion, and the "lag" of the indicator on completion of the exposure would probably introduce an error in the opposite direction. Both would be infinitesimal; with a small air-orifice brought down centrally, no resistance to the free action of the sector-leaves can occur, except momentarily at the beginning and end of exposure. The air-pressure required, moreover, is very small.

The suggestion made to allow the brush to be always in contact with the drum—readings being secured by a shift of its position—has been already thought of, and is well worthy of attention. Pressure of other matters has prevented Mr. Smith from arriving at the final form to be given to the apparatus. From its simplicity and ease of manipulation it is most certainly well worth working out. It does not pretend to give "efficiencies"; to ascertain these the photographic method appears to be the only one at present feasible. If, however, characteristic diagrams of any particular type of shutter at various speeds are once found, it would be sufficient in subsequent tests of the same type to obtain records of the speeds only.—Yours truly,

E. A. SALT.

THE BOGUS COUPON GAME IN TORONTO.—The "Toronto Globe," of March 3, announces that the first arrest in a move on the part of the police against a number of alleged dishonest photo-coupon agents who have been a source of considerable trouble to the public and photographers during the past month or so, was made when Howard Leadley, alias "Hub" Henry, of 176, Maria Street, West Toronto, was taken into custody on a charge of fraud preferred by John A. Lord, photographer, at 386½, Yonge Street. Leadley had been employed by Mr. Lord selling coupons for photographs, collecting 25 cents on each as his commission. According to the police, he had been inducing people to buy the coupons by reducing the price named in the contract, from \$2 to \$1, entirely without the consent of the photographer. The purchasers on presenting the coupons found that they had practically worthless paper. Several days ago it was said, a resident on Dundas Street purchased a coupon from Leadley, and told him that if he came back again he might succeed in selling another. The coupon was presented at the studio and refused. When Leadley returned to the house a policeman was sent for and he was arrested. There are said to be several other men working the same game, but as they seldom sign to the coupons the name by which they are known to the photographer it has been somewhat difficult to catch them.

NEW APPARATUS AND MATERIALS.

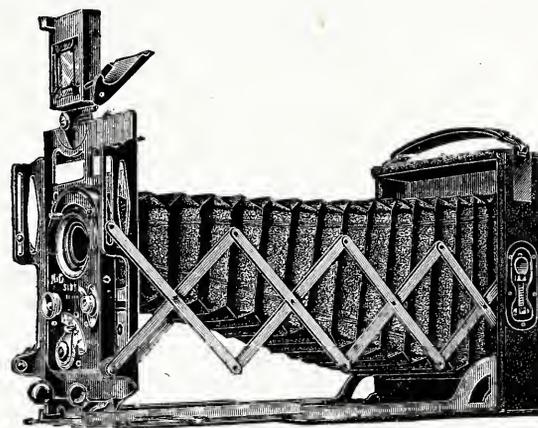
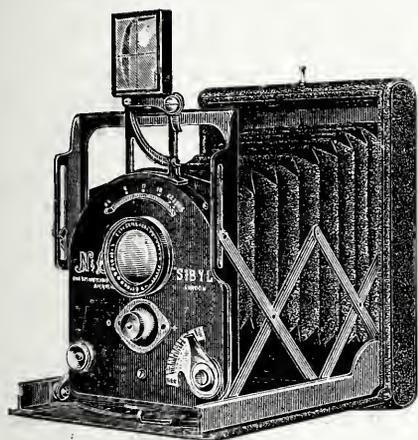
In this section we give reports upon the many new introductions on the British market. In some cases the new articles are variations of well-known products; in several instances they are absolutely new departures in construction. All, however, have come under our personal trial or examination, and for this reason the difficulty of drawing distinctions between competing goods is felt by ourselves acutely as by any one, since the fact is forced upon us that one manufacture is suited for one particular purpose, another for another, and that every article needs to be considered on its merits—and its price—seeing that individual requirements are as varied as human nature itself. And so it comes that we must ask for a careful reading of every page of this issue—advertisements and text—in which our foreign and colonial readers in particular should be assured of considerable pleasure and profit.

"Sibyl" Quarter-Plate "Special" and "De Luxe" Pocket Cameras. Made by Newman and Guardia, 17 and 18, Rathbone Place, London, England.

We have on a previous occasion reviewed the $3\frac{1}{2}$ by $2\frac{1}{2}$ pocket camera which has been made by Messrs. Newman and Guardia for three years as the "Sibyl." That camera was designed of the $2\frac{1}{2}$ size in order to provide, in the minimum of space, a hand-camera of full range of movements, and, though our own choice is size, the makers have found the quarter-plate more popular; therefore, in designing two new models of the camera of this size, the "Special" and the "De Luxe," the latter a double-

The rise of front which, in the "Special," as in the Nos. 5 and 6 instruments, is provided for the upright plate only, is 1 in., the shutter has the range of speeds $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, 1-16, 1-32, 1-64, 1-100 second, and a direct-vision finder of the same pattern is fitted. The whole instrument, in short, has the same practical features and perfection of mechanical construction as the first model, being made entirely in metal, leather-covered, with rounded corners and slipping into the pocket like a cigar case. Its outside dimensions are 6 in. x 4½ in. by 1½ in., and its weight just under 20 ozs. Its price, with the Goerz lens, is £16 16s., or with the Zeiss, £17 17s.

The double extension "De Luxe," or No. 1 model of the Sibyl, is



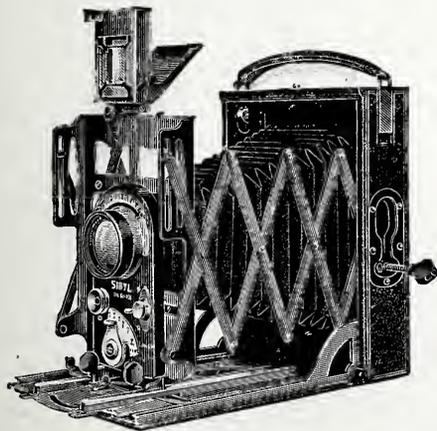
extension instrument, they have provided facilities additional to those in the original model now designated the "No. 5" (Tessar), the "No. 6" (Cooke), in reference to the lenses they carry. The "Sibyl" Special is designed on the same lines as the Nos. 5 and 6, that is to say, the front is carried on lazy-tongs, and, on the board being let down, runs out to its place almost by its own weight, requiring a touch to snap it into a position, which is most convenient. As in the $3\frac{1}{2}$ by $2\frac{1}{2}$ size, the focus may be left set at any point from infinity to two yards, and the camera is obtained set

not quickly described, since it contains several new features. The general type of construction is the same, the metal base, the rigid lazy-tongs extension. The focus plate as before is adjustable for both plates and films, and focussing scales for the whole and the half lens (long focus) provided to work with the same index which, as in the "Special," is provided with depth of field indicator. The front is brought into position somewhat differently. It is drawn forward by the pair of handles a little further than necessary, and caused to engage on the focus-plate by being pushed back. For the long extension all that is necessary is to release and pull forward the focus plate, when the same lines in the "De Luxe" on the side of the camera provides the adjustment for focus.

In the "De Luxe" pattern the front is made narrower, and is mounted so that in addition to the ample rise the upright way of the plate, both rise and fall, the landscape way is obtained; in each case equal to about one-quarter the dimension of the plate. The finder is very ingeniously contrived with a mirror at back of it, serving to use the finder at a low level, while when using the camera at the eye level the mirror is turned out of the way. The lens frame of the finder is marked to indicate the subject, included both "upright" and "landscape" way of the plate, and with both long and normal focus. The finder also carries two levels, and further on being turned down neatly stows itself away on the camera front.

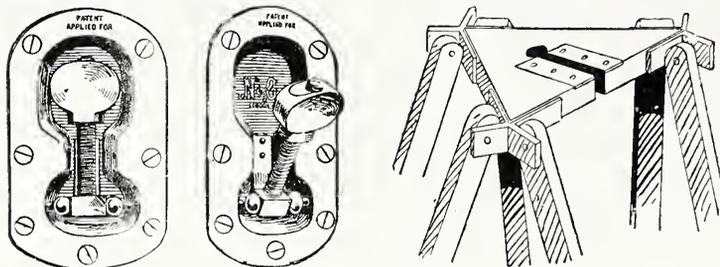
The lens for which the "De Luxe" Sibyl is adapted is the Zeiss Series VIIA of $f/6.3$ aperture, and 5 in. focal length. This gives a long focus lens of 9 in. when the back combination alone is used. Messrs. Newman and Guardia adopt the convenient bayonet joint method of securing the front combination, which thus can be instantly removed, and is put for the time being in a place provided for it in the back-frame of the camera.

One further novel and useful feature must be mentioned. In order to provide against the two disabilities of a loose tripod screw and the short bush for it, which a light and compact camera entails, Messrs. Newman and Guardia secure the tripod screw permanently to the camera by means of a recessed metal shell, which is made to form part of the back body of the camera. The two drawings show the



same index when re-opened. In the present "Special" model features are added to the focussing adjustments. In the first place a "depth scale" is provided, showing the area of correct focus for every stop of the lens, and secondly, the focussing plate is provided with an adjustment for setting the focus either for plates (in single metal dark slides), or for films in a film pack. Lastly, the camera will take the large aperture lenses, the $f/4.8$, Goerz 1B. "Color" or the Zeiss $f/4.5$ Tessar, the former of 5 in. and the latter of 6 in. focal length. The other adjustments remain the same.

tripod screw lying flush in this shell; and being raised. The tripod head to receive the screw is either cut away, as shown in last drawing (which is of the N. and G. "Eifel" stand), or is provided with a keyhole-shaped aperture, through the large part of which the screw is introduced, slipped over into the constructed portion, and made fast with the nut. The arrangement accomplishes the desir-

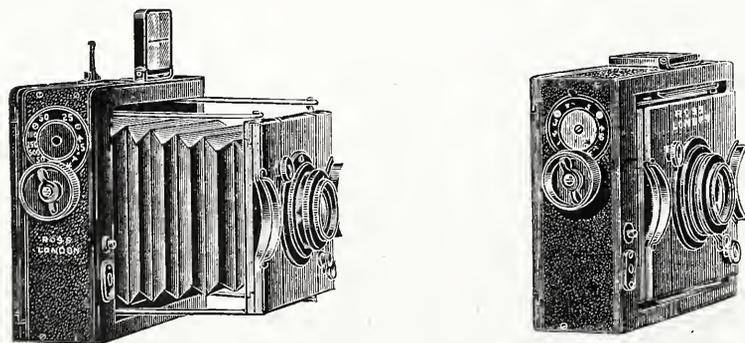


able end of providing a quick attachment of the camera to the tripod, a thing which is all the more necessary in the case of the "De Luxe" Sibyl, which is as eminently fitted for use on stand as in the hand.

Although allowing the use of a 9in. lens, the camera is very little larger than the "Special" pattern, but yet provides most conveniently a full range of movements, every one of which is embodied in workmanship which is the perfection of strength and ease. Complete, with Zeiss lens, the price is £21.

The "Panros" Folding Focal-plane Camera. Made by Ross, Limited, 3, North Side, Clapham Common, London, England.

In this new folding focal-plane camera the old-established firm of Messrs. Ross, Limited, appear in the market with an instrument which has the very greatest claims to consideration among Press photographers and other hand-camera workers using a camera which, while highly portable, is capable of being used for the most varied kinds of work. In general construction and appearance the camera itself does not differ greatly from other instruments of this type. It has, however, a corrugated bellows, thereby securing the advantage of cut-off of oblique rays, and it is further provided with a light-tight air-valve cut into the back, and thus preventing the blind of the shutter being dragged forward into the camera when the bellows are quickly extended—a minor matter, but nevertheless one which makes for the long and proper working of the shutter. The chief interest, however, centres in the shutter, which combines a series of good features which would seem to represent the *ne plus ultra* of instruments of this kind. In the first place, the shutter is of the



self-capping variety, the plate being kept covered except at the instant of exposure or when purposely set to time. In the second place, all the adjustments are made by the one winding-key of the camera, and the speed can be altered either before or after setting the shutter, and without any other adjustment than slightly pulling out the milled head of the winding-key, which is of size and gearing such that about a half-turn winds the shutter. "Bulb" exposures are made by turning the winder to "T" on the dial when the shutter opens, fully uncovers the plate on pressure of the release, and covers it again on pressure being released.

In addition to this, the mechanism of the shutter is such that on setting the aperture to a certain width the distance between the two blinds is locked, and no alteration in the width is possible while the shutter remains at this setting. Further, by turning the winged nut seen within the hollow of the winding-key the shutter (when in the down position) is opened to time, and is closed again by quickly

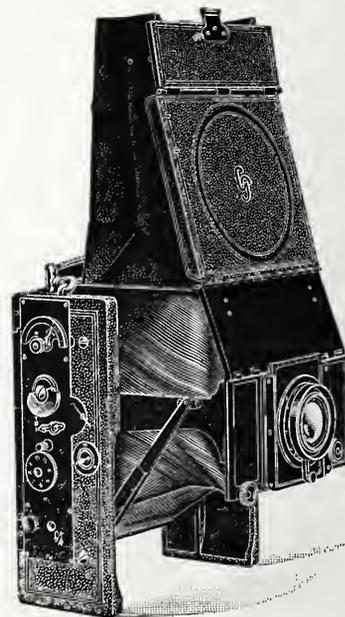
turning the outside rim of the winder. This modification can be made whether the shutter is set or run down, and it will be understood that after uncovering the shutter to focus, the latter will remain at the original setting. This is undoubtedly a great convenience to the Press photographer, who may, for example, take the precaution to focus a subject on the ground glass itself immediately before giving a very rapid exposure. In this case the manipulation necessary, additional to exchanging the dark slide for the focusing screen, is to first release the shutter, then give a half-turn to the inner winged nut, and after focussing to give the slightest twist to the outside winding-key, which lowers the blind again, while a further half-turn of the key resets the shutter. These operations are far more rapidly made in practice than they can be described, and the shutter is evidently of a kind which it is most difficult to derange.

The dark-slides supplied with the camera are worthy of special commendation as regards the spring which is used to keep the slide in position, and is inserted unpierced into the dark-slide, and, therefore, should be assured of constant use without splitting. Further, the space at the mouth of the slide is made of good depth, so that a finger-hole can be provided whereby to lift the plate quickly from the slide, and at the same time to provide an efficient push cut-off of such depth that the insertion of the shutter, even skew-wise, into the slide will not admit light to the plate.

The camera is supplied with the Ross "Homocentric" lens, Series III., *f*/6.3, in focussing mount, adjustable focal-plane shutter for time or instantaneous exposures, three solid double-dark slides and black leather carrying case, in quarter-plate size, with 6in. lens, £12 17s. 6d.; 5 x 4, with 6in. lens, £14; and postcard size, with 6½in. lens, £14 10s.; or fitted with "Homocentric" lens, Series I., *f*/5.6, instead of Series III. as above, the prices are £13 17s. 6d., £15, and £16 5s. respectively.

The "Goerz" Folding Reflex Camera. Made by C. P. Goerz Optical Works, Ltd., 1 to 6, Holborn Circus, London, England.

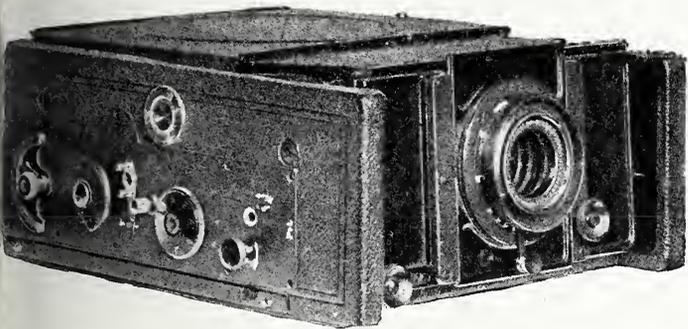
Messrs. Goerz, whose reputation in the matter of folding focal-plane hand-cameras is of longer standing than that of any other firm, and second to none in the design and substantial manufacture of their instruments, have made quite a departure in bringing out a reflex camera. That the Goerz factory should produce photographers with a reflex instrument was a natural assumption,



but that they should start by essaying the doubly difficult task of providing a camera of this type which would fold up was perhaps not to be expected, and therefore the mechanical perfection of the new Goerz reflex is all the more a matter for congratulation. The new camera is made in one size only, 5 x 4in., and measures when closed 7¼ x 7 x 3¾, weighing, without the lens, 4lb. 10oz.

The back body of the camera carries the focal-plane shutter, which is of the Goerz latest pattern, giving both the most rapid exposures and automatic time exposures. Two rigid arms fixed in the back frame hold the front of the camera, and are turned downwards

When the camera is folded, so that the lens points straight down, the user carries it by the strap. The operation of opening the camera ready for use consists simply in grasping the lens and swinging it upwards and outwards until it comes into the normal position. This operation at the same time automatically depresses the mirror, and leaves the ground-glass in the position for exposure so that the camera may be carried folded with the shutter set for a plate ready for exposure, and be ready for action within a second or two. Similarly, to close the instrument the two side

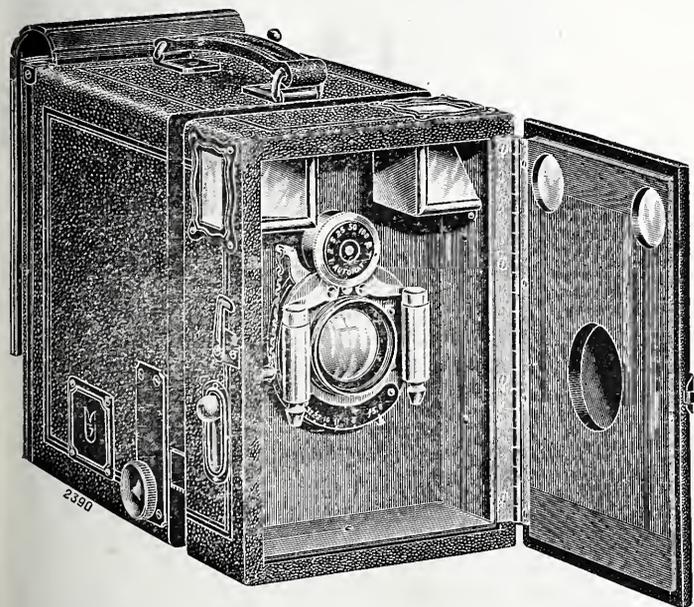


panels have simply to be pressed downwards and the lens returns to its normal position.

The movement of the mirror and the quick adjustment by which the lens is raised or lowered by a half-turn of the milled screw are points to be mentioned, as is also the rigid manner in which the focusing screen is held in a solid metal frame on all sides. In other words, the camera realises the conditions which are necessary for a reflex camera of precision, while its lightness and portability bring it almost into line with a folding focal-plane camera of the ordinary type. The price of the instrument complete with Goerz astigmat is £24 16s.

The "Houghton" Envelope Camera. Made by Houghtons, Ltd., 88 and 89, High Holborn, London, England.

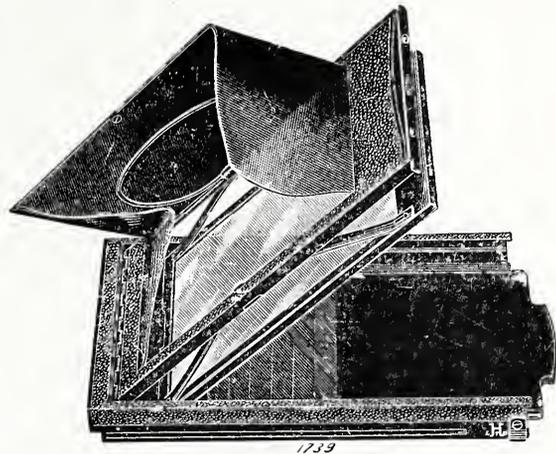
Specially built to take the envelope adapter introduced by Messrs. Houghtons eighteen months or so ago, this camera is of the box form shown in the drawing, and provided with movements in the way of focusing, finders, etc., which are familiar to users of "Holborn" instruments. Among these we may mention the convenient adjustment whereby, when the lens is capped, the finders are darkened. The camera, which, like others of Messrs. Houghtons which



we have reviewed in this number, is made at their London works, finished in polished mahogany and brass, and presents a handsome appearance when opened, although when closed for actual work it is conveniently inconspicuous. The envelope adapter provides a very compact setting for the sensitive plate, and keeps the camera both light and small, the dimensions of the quarter-plate being under 7½ x 6 x 4½ inches. The price complete with focussing screen and hood, R.R. lens, and "Simplex Auto" shutter, is £2 10s.,

whilst Nos. 2, 3, and 4 of the series, with other shutters and lenses, are marketed at 63s., 70s., and 90s.

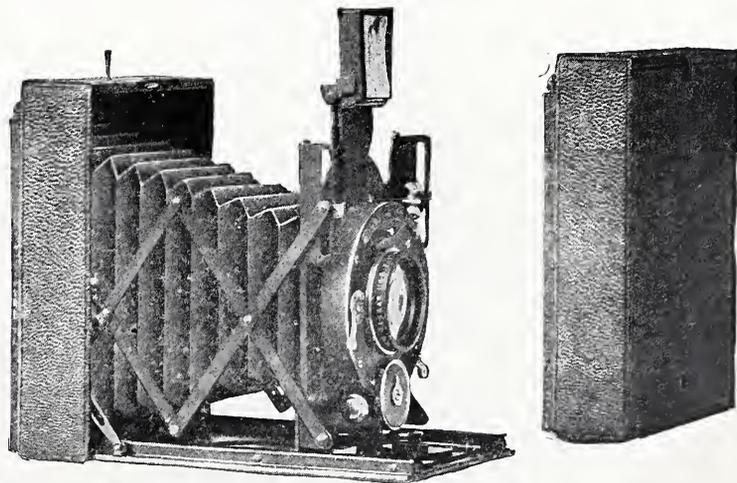
The above system of carrying plates or films to any convenient number ready for exposure in a simple apparatus no bigger than an ordinary dark-slide has been very conveniently embodied in the "Houghton" envelope and adapter, described in these pages at the time of its introduction, but we should record the improvement



in the form of envelope by which the plate or film is more expeditiously inserted. The present form of the adapter is shown in the drawing, the ground glass focussing screen being safely carried between the wooden back forming the focussing hood and the shutter of the adapter. The spring catch is so designed that the adapter is instantly opened to receive the envelope and as instantly closed. The system is applied by Messrs. Houghtons to a variety of sizes of cameras up to half-plate, the price of a quarter-plate adapter varying from 10s. 6d. to 17s. 6d., whilst the envelopes cost 2s. per dozen, unloaded, or 3s. per packet of ten charged with "Ensign" flat films.

The "Vesta" Pocket Camera, 1909 Model. Made by Adams and Co., 26, Charing Cross Road, London, England.

In these columns last year, and later in the "Almanac," we described the Adams' "Vesta" pocket camera, and were compelled to admire the extraordinarily small space within which a full range of movements is provided as a "triumph of construction." Yet since then the makers have still further improved upon the original design, and although in outward appearance the difference is small, the advantage from the practical standpoint is very considerable. The im-



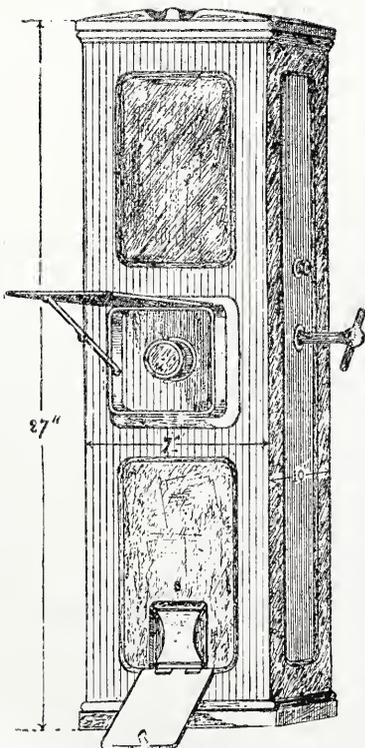
provement lies chiefly in the fact that whereas in the original model the lens front, on being withdrawn from the back frame, was undetached, and had to be affixed to the studs in the baseboard; in the present model the front is held and guided, and has only to be pulled out until it engages the spot prepared for it. As the drawing shows, Messrs. Adams employ a lazy-tongs system to hold the front, but they do not confine each set of arms of the lazy-tongs to run only in a set groove. On the contrary, they mount the camera front on a foot which runs in a pair of grooves, but the front itself is able to slide sideways on this foot, thus giving a rising front movement

when a picture is being taken "landscape way" of the plate. This is possible owing to the latitude of movement permitted by the lazy-tongs, and the practical result is that the front can be made almost the full width of the baseboard, and thus take a large-aperture lens at the same time that it may be given rising front each way, and to an extent of one-quarter the height of the plate. Rise of front being an indispensable movement for all classes of work, and a $f/4.5$ lens being rightly regarded as little short of a *sine qua non* in hand-camera photography, it is due to Mr. Adams to say that the use of these two valuable facilities in one and the same instrument is possible in no other camera, which can be called a pocket instrument. More bulky cameras will do it; others of very small proportions will do one or the other, but not both; but the "foot" principle of constructions in the "Vesta" permits of the great rise each way even when an $f/4.5$ lens is used, and even in the small size of $3\frac{1}{2}$ by $2\frac{1}{2}$.

Focussing in the new model is done by a thin cogged disc attached to the "foot," and gearing with the rack on the baseboard; the adjustment for focus is much more easily done than with a rack and pinion. A mirror, also added to the direct-vision finder, allows of the camera being used low down. It is turned out the way against its supporting plate, and the finder-lens on the camera being closed, automatically folds itself against the lens front without being touched, likewise erecting itself when the camera is opened. The camera is provided with two bushes for attachment to a tripod, has the same shutter as before, giving a range of speeds from $\frac{1}{2}$ to 1-200, as also time and bulb, and complete with Zeiss $f/6.3$ Tessar costs £11 11s., in $3\frac{1}{2}$ by $2\frac{1}{2}$ size; £13 10s. in quarter-plate. With the Zeiss $f/4.5$ Tessar instead of the $f/6.3$ lens, £1 15s. and £2 2s. respectively must be added to these prices.

The Automatic Ferrotypes and Photo-Button Photo-Machine. Made by W. Vining, 2a, Loftus Road, Shepherd's Bush, London, England.

A close inspection of this piece of apparatus and a demonstration of its working have convinced us of the very simple and substantial nature of the working mechanism and of the range of adjustments provided in the apparatus in order to permit of its use under different conditions of light and weather. The machine takes the form of a wooden pillar about 1ft. square and about 2ft. 3in. high, the

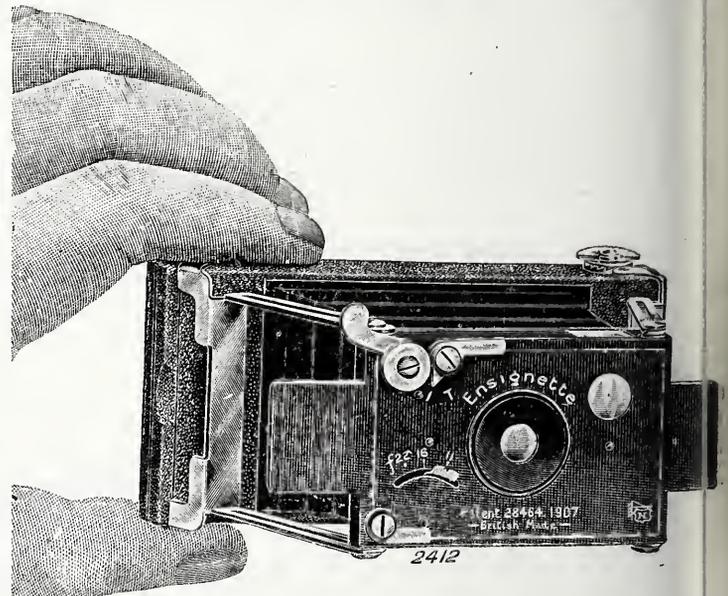


whole of the mechanism is immediately accessible, and the motive power is provided by a small clockwork motor, which is wound for each exposure with a single turn of the key, seen on the right. The plates are contained in a column detachable from the apparatus and holding 100 plates. Any number of these columns can be carried separately, and can be fitted into the machine in full daylight. The operation in making a portrait occupies less than a minute; the

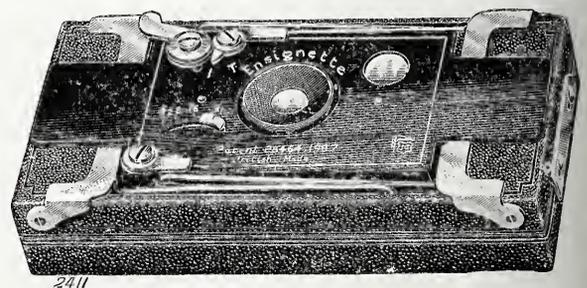
sitter is placed at the right distance from the lens, and the operator of the machine, having wound the motor, has then only to press the release and do nothing more until the plate is delivered from the plate at the base of the apparatus. The order in which the operations thus automatically take place are as follows:—Sitter to keep still till bell rings; bell rings, and plate is carried to developer; plate remains in developer for from five to forty-five seconds, according to temperature; plate is removed to fixing bath, which is placed that it cannot possibly splash into the developer; plate is taken out of fixer and passed through outlet of apparatus, when the operator gives it a rinse in a bucket of water, puts it in its frame, and hands it to the purchaser, the photograph drying within a minute or so. The process of putting through the pictures thus takes very little more than half a minute, or in cold weather, where a longer time of development is necessary, something under two minutes, thus providing a considerable output of photographs, since the moment one sitter has left his position the photographer is free to look after for the next, while the machine is developing and finishing the photograph. The mechanical work which the apparatus has to do is very slight, the mechanism being counterbalanced, and the operator is further safeguarded from making mistakes by the indicators which prevent him moving a fresh plate when one is already in position, and which further prevent him starting an exposure without the machine being fully wound. The apparatus is most substantially made, and is one we can recommend for its usage for outdoor photography in any part of the world.

The "Ensignette" Vest-Pocket Folding Camera. Made by Houghtons, Ltd., 88 and 89, High Holborn, London, England.

A complete self-contained roll-film camera, which measures under 4in. by 2in. and is scarcely more than $\frac{3}{4}$ in. in thickness, is what



Messrs. Houghtons have achieved in this instrument, which, fitted with a single lens, is issued at the moderate price of 30s. the camera takes a picture $2\frac{1}{4}$ x $1\frac{1}{2}$, the roll-holder accommodates

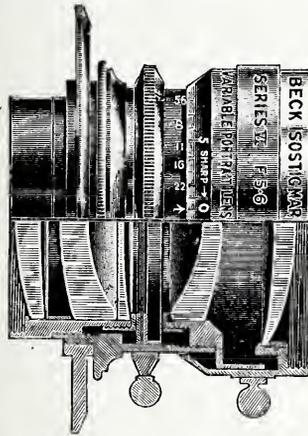


spool of six exposures. The little instrument is fitted with a lens and instantaneous shutter, a brilliant view-finder, a rotating diaphragm plate, giving the apertures $f/11$, $f/16$, and $f/22$. Although designed primarily for use in the hand—the short focal length of the lens dispenses with the need of focussing and allows of objects

ft. distant being photographed—the camera can be stood on a flat surface, both for vertical pictures or those landscape way of the plate, which latter purpose a small folding leg is attached. The instrument is made throughout in metal, and is strongly though lightly constructed. While it is a perfectly practical instrument, giving natives which will stand a considerable degree of enlargement, the pleasing fact remains that it can be carried without inconvenience in the upper waistcoat pocket, in connection with which fact it must be remembered that it is a complete instrument, and has only to be opened out on its nickelled struts to be ready for taking a picture. It is now perhaps thirty years ago since the efficiency of such small instruments was pointed out, but it has been left for Messrs. Houghtons to provide a portable camera of this kind at a very popular price. The camera may also be had with an "Ensign" anastigmat lens working at $f/5.6$ for 70s., whilst a fixed focus lens, giving a postcard picture from the "Ensignette" negative, is supplied for 5s. 6d.

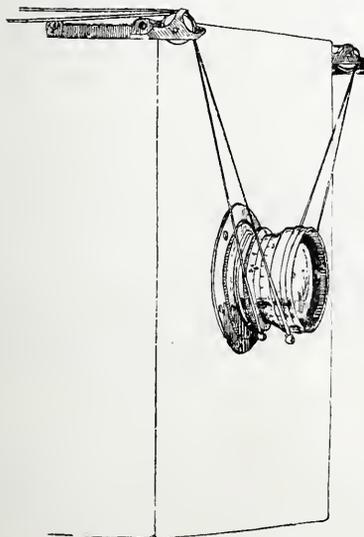
The Isostigmat Series VI. Variable Portrait Lens, $f/5.6$. Made by R. and J. Beck, Ltd., 68, Cornhill, London, England.

In this new series of the Isostigmat anastigmats the makers have provided a feature of special importance to the professional portrait photographer—that is to say, an adjustment is supplied by which certain degrees of unsharpness can be introduced at will, and—what perhaps most useful—repeated at will. Such a provision may



often be employed to good advantage in portrait photography, and it is not too much to say that a good deal of the very best portraiture has been done with lenses giving more or less diffused definition.

This lens, when the special variable adjustment is not in use, behaves as a very well corrected anastigmat, and at full aperture

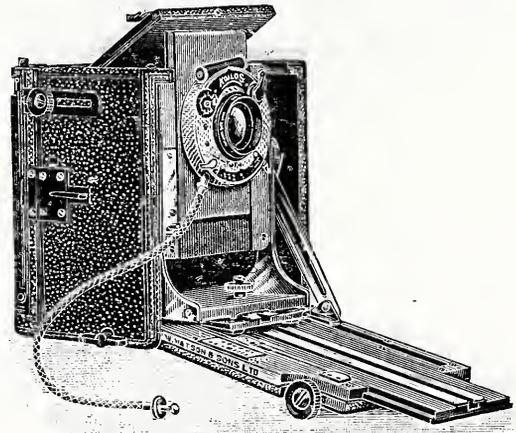


We find the $9\frac{1}{2}$ inch lens submitted to us covers a half-plate with surprisingly good definition. The adjustment provided is a variable separation between the front two lenses. By turning the lens-rod the separation is increased or diminished at will, and so varying degrees of diffusion can be introduced. A scale is provided which enables us to record the amount of adjustment found to be

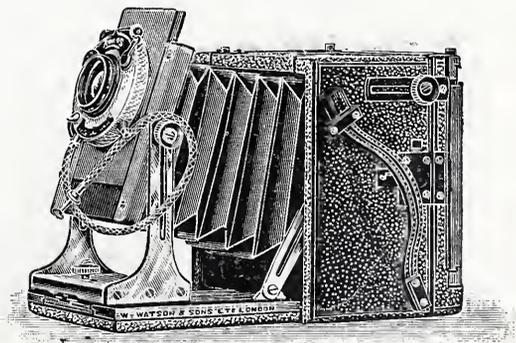
desirable for particular purposes, and so it is always possible to return to any particular degree of diffusion at will. The objective is well finished, the mount being brass, and the price is very moderate, £7 7s. for a $9\frac{1}{2}$ inch lens working at $f/5.6$ not being out of the way. The 12 inch lens costs £14, and the 17 inch £22. The hood-ring, and also the iris-ring, are so fitted that by a system of cords and pulleys the adjustments both of aperture and definition can be made from the back of the camera while focussing, and the prices include these fittings. For portraiture this should be a very useful lens, and the fact that it will also serve all the purposes of an anastigmat adds greatly to its value.

The "Alpha" Camera, New Model. Made by W. Watson and Sons, Ltd., 313, High Holborn, London, England.

In this new model of their well-known hand-stand camera, Messrs. Watson have provided most completely for the requirements of those using a camera both in the hand and on a stand. The base-board drops and the camera can then be actuated by an auxiliary rack and pinion placed at the back near to the plate, a very convenient movement when using a wide-angle lens. At the normal and full extension focussing is done with the front pinion which provides for a total distance from lens to plate of 12 in. in the quarter-plate size. The front rises in its struts, and has a further



rise of nearly an inch by means of the lens panel, and is also given a swing movement, the total range being ample for all descriptions of work. There is also a swing-back of ample movement, and, of course, the usual reversing back. The camera is, in fact, most conveniently fitted for the most varied photographic purposes, but measures, when closed, under $5\frac{1}{2} \times 6 \times 4$ inches. It is substantially, though not heavily, built, and costs in quarter-plate size, complete with three double slides and finder, £8 8s., an extra charge of 15s. being made for the rack and pinion focussing when using the wide-angle movement. Messrs. Watson fit with the usual lenses and shutters, including their own "Holostigmat," the series I.a of which

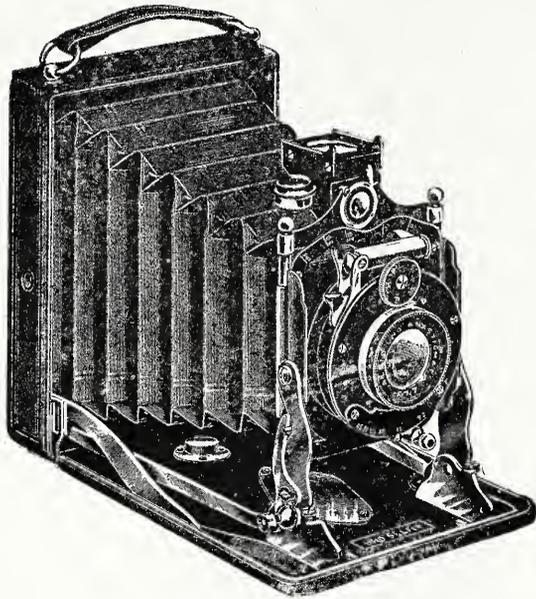


has the great advantage of providing an $f/4.5$ lens, the separate components of which may be used as excellent $f/9$ single lenses. Thus the No. 5 "Holostigmat" of $5\frac{3}{8}$ inch focus gives single lenses of $8\frac{1}{2}$ and 10 inches focal length.

The "Uno-Selfix" Pocket Camera. Sold by W. Butcher and Sons, Ltd., Camera House, Farringdon Avenue, London, England.

In this camera the principle of automatic opening into the position of focussing on objects at infinite distance is adopted, and the camera requires no other movement to obtain it in the right posi-

tion for exposure than pressure upon the knob and the pulling down of the baseboard. The front erects itself into a very rigid position, and focussing is then done up to 10ft. distance by means of the mount of the lens, which is the Aldis $f/7.7$ "Uno" anastigmat. The camera is provided with everset shutter, giving time, bulb, and three instantaneous exposures, folding reversible view-finder, spirit level, and two bushes for the tripod screw. Complete with two single metal slides with ebonised shutters, the price is £3 15s.; extra

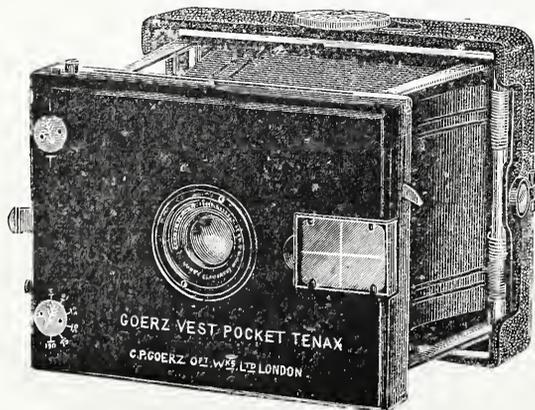


single slides, 1s. 6d. each. It will also take the "Premo" film pack by use of an adapter, 5s., and is a very excellent example of this type of hand-camera.

The miniature "Selfix" is made by Messrs. Butcher, and is a tiny member of this series of self-erecting cameras which takes plates $2\frac{5}{16} \times 1\frac{3}{8}$ in. (4.5×6 cm.). The little camera measures only $2\frac{3}{4} \times 3\frac{1}{2} \times 1\frac{1}{4}$ in., and on opening the baseboard comes out to the position of focus. The shortness of focus of the lens allows of all objects no nearer than 6ft. to be in focus. Complete, with double finder for horizontal and vertical pictures, time, bulb, and instantaneous shutter, single achromatic lens, and two single metal slides, the price of the camera is 2 guineas. It can be supplied with Goerz "Dagor" $f/6.8$ complete for £7.

The Goerz "Tenax" Vest Pocket Camera. Made by C. P. Goerz, Optical Works, Ltd., 1 to 6, Holborn Circus, London, England.

In this beautifully made camera, taking plates $2\frac{3}{8} \times 1\frac{3}{8}$ in. ($6 \times 4\frac{1}{2}$ cm.), the makers have scored a triumph in small folding cameras of the highest class. The camera extends on four struts, which are fitted



with strong coiled springs, so that the front comes forward simply on unlatching, and is most rigidly held before the plate. The camera is fitted with a Goerz Series III. "Dagor" of 75 mm. (3ins.) focus, with shutter mounted in it. Both front and back combination can be unscrewed from the mount with the aid of a metal tool carrying at its extremity a pair of fine points exactly fitting two tiny apertures in the lens mount. The shutter has adjustments for time exposures and for a series of instantaneous of $\frac{1}{2}$, 1-10, 1-25, 1-50, 1-75, and 1-100 of a

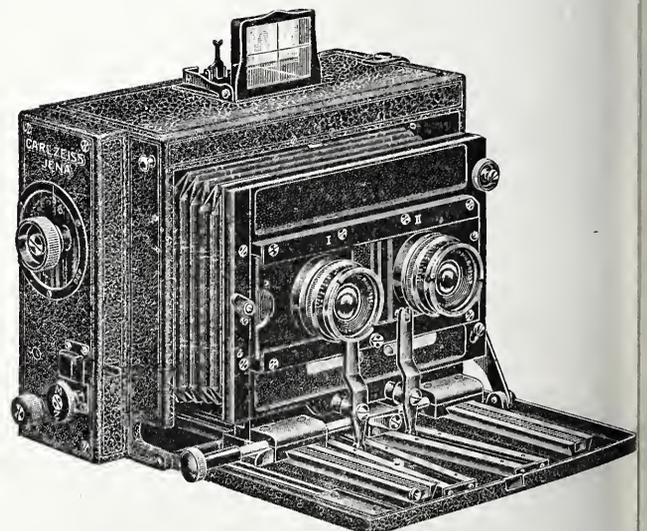
second. There is also a sliding shutter which covers the lens and another which gives the three apertures of $f/6.8$, $f/11$, and $f/22$. The view-finder, of the direct-vision type, pushes out from the front and part of the latter when returned before closing the camera. The eye-piece at the back of the instrument magnifies the image through the view-finder.

Perhaps the most novel feature of the camera is the focusing mechanism, which is done by racking forward the frame which the supporting springs of the front are attached. The movement is not great, and, as Messrs. Goerz rightly point out, for the great majority of work it is best to keep the focus at, say, six inches when almost everything else will be in focus with a lens of short focal length. They indicate this "best" point in red on the focussing disc, but provide a scale for objects from three yards to infinity. The whole apparatus is, as we have said, beautifully made and has the mechanical precision which is absolutely essential in an apparatus of this kind. It is sold, complete with hooded focusing screen, soft leather case, and six metal slides, which latter are of book pattern, giving, as is necessary, a very accurate register and allowing of the slides being quickly loaded. The price of the camera is £10.

Messrs. Goerz supply a special enlarging apparatus for the "Tenax" negatives, consisting of camera (carrying paper up to 7×5 ins.) dark slide, condenser, and paraffin lamp, for £4 10s.; the lens of the "Tenax" itself being used as the objective.

The Zeiss Automatic Stereoscopic Lens-board Accessory. Made by Carl Zeiss, Jena, Germany, and 29, Margaret Street, London, England.

The very ingenious device of Dr. W. Sheffer, described by himself in a recent article in the "B.J.," whereby the separation of the pair of stereoscopic lenses is automatically adjusted by the focusing pinion of the camera, has now been put on the market by the firm of Carl Zeiss as a separate accessory, which is carried in a leather case measuring $4\frac{1}{2}$ in. by $4\frac{1}{2}$ in. by $1\frac{1}{2}$ in. The illustration shows it fitted to the camera in place of the ordinary lens board. Its addition is the work only of a few seconds, the camera being racked out to its greatest extension and the panel slipped into place with the points of the levers in the grooves on the camera baseboard, these grooves being sold with the accessory panel. On racking the camera in and out when focussing no adjustment of the distances between the lenses is necessary. The grooves themselves control this and relieve the photographer himself from the necessity



of supervising this necessary condition to the best stereoscopic result. When taking objects same size the distance between the lenses is 1 3-16ths, whilst when photographing distant objects it is 2 5-16ths. As the lenses cannot be in the sunk type of mount, owing to the necessity for bringing them close together, it is necessary to remove the automatic panel when closing the camera, an operation which, owing to the mechanical perfection of the workmanship, is just as smooth and rapid as the insertion. Complete with two grooves the price of the panel is £3 15s., ready for adjustment to a Zeiss 9 centimetre stereo "Palmas" or to other suitable instruments. The

s stereo "Palmos," when thus fitted with the accessory panel, is a most efficient and convenient instrument for stereoscopic work.

"Acto-Midg" Magazine Hand Camera. Sold by W. Butcher and Sons, Ltd., Camera House, Farringdon Avenue, London, England.

This magazine hand-camera includes quite a number of novel features, chief among which is the provision on the top of the camera of an actinometer, the time taken for the paper to darken the standard tint being used as the number to which to set the meter. Thus, an actinometer number of 4 seconds means that the shutter pointer is to be set to 4, which is the same thing as 1/4 sec. The diaphragm scale is similarly turned to the class of subject being photographed, portraits and near objects being set at *f*/11, and clouds and open seascapes at *f*/32. Street scenes, on the other hand, are worked with a lens at *f*/16. These

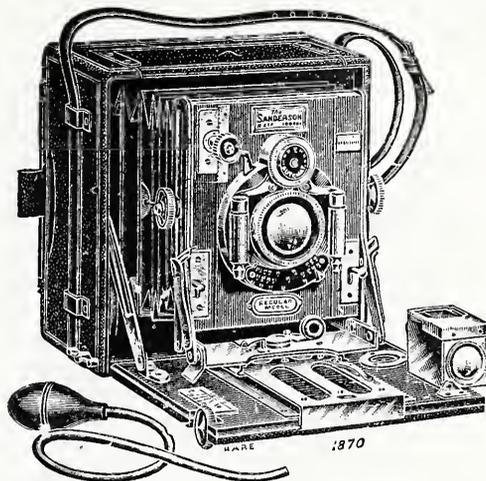


movements are calculated so as to give the plate a sufficient degree of exposure, and should be of much use to the amateur worker for his purpose. At the same time, it is necessary, in the case of moving objects, to use the shutter at a greater speed than is warranted by the actinic value of the light, but in such cases the readings of the exposure-meter give the worker a useful indication as to the amount to which he can reduce the correct exposure. The camera is further provided with an automatic signal, which shows a red light when a plate has been exposed. The magazine carries 12 plates, which are changed by a very simple movement, is fitted with a reversible brilliant finder, bushes for vertical and horizontal pictures, and, at the price of £2 2s., with single achromatic lens. For £3 3s. the camera is fitted with "Aldis" anastigmat working at *f*/7.7, and fitted in mount focussing objects up to 6ft.

The "Sanderson" Hand and Stand Camera, 1909 Model. Made by Houghtons, Ltd., 88 and 89, High Holborn, London, England.

While it would be superfluous to describe the full list of movements of this pioneer of hand-cameras of the wider range of movements, attention may be drawn to one or two additional features of the 1909 model as evidence of the makers' determination to leave no stone unturned in giving the camera every convenience which is of real practical use to the photographer. In the present model a rack and pinion adjustment is provided for the camera when used in the wide-angle position—that is to say, on that portion of the lens board which forms part of the back body of the camera. In the place of the hand adjustment, which formerly had to be made, the camera, when being thus used for wide-angle work, is conveniently racked by a small screw projecting slightly from the back body. The rising front in the "Regular" and "Tropical" models is now brought more into line with the *de luxe* pattern by having a rack and pinion adjustment for the rising front. And, further, the reversing back is now released from the body by pressure upon a single stud, which actuates the two spring catches which secure

the back, a movement which is certainly a convenience, as frequently when the camera is being held in the hand it is something of an inconvenience to raise both springs at the same moment.



The prices of the "Sanderson" with these additions and its already well-known features remain the same, and are described in the special booklet which Messrs. Houghtons issue.

The "Trio" Aldis Lens. Made by Aldis Bros., Sparkhill, Birmingham, England.

In last year's Colonial Number we reviewed and described the "Duo" Aldis lens, a special front combination which, when used with the back combination of an ordinary Aldis lens, gives a doublet of approximately double the focal length and double the covering power. The "Trio" is a similar front combination designed to increase the focal length only one and a half times, and it is thus better suited to cameras that will not extend sufficiently to enable the "Duo" to be used. The "Trio" submitted to us is intended for use with the well-known and popular No. 2 Aldis, Series 2, of 5 3/4 in. focal length and *f*/6 aperture. On changing the front combination for the "Trio" we have an 8 3/4 in. doublet, working at a full aperture of about *f*/9, and, according to the makers, giving very fine definition over a 7 in. circle. As a matter of fact, however, we find it behaves very well indeed over a half-plate, and the circle is sufficiently large to enable a much larger plate to be covered with smaller stops. The corrections of this modified doublet are very good indeed, astigmatism being absent, while the field is very flat. A small point of light can be sharply focussed in any part of the 7 in. circle. As in the case of the "Duo," the spare combination is provided with a brass protecting cap, and the mounting and finish are fully up to the well-known standard set by Messrs. Aldis in their other lenses. The prices of the "Trio" are as follows:—

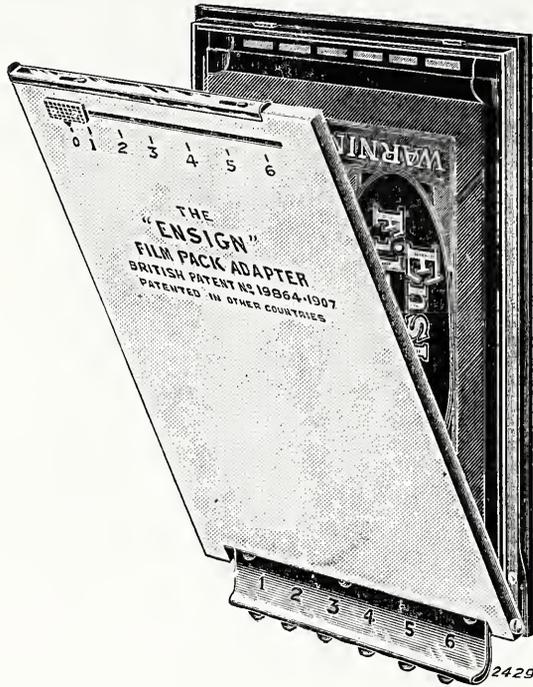
No. of corresponding Aldis lens.	Focus.	Plate covered sharply at full aperture.	Approximate back focus from face of lens board when set for distant objects.	Price inclusive of cap and brass case into which the front combination screws
2	8.75	6 1/2 x 4 3/4	8	£ s. d. 1 2 6
2A	9.75	7 x 5	8.75	1 13 6
7	11.25	9 x 7	10.5	1 7 6

It may be mentioned that all existing Aldis lenses can be fitted with "Duo" or "Trio" special fronts. There has been no change in the Aldis patent construction since its first inception, though, of course, the brass work standards have been changed once or twice. Hence it is generally advisable to send an Aldis lens—especially if of early date—to be fitted up, but the results will always be just as good whether the lens is of early date or quite recently issued.

The "Ensign" Film-Pack and Adapter. Made by Houghtons Ltd., 88 and 89, High Holborn, London, England.

The users of cut films will be interested in hearing of this latest device (for the exposure of flat films, purchased ready for use in a pack) which is made by Messrs. Houghtons at their London works, and has just been put on the market. The adapter consists of a chamber of light metal measuring only 6 x 3 3/4 x 3/8 inch, or scarcely

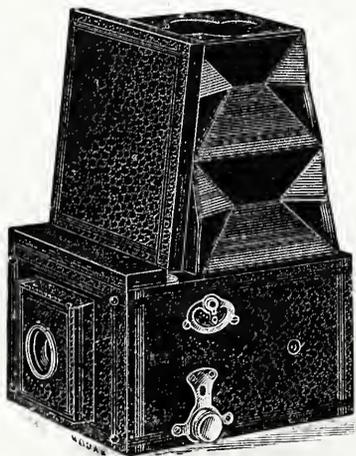
half the size of a double slide. The adapter is provided with a series of 6 keys, any one of which is pressed down as the shutter of the slide is withdrawn, and thus leaves ready for exposure in the camera that particular film. The action we have found most simple and certain. As the box may be re-loaded by the user himself after



development, this convenience of exposing the films in any order may frequently have an advantage. The film is held very flat in the focal-plane, and may thus be recommended for users of large-aperture lenses, where perfect evenness of the sensitive surface is a great consideration. In quarter-plate size the price of the adapter is 25s., and of the pack of 6 "Ensign" films, ready for use, 1s. 9d.

The No. 2 "Premograph" Reflex Camera. Made by Kodak, Limited, 57-61, Clerkenwell Road, London, England.

The somewhat more elaborate model of the ingenious little reflex camera which was placed upon the market a year ago by the Kodak Company, at the price of £2 2s., should go still further to impress the advantages of the reflex principle upon the very large public who must have extreme lightness in any camera they carry. The No. 2 "Premograph," which has been out some little time, is very little heavier than its predecessor, and, as for size, is only 4½ in. by 5½ in. by 6¾ in. when closed. It is opened for use simply by touching the lever at the back, a movement which automatically erects the hood. The new "Premograph" is fitted with an R.R. lens working



at $f/8$, and a shutter giving a series of exposures from ½ to 1-100th second, as well as time exposures. The lens is automatically capped (to exclude dust) on being racked in by the pinion, which latter also has the very convenient movement of being depressed flush with the

side of the camera and locked in, so that it cannot be accidentally damaged. The shutter is of the same simple and efficient pattern as in the former "Premograph," consisting simply of two jaws, one carrying the mirror, the operation of exposing being performed by the rising of the first mirror, followed by the second jaw. The camera is re-set for exposure without the film being uncovered. The camera is made to take either small dark slides or the convenient "Premograph" film pack, and the price of the No. 2 "Premograph," which is made in the quarter-plate size only, is £4 4s.

"Ensign" Box-Form Film Cameras. Made by Houghtons Ltd., 88 and 89, High Holborn, London, England.

A new series of the convenient and saleable box-form of film camera has just been designed and placed on the market by Messrs. Houghtons to provide a series of cameras which, from first to last, are of substantial British make. These box-form "Ensigns" are made in three sizes—the 2¼ A for pictures 2¼ x 2¼ inches, the 2¼ B for pictures 3¼ x 2½ inches, and the 2½ for pictures 4½ x 2½ inches—while there is also a quarter-plate size. The cameras are very substantially built of hard wood, the film-holding chamber being removable from



the side of the camera, thus providing easy access for reloading, but being firmly locked by a spring and two separate catches. The fittings include a single achromatic lens, "everset" shutter, giving time and instantaneous exposures, two ground-glass view-finders, and a leather handle for carrying. The 2¼ B and the 2½ sizes are further provided with adjustable diaphragm plates, giving apertures from $f/11$ to $f/32$. The substantial make and good appearance of the instruments are quite what one would expect from camera makers of the experience of Messrs. Houghtons, and the new series should find purchasers in all parts of the globe, both for the cameras and for the "Ensign" film used in them. The prices of the three sizes named above are 5s., 10s., and 12s. 6d.

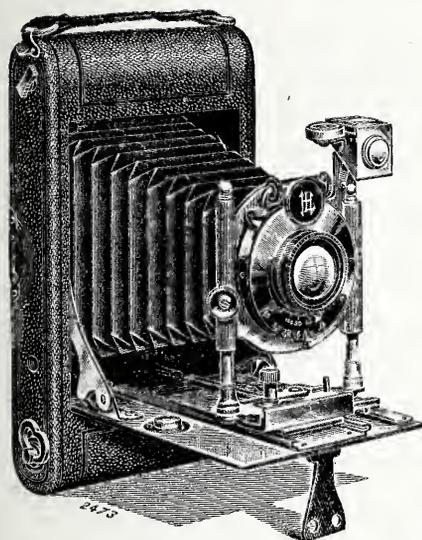
The "Multi-speed" Diaphragm Shutter. Made by the Multi-speed Shutter Co., 324, East 65th Street, New York, U.S.A.

This is an entirely new form of lens shutter which, judging from the sample prints sent to us with it, is capable of producing very remarkable results. It is claimed that it will give exposures from 1-2000 second, and that such exposures with an aperture of $f/16$ will give fully exposed plates with all detail in shadows, summer and winter, sun or no sun. Not yet having had the opportunity of putting the shutter to practical tests, we cannot comment on these claims any further than to say that the specimen prints are mostly of winter subjects requiring very high speeds, and that the results are as good as can be desired. The possibility of very high speeds is indicated by the construction of the four shutter blades. These move continually in the one direction during the time of an exposure. Each blade is double, being pivoted in the centre, and the aperture being covered by one end of it at the beginning of the exposure and by the other at the end. There is thus a check on the return of the blade as in the usual form of iris shutter. The motive power is a powerful coiled spring, and for the low speeds an air brake is brought into play to control the timing. Irregularities due to variations of the spring tension are allowed for by a rather cleverly devised arrangement. Instead of setting the marked speeds on the speed indicator to an index point in

position a series of such points is provided, each being marked with a letter. The proper one to use is then indicated by the position taken by the zero when the spring is relaxed. The shutter can be set to bulb or time and is fitted with both trigger and "Antinous" release. The shutter gives low speeds of very long duration and works with no vibration and quite noiselessly. The shape of the aperture is a four-armed star, which, of course, means a high efficiency. We hope shortly to be able to make some tests of the shutter in practice and then it will be possible to go into more detail. For the present we can only say that the new speed is quite an innovation in the design and construction of bellows shutters, and is evidently of a kind which may be expected with an efficient response to the claims made for it by its makers. A shutter which gives a full range of speeds from the fastest to the lowest, and yet dispenses with the large dust-raising noisy blind of the focal-plane shutter, is certainly one to commend itself at once to every kind of photographer.

"Folding Pocket Cameras. Made by Houghtons, Ltd., 33 and 35, High Holborn, London, England.

The well-known firm of High Holborn has this year, among a series of new designs in cameras, introduced two models of all-popular folding film camera, one, the 000, being fitted with the "Simplex Auto" shutter, whilst the 00 has the Bausch & Lomb "Automat." The 000 is a somewhat cheaper line of instrument, but has all the movements which are called for in a camera of this description—namely, rise and cross front movement, reversible finder and level, infinity catch and diaphragm. It is made in the quarter-plate and postcard sizes, at prices of 45s. in the former, which includes an R.R. lens working at



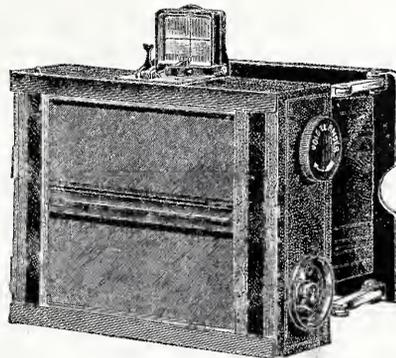
at 70s. in the latter, complete with Beck $f/8$ R.R. The roll-up portions of the cameras, like the other parts, are very well substantially made, and the instruments in practical usefulness, reliability, and appearance can take their place with any cameras of the kind. The 00 series, shown in the drawing, are priced at from 35s. for the quarter-plate, to 127s. 6d. in the postcard size, this having $f/5.8$ anastigmat, and, as already stated, the B. and L. shutter giving exposures from 1-100th to 1 second, in addition to the bulb.

"Voigtlander Focal-Plane Camera. Made by Voigtlander and Son, 12, Charterhouse Street, London, England.

This instrument of the still popular folding focal-plane type has been fitted with a new pattern of focal-plane shutter, which brings us to almost the acme of simplicity the adjustment necessary for this type of shutter. The shutter is wound by the large milled wheel seen in the drawing, about one half-turn sufficing to set the shutter.

This latter is of the self-capping variety, the plate being covered except at the moment of exposure. The adjustment of the shutter is made most easily by the disc and pointer seen in the drawing below the winding key. To set the shutter for time, all that is necessary is to point the arrow on the central disc to the 'Z', when pressure on the release opens the shutter and a pressure closes it. On turning the arrow to point to M,

instantaneous exposures are given on pressure of the release. These latter are altered simply by grasping the central spindle of the lower disc and turning it to any position on the scale of apertures marked below it, the width of these apertures being seen through a small hole in the circular plate. Both this adjustment and that of time to instantaneous, and *vice versa*, are made while the shutter is set,



and are the work of an instant only. The working of the blind is light in the extreme, and the shutter is certainly as convenient a form of the focal-plane as can be imagined. The price of the camera with this new shutter, and with the "Heliar" $f/4.5$ of 15 cm. focal length, and three double dark-slides, is £14 10s., made in metal. A similar instrument, of half-plate size, made in wood, is sold at £17 complete, with "Collinear" Series II., of 20 cm. focal length, working at $f/5.4$, and with three double slides.

A $3\frac{1}{2} \times 2\frac{1}{2}$ Reflex. Sold by Ross, Ltd., 3, North Side, Clapham Common, London, England.

We have several times expressed our approval of the $3\frac{1}{2}$ by $2\frac{1}{2}$ size for a reflex camera, not only on the ground that the smaller instrument provides a most convenient size of image for lantern slides, but also for the optical reason that enlargements of a given size taken on a $3\frac{1}{2} \times 2\frac{1}{2}$ plate with a $4\frac{1}{2}$ -inch lens will compare favourably in sharpness with those on a quarter-plate made with a $5\frac{1}{2}$ -inch. In this instrument the camera is made to take the picture the landscape way of the plate, and the focussing hood takes the ingenious form of a perfectly close hood, provided with a single magnifying eye-

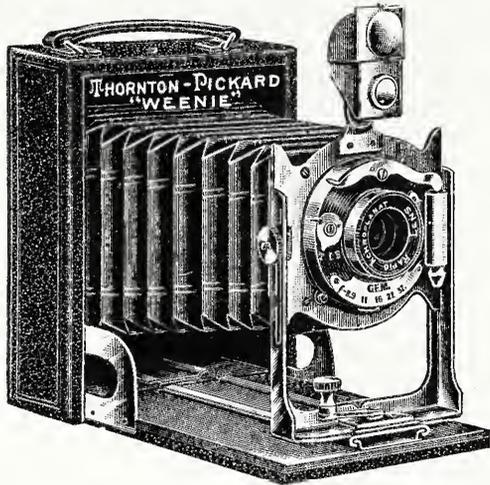


piece. The hood is quickly collapsible, and, being attached to a separate frame, can be removed in an instant from the ground glass, which can thus be cleaned, and, further, gives access to the mirror. The camera is provided with a very rigid extension, allowing of a total length between lens and plate of $7\frac{1}{2}$ inches, and it is fitted with a focal-plane shutter of adjustable slit aperture, giving a very wide range of exposures. Fitted with three double slides and Ross $f/6.3$, 5-inch focus, "Homocentric," the price is £14, or with $f/5.6$ "Homocentric," £15. With $4\frac{1}{2}$ -inch Ross-Zeiss "Tessar," $f/4.5$, the price is £15.

The Thornton-Pickard "Weenie" Folding Camera. Made by the Thornton-Pickard Manufacturing Co., Ltd., Altrincham, England.

Under this name the Thornton-Pickard Co. have newly introduced, at very moderate prices, a series of four pocket cameras, two of single and two of double extension; the A (single-extension) have burnished brass fittings, leather bellows, and rising and falling front. There is infinity catch and focussing scale up to 5ft., and the Thornton-Pickard "Eclipse" shutter giving time, bulb, and a series of instantaneous exposures, and operated by both finger and pnet-

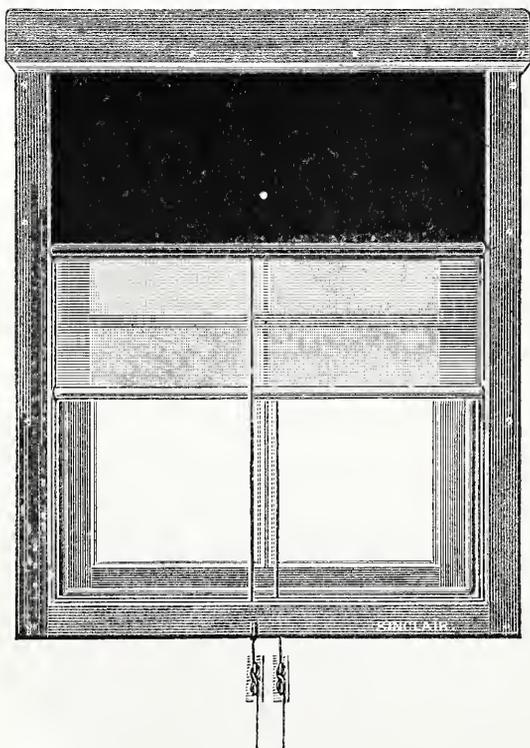
matic release. A reversible finder, two single slides, and two bushes for the tripod screw are included at the price of 25s. only, complete with single lens, whilst for 30s. the camera is fitted with an R.R. The double extension instruments are of similar pattern, but allow of double the focus, and are priced at 35s. and 40s., with single and R.R. lens respectively. The instruments at these modest prices are



really well made, the brasswork nicely finished, and for the sum of 10s. extra—an advisable expenditure, we think—can be had with the firm's patent "Cantilever" front, giving a great rise of the lens, as also all the necessary swinging movement—in fact, as much adjustment in these two ways as can usually be obtained on a stand camera. The illustration shows the ordinary pattern of the camera.

The Sinclair Dark Room Blind. Made by James A. Sinclair and Co., Ltd., 54, Haymarket, London, England.

One of those things which we all at times make, or get made for ourselves, usually in a rather unsatisfactory way, has been done very well indeed by Mr. J. A. Sinclair's firm, which now provides a special wooden frame containing two grooves, in one of which a red blind



works, and in the other a black, no trace of light being admitted when both blinds are down. We commend the system of providing a red blind for handling sensitive papers, and of giving the photographer total darkness wherein he can use a constant dark-room lamp for oil or gas, and so work much more satisfactorily than with the varying illumination of daylight. The frames are supplied of any size, complete with grooves for fitting to a window frame. One measuring about 5ft. x 4ft. costs £3 10s.; 7ft. x 4ft., £4 4s.

The Thornton-Pickard "Safety" Magazine Cameras. Made by the Thornton-Pickard Manufacturing Co., Ltd., Altrincham, England.

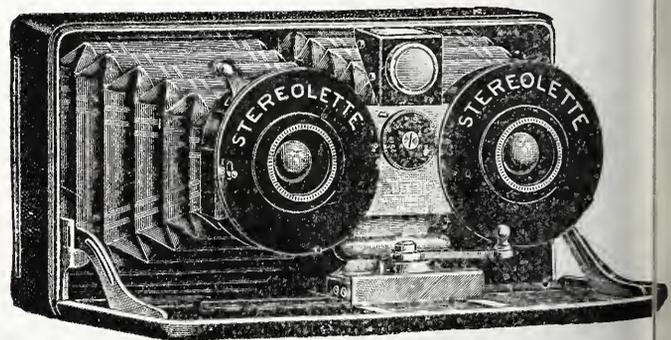
This series of magazine cameras is another instance of the excellent value in cameras of this description being turned out from the Altrincham factory. The changing mechanism is the same in all, and one which we can commend for its reliability. Exposed plates may be removed without disturbing those unexposed. The camera is solidly built, and covered in a good black grain leatherette, is provided with two reversible brilliant finders, and in the cheaper patterns—21s. to 35s.—with the Thornton-Pickard "Eclipse" shutter.



The A series—25s. to 40s.—have the "Sunbeam" shutter, giving in addition to the time, bulb, and instantaneous exposures, the very convenient automatic time-exposures of 1/8, 1/4, 1/2, 1, 2, and 3 seconds. A further De Luxe model of the camera is fitted with focussing scale, is brass-bound in the working parts, and has a detachable lens-panel giving immediate access to all parts of the lens and shutter. Cameras of this range of movement demonstrate the remarkable value for the sum of £1 or 30s. which is now offered by manufacturers.

The "Sterelette" Cameo Camera. Sold by W. Butcher and Sons, Ltd., Camera House, Farringdon Avenue, London, England.

Messrs. Butcher have this season provided the amateur worker with a variety of stereoscopic cameras and accessories at popular prices such as have not previously been at his disposal. Their special handbook, "Stereoscopic Pictures and How to Make Them," which is sent free on application, should be studied as an elementary introduction to stereoscopic photography, and as showing the very complete equipment, from the camera to printing accessories and viewing instruments, which Messrs. Butcher are able to offer. In the "Cameo Sterelette" a plate 4 1/2 x 1 3/4 in. is used (107 x 45 mm.).

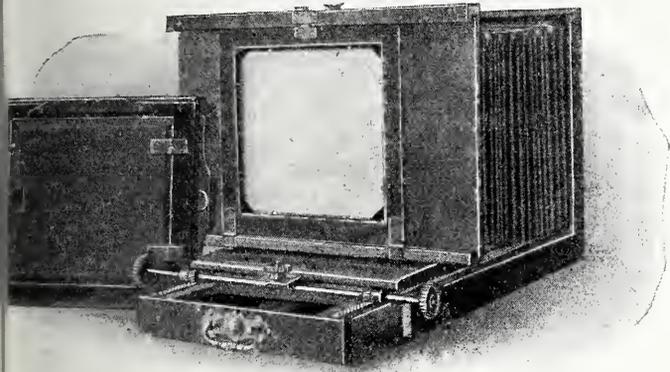


The tiny instrument is made throughout of light metal, and measures, when closed, under 3 3/4 x 5 1/2 in., and is barely 1 1/4 in. thick. It is provided with double everset shutter, having time, bulb, and instantaneous adjustments, level, brilliant finder and focussing scale from infinity to 4ft. At the price of £3 10s. the camera is fitted with a pair of R.R. lenses working at f/8, whilst for £8 it is supplied with f/6.8 anastigmats, and at £12 with Goerz f/6.8 "Dagors." It has a rising front and convenient diaphragm adjustment acting on both lenses simultaneously. The camera is designed to take

dark-slides, or, with special focussing screen, a film-pack ter.

"Millais" Studio Cameras. Made by the Camera Construction Company, Eagle Works, Durham Grove, Hackney, London, England.

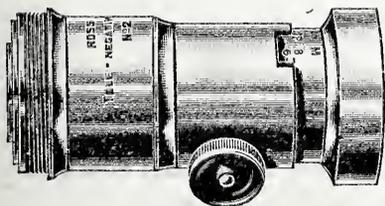
These are a new series of two studio cameras made in 9½ by 8½ 12 by 10 sizes. The smaller, which we have examined, provides total extension of close on 30in., obtained by a substantial and smooth working rack and pinion, and by an additional draw-out which is worked from the back of the camera. There is rise of lens, and the lens panel, which is 7in. square, allows of the largest size being used. The focussing screen is hinged on the lower side



to drop on the camera baseboard, and the single dark-slides and the camera back are very ingeniously made so as to take either whole-plate, one half-plate, two half-plates side by side, or two quarter-plates on the single half-plate, a range of movements sufficient for ordinary work of an average studio. Two slides are provided for each camera, and the outfit in its substantial construction does not belie the favourable impression created by its appearance. In the 8½ size the price is £7 5s., extra slides 18s. In the 12 by 10 size the price is £9, extra slides 25s.

"Ross" Telephoto Attachment. Made by Ross, Limited, 15, North Side, Clapham Common, London, England.

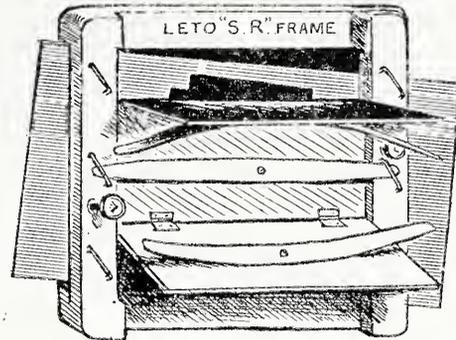
This is a very perfectly finished telephoto lens mount, the one submitted to us being fitted with a 7-inch Homocentric positive of f/6.3 aperture, and two negatives of 3 and 2½ inches focus respectively. The settings are made in several sizes, to suit various positive and negative lenses, and are fitted with focussing rack and pinion, and a sliding shutter showing the separation of the optical elements, while another sliding shutter is engraved on the complete instrument to show the approximate magnification. The complete objective is less bulky than many telephoto combinations of the ordinary type, and is highly convenient to use. Five different settings or tube mounts are available, and combinations of 1¾, 2¼, and 3 inches focus for use with any first-class anastigmat can be used as the positive element, the Homocentric being specially recommended. Messrs. Ross also supply a remarkably light and effective telescopic lens hood,



It screws into the front of the positive lens. This is an extremely simple and effective attachment, and trials have shown that the complete telephoto outfit as submitted to us is one of very great value and capable of producing the finest possible results, even though we are obliged to try it in conditions which were the reverse of favourable. The prices of the settings vary from £2 10s. to £3 12s. 6d., and the negative elements cost from £1 15s. to £3 5s. The extendible lens hood is only 15s., at which price it is by no means an expensive

The "Leto" S. R. (self-registering) Printing Frame. Sold by the Leto Photo. Materials Co., Ltd., 3, Rangoon Street, London, England.

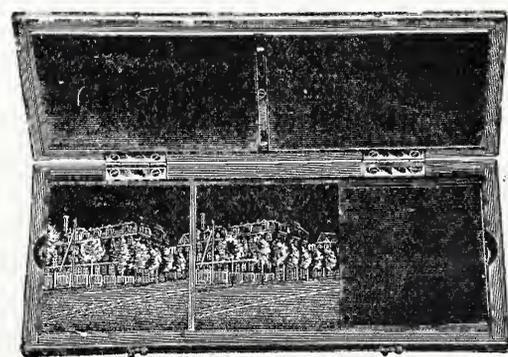
A printing frame of quite novel and distinct pattern has been introduced under this name, and provides facilities, such as photographers will appreciate, for double printing and for taking off prints from portions of negatives. The frame is built square, and provided on each side with a slot in which a register card is placed serving to fix the negative in a given place or to mask a portion of each negative. This adjustment once made, the card is clamped by



the two set screws, and any number of identical prints can then be taken off without further attention. The back of the frame is made in three pieces hinged together so that a full two-thirds of the print may be examined from either side at one time, the form of construction allowing of any part of the print being scrutinised during printing. This very convenient frame is made in two sizes: No. 1, 6½ in. square, and taking negatives up to half-plate size, and No. 2, 8½ in. square, taking those up to whole-plate. The prices, 6s. and 7s. 6d. respectively, include the necessary reversible carriers for smaller negatives.

The "Primus" Stereoscopic Transparency Printing Frame. Sold by W. Butcher and Sons, Ltd., Camera House, Farringdon Avenue, London, England.

In this little accessory the makers have conveniently provided for the printing, from the undivided stereoscopic negative, of a transparency by contact, ready for observation in the stereoscope. This is done by making the frame of such dimensions that when the negative is pushed to one end and the transparency plate to the other the portions which overlap come exactly opposite the central opening, which is provided with a brass sliding shutter. The relative positions of negative and transparency having been reversed, a second exposure is given and the plate developed. The frame is

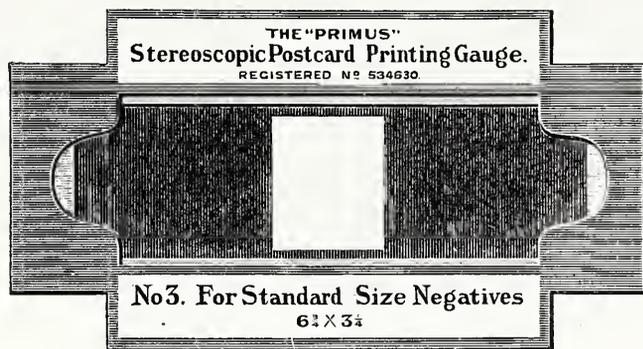


made of a size for the "Stereolette" Camera (4½ x 1¾) for 4s. 6d., or of the standard, 6¾ x 3¼, plate at 6s. 6d., in each case being well made in polished wood, and provided with spring contact pressure board.

Stereoscopic Postcard Printing Gauges. Sold by W. Butcher and Sons, Ltd., Camera House, Farringdon Avenue, London, England.

The principle of the transparency frame just mentioned is extended in these cases to development or printing-out papers. The gauge consists of a stout cardboard in which is an aperture the size of the stereoscopic picture, say 1½ in. in the case of the "Stereolette." There are two series of stops on the gauge, one for the negative and another for the postcard. In printing, the negative is

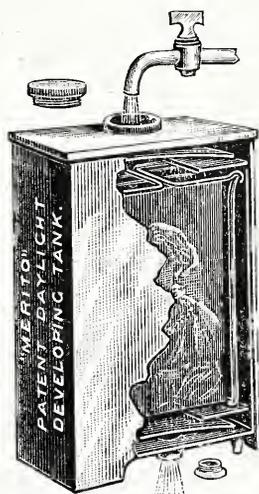
pushed up to the right-hand stop and the postcard to its left-hand stop, exposure given either by printing-out or exposing to artificial light, and the relative positions of postcard and negative reversed—that is to say, the postcard pushed to the right-hand stop and the



negative to the left. A second exposure gives the complete stereoscopic card, which is then toned or developed. These very inexpensive and convenient gauges are supplied for negatives 4 1/4 x 1 3/8, 1s. 3d. each, for postcard negatives 5 1/2 x 3 1/2, 1s. 3d. each, and for 6 3/4 x 3 1/2, 1s. 6d. each.

The "Merito" Developing Tank. Made by W. L. Parkinson, Ltd., 5, Commutation Row, Liverpool, England.

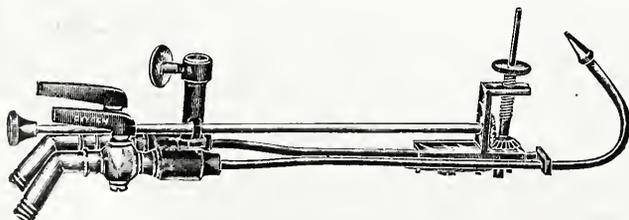
In this new pattern of developing apparatus the developing tank proper is covered by a second inverted tank which protects the contents of the first from light, while, however, the inner tank can



have the developer run off from the bottom, and hypo or water run in from the top, in each case by means of a screw-cap. The quarter-plate tank is made to hold six plates, and costs 6s. 6d.; other sizes in proportion. The apparatus is well made in nickelled metal, and its excellent feature of providing the means of using it as a washer as well as a developing tank should recommend it to the amateur worker.

The Beard Oxygen Acetylene Jet. Made by R. R. Beard, 10, Trafalgar Road, Old Kent Road, London, England.

Mr. Beard, whose long practical experience in the lantern trade qualifies him for the task, has designed a limelight jet in which



acetylene is used in place of coal gas, the jet thus serving for use in many places where coal gas is not obtainable. It can, however, be used for coal gas, although at the expense of efficiency.

The acetylene generator should be one of the gas-holder type which allows automatic generation of the gas. The oxygen is admitted to the gas at a pressure not below 5lbs. per square inch, and up to 15lbs. the higher the pressure the greater the light. In

lighting the jet it is advised that the oxygen be turned on and then the acetylene. The adjustment of the gases is done by the two taps, but, as a rule, only adjustment of the acetylene is required. Over 2,000 candle-power has been obtained by this method and where only a small but powerful point of light is required stands first of all other illuminants, except electric arc. The price is £1 5s.

Express" and "Victo-Superbe" Stand Camera Outfits. Made by Houghtons, Ltd., 88 and 89, High Holborn, London, England.

The movements which a camera issued at such low price as 57s. 6d. in half-plate size—complete with lens, shutter and tripod—possesses, surprises those of us who recollect the prices which were paid for similar facilities fifteen or twenty years ago. In the "Empress" set Messrs. Houghtons cater for the purchaser of a modest purse, yet they provide an instrument which has great range of front, swing front, swing back, and double extension to the total length from lens to plate of 17 inches. The back, too, is hinged forward for wide-angle work, and the whole outfit, though not advanced as an example of the fine cabinet-making which is met in the "Sanderson" and other cameras of the firm, is nevertheless made to withstand a good deal of wear, and is yet sold complete with R.R. f/8 lens and one slide at the price we have named, 57s. 6d., or £2 7s. 6d. in quarter-plate, and £4 12s. 6d. in whole-plate.

In the "Victo-Superbe," which is sold in half-plate size only, complete with Beck f/8 R.R. lens, roller-blind shutter, tripod and one double slide, at £4 4s., we obtain, at the same time as a more substantial construction, the added convenience of a rack and pinion adjustment for the wide-angle movement. This convenience in a camera at a price intermediate between the popular 70s. sets and the high-priced instruments should recommend this variety of the "Victo" to users who appreciate, as we do, the convenience of the back rack and pinion.

The "Ibso" Diaphragm Shutter. Sold by Ross, Ltd., 3, Northside, Clapham Common, London, England.

To this very convenient diaphragm shutter, in addition to the usual time adjustments, is fitted with a setting, C, on turning the plate to which the shutter is locked, that is to say, pressure on the release does not open the aperture. A camera thus provided is secure against



accidental exposure of the film or plate by the closing of the release board, and the adjustment serves the further purpose of preventing the plate being exposed when the camera is in the hands of strangers. Including the "Antinous" release, the price of the shutter is 12s.

The Double Protar Series IV. Anastigmat. Made by Carl Zeiss, Jena, Germany; and 29, Margaret Street, London, England.

This series of lenses has been brought out to replace the famous Series VI. Protar, having the same aperture as those lenses, viz., f/6.3, and, being like them, convertible. They are, moreover, marketed at a price substantially lower than that of the Series VI., and are obtainable with foci of from 3.4 to 16 inches. The specimen submitted to us has a focal length of 5 1/2 inches, and full aperture of f/6.3, and a test on the camera shows that it covers a half-plate at full aperture with critical definition right to the corners, which, we believe, is more than the makers claim for the lens. The combinations are of 10 inches focal length, and give very fine definition indeed over the same size plate at their full aperture, 2.5.

s particular objective, on account of its symmetry, should be specially well adapted to near work, and its performance, leaves nothing to be desired in any of the conditions in which we tested it. It is very small and compact, and the photographer could hardly possess a more useful lens for general all-round work. A spare hood is supplied for use when the front combination is removed and the back one alone is being employed. It should be added that the lens is made, in a number of cases, with components of dissimilar focal lengths. Thus the No. 4-3 of 5.4 inches focus and $f/7$ aperture, has combinations of 9.1 and 9.8 focal length. Its price is £6 10s.

"Premo" Film Pack Developing Tank. Made by Kodak, Ltd., Clerkenwell Road, London, England.

This tank developer accommodates twelve films such as those included in the "Premo" film pack, which are placed bent, as shown in the illustration, each in a separate division of the beehive-shaped



Here they get even exposure to the developer, since the tank is provided with a water-tight lid which allows of its being opened at intervals. The tank and rack are strongly made in polished metal, and cost in quarter-plate, postcard, or 5 x 4 size (holding twelve films), 16s.; or to take six 7 x 5 films, 18s. 6d.

Sanders "Shafta" Camera. Made by Sanders and Co., 71, Shaftesbury Avenue, London, England.

Under this name a camera of the hand-stand pattern has just been introduced on the market primarily for use in natural history photography, although its movements in no way unfit it, but rather well qualify it, for all descriptions of photography with an instrument of hand or stand type. It possesses rack and pinion extension in three directions, giving a length of bellows of 16½ in. from lens to plate in the 5 x 4 size. This movement towards both back and front enables the camera to be supported on the tripod head in the most convenient position when at the full extension. The back swings both up and over a considerable angle, whilst the front is given a full rise, and is also able to swing to any degree. The shutter fitted is the "Ornton-Pickard" roller-blind, both it and all the other portions of the camera being of black finish, with the exception of the outer ring, which is of the dark green leather adopted in the same makers' "Birdland" reflex camera. The instrument thus is inconspicuous in appearance, even to the lens, which is supplied in a leather mount. Complete with reversing back, brilliant finder, and focusing scales, and three double dark-slides, but without lens or filter, the price of the camera is £4 10s. in quarter-plate size, £5 10s. in 5 by 4, and £6 10s. in half-plate.

"Moss-Abingdon" Acetylene Generator. Made by R. J. Moss & Sons, 98-99, Snow Hill, Birmingham, England.

This new generator is made for use with ordinary lump carbide. The apparatus is a combination of the "Moss" and the well-known "Abingdon," and the makers claim that it combines the best features of both. It certainly works with wonderful steadiness; there is no up and down movement, with consequent variation of pressure and fluctuating light, but a steady, gradually downward movement only as the carbide is used up. This also shows how the carbide is used, and is one feature which should recommend it to lanternists. An entire absence of mechanism or rubber rollers is a most welcome point, and should be specially valuable to lanternists in remote districts. The generator is made in three sizes, 1½ lb., and 2½ lb., and is listed at prices as follows:—1½ lb. £22s. 6d.; 1½ lb., 26s.; 2½ lb., 32s. 6d. Messrs. Moss have introduced a square tank pattern of all their generators. They have a good appearance, and as the gas outlet tap is placed in one

of the corners it is less liable to be damaged in transit, besides which the gas is taken by a straight pipe from the top of the condenser chamber, therefore a stoppage by water (condensed) in the pipes is almost impossible.

The "Quick-Change" Anti-Reflection Telephoto Attachment. Sold by A. E. Staley and Co., 19, Thavies Inn, Holborn Circus, London, England.

Both lightness and efficiency are obtained in a new design of the telephoto tube (if we can call it a tube) which Messrs. Staley have just introduced. In place of mounting the negative lens at the rear end of a solid tube a skeleton framework is employed consisting of two metal rings, one carrying the negative lens and the other made to engage with the back portion of the positive. The attachment of the negative element is thus quite as rigid as when a tube is used, whilst the advantage of dispensing with the solid wall of the tube is that reflected rays from the positive lens, instead of falling upon the surface of the negative element, fall upon the bellows of the camera by which they are absorbed or intercepted. The idea is very simple, but it should certainly make for more brilliant results in telephoto negatives, while it has the further advantage of reducing the weight of the telephotographer's outfit.

"Kibitz" Folding Cameras. Sold by A. E. Staley and Co., 19, Thavies Inn, Holborn Circus, London, England.

In this series of folding pocket-cameras, which Messrs. Staley are fitting with their own and other standard lenses, the focussing movement is very ingeniously controlled by a system of lazy-tongs levers connecting the back frame and the front, the focussing scale being on one side of the back frame of the camera. The construction has the good feature of allowing the focussing scale to be left set for objects at any given distance, and on the camera being re-opened it is pulled out and automatically caught again in focus for these objects. The cameras have good rise of front one way of the plate, a very neat direct-vision finder, which folds over into the camera, and, in the 3½ by 2½ size, accomplishes these facilities in the small space of slightly less than 5 by 3½ by 1½ inches. The instruments are made in quarter-plate and other sizes, and are also obtainable as stereoscopic cameras.

The Steinheil "Triplar" Anastigmat $f/3.8$. Sold by A. E. Staley and Co., 19, Thavies Inn, Holborn Circus, London, England.

This new lens of the old-established Munich firm of opticians is sold in five sizes, from 3 in. to 16 in. focal length, the aperture of this last and longest focus lens being $f/4$. The shortest focus lens, 3 in., is intended chiefly for cinematograph work, and covers a plate ¾ in. square. The longer focus instruments are specially suitable for hand-camera work and studio portraiture. The lens, which is of the triplet type, gives very crisp definition and evenly illuminated field, whilst its covering power fits it also for photographs of groups, and, in conjunction with a negative attachment, for telephotography. The lens is supplied in a focussing mount of very good mechanical construction. The prices of the "Triplar" range from £4 for the 3 in. lens to £18 5s. for the 12 in. lens, suitable for use as a cabinet portrait lens.

The Ross-Zeiss "Tessar" Cinematograph Lens. Made by Ross, Ltd., 3, North Side, Clapham Common, London, England.

This is an $f/3.5$ lens of three inches focal length, specially designed for use in the cinematograph camera, and in the small circle of 3½ inches that it covers its quality is fully up to the standard which we expect with the "Tessar." This should prove a most valuable lens for the purpose that it is intended to fulfil, and the advantage of a rapidity of $f/3.5$ in cinematograph work needs no comment. The angle that the small cinematograph picture subtends is, of course, not large, but within this small angle the lens defines perfectly at full aperture.

The Airole Double Action Pump. Made by the Airole and Litho Syndicate, Ltd., 35, St. Bride Street, London, England.

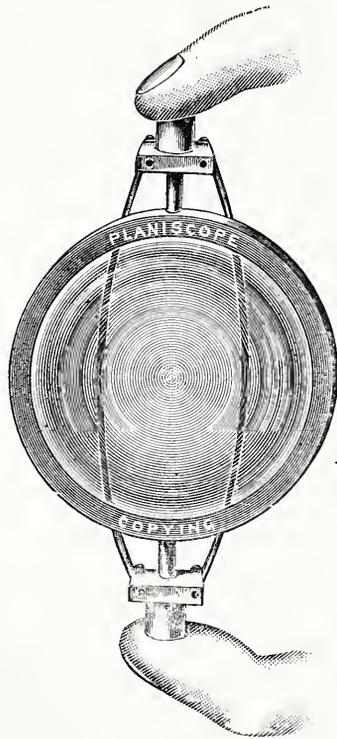
This convenient force pump is an addition to those already made by the Airole Company for use with the well-known air-brushes of their manufacture, and has the good feature that the lever is active in both directions of the stroke, and, with a minimum of exertion, gives a pressure of three atmospheres. The reservoir is provided

with pressure gauge and a pair of connections allowing of two air-brushes being worked from it. It is very substantially made, and sold at the price of £4 10s.

The "Moto" Dark-Room Lamp. Sold by W. Butcher and Sons, Ltd., Camera House, Farringdon Avenue, London, England.

This new pattern of dark-room lamp, very strongly built, somewhat on the design of a motor-car lamp, is made entirely of metal, the reservoir, which carries a good size burner, being outside, and the lamp being provided with two circular safelights (ruby and amber) $3\frac{1}{4}$ inches in diameter, either or both of which may be used. One good feature of the lamp is the large handle, enabling it to be conveniently carried about the dark-room.

NEW MODEL PLANISCOPIES.—The various supplementary lenses supplied by Messrs. John J. Griffin and Sons, Ltd., Kingsway, London, England, for the conversion of the amateur photographer's own lens into a wide-angle, portrait, or telephoto instrument, are now issued of the new form shown in the drawing, whereby attachment to a lens hood or barrel, which may be smaller than the "Planiscope" lens, is quite conveniently done. The pair of



nickelled springs, when compressed by the two plungers, form a spring attachment which holds the lens firmly in position, and yet allows of even a comparatively small lens being grasped with equal firmness. As before, the "Planiscope" are issued at the price of 5s. each for lenses from $1\frac{1}{4}$ to $1\frac{1}{2}$ inches, 6s. 6d. each for lenses from $1\frac{1}{2}$ to $1\frac{3}{4}$ inches, and 7s. 6d. for lenses from 2 to $2\frac{1}{4}$ inches.

THE 1909 "N. AND G." REFLEX CAMERA.—In the new model of this renowned standard instrument a somewhat important alteration has been made, namely, the introduction of a different pattern of hood. Hitherto the hood of the N. and G. reflex has been erected on two aluminium struts pulled up from each side of the camera, and supporting the wooden nose-piece from which the ground glass was observed either with or without the aid of a magnifier. In the new pattern this type of hood has been entirely discarded, and the more usual collapsible form held by a light metal strut is employed, the hood itself folding up and being covered when out of use by the hinged top of the camera to which is fixed a carrying strap. The ground glass is thus fully protected, and the alteration does not affect the convenience with which the ground glass is rendered accessible for dusting or wiping. The base of the hood is fixed to a metal frame, which is instantly detached as in fact is the complete hood, the upper portion being held to the inside of the hinged back of the camera by a couple of studs sliding in struts.

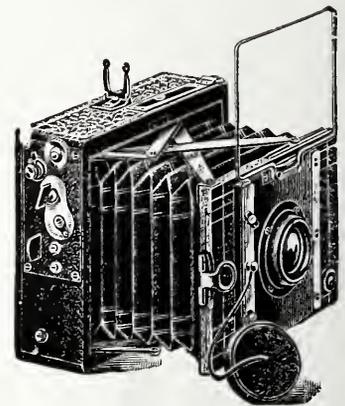
In addition to this change, a release for the shutter is provided

on each side of the camera, and further a camera strap is provided on the side and top of the camera, the spring catch of the lid being of the full strength and length necessary to hold the lid

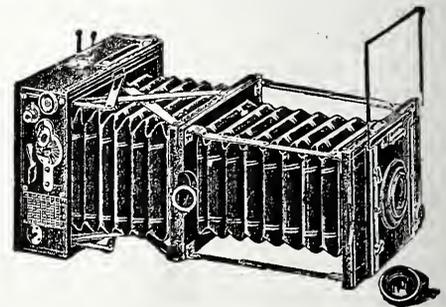


closed. Messrs. Newman and Guardia, Ltd., we may add, have just removed to 17 and 18, Rathbone Place, Oxford Street, London, England.

"NETTEL" FOLDING CAMERAS.—An example of the series of old-focal-plane cameras sold under this name by May and Co., 22, St. Paul's Road, Seacombe, Liverpool, England, shows that the instruments are designed with careful regard to practical require-



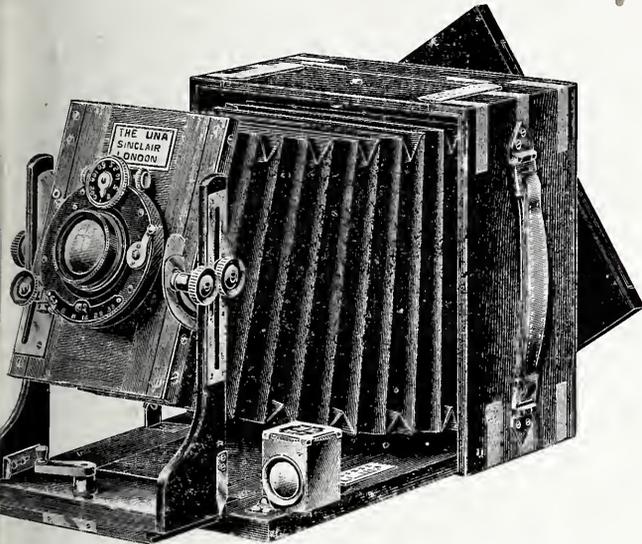
ments. Focussing is done by means of a milled screw on the back of the camera which operates a series of levers reducing or increasing the extension. An extension piece giving an additional distance of $6\frac{1}{2}$ in. is supplied for use with the "Nettel," and is a useful acces-



sory in doing telephoto or long-focus work, since it closes the dimensions of $4\frac{1}{2} \times 6 \times 1\frac{1}{2}$ in. The "Nettel" cameras are adapted for the use of single or double metal slides or for the convenient envelope adapter.

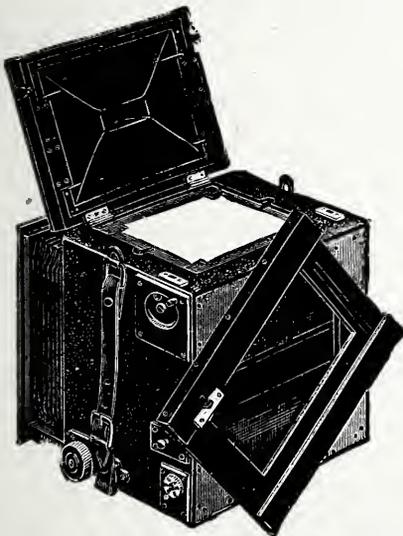
THE REVOLVING BACK "UNA" CAMERA.—Messrs. James Sinclair and Co., Ltd., 54, Haymarket, London, England, have added to the convenience of their very practical and well-made "Una" camera, a revolving back which allows of the plate, while sitting for exposure in the dark slide and with the shutter of the latter drawn, being quickly changed from the upright into the landscape position, a point of importance to the hand-camera worker. Further, a central swing front is now provided which, while not in a way depreciating the rigidity of the front, which the makers have

a feature of the camera, provides the greatest range in the f swing. This latter is brought into action simply by loosening the screw, and is fixed at any point by tightening it again. In this position the front can be raised or lowered just as though the



panel were in its usual vertical position. These improvements do not increase the bulk of the camera, and the quarter-plate outfit complete with lens and shutter ranges from £7 17s. 6d., in the standard model to £8 7s. 6d. for the polished teak, brass-bound model as illustrated.

THE LANCASTER "PLANO-REFLEX."—The 1909 model of this square format rotating back, double-extension reflex, the features of which have previously been described, has an extra convenience given to it by the provision of an automatic mask which works underneath the focussing screen and shows the exact picture, upright or hori-

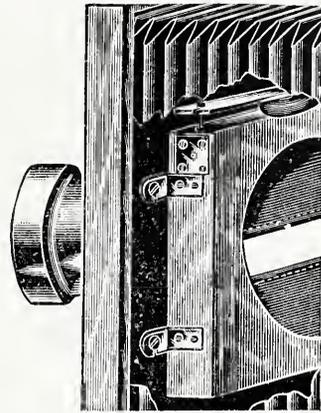


al, being thrown upon the plate. The camera is now made in quarter-plate, 5 x 4, postcard, half-plate, and 7 x 5 sizes, the price, without lens or dark slide, being £7 15s. in the quarter-plate

THE ROSS HOMOCENTRIC CINEMATOGRAPH LENS.—In this lens the makers supply a cinematograph lens of 3in. focal length, but of aperture f/4.8, and covering a circle of 4½in. This is a very highly corrected lens, of quality equal to the well-known "Homocentrics" of other types, and it would obviously be well adapted for use on a ½ x 2½in. plate. On such a plate it would include a moderately wide angle, and might be of exceptional value at times. The small cinematograph picture is, of course, covered perfectly at full aperture, and for this kind of work a better lens can hardly be wished for, excepting when a larger aperture such as that of the Ross "Tessar" is required.

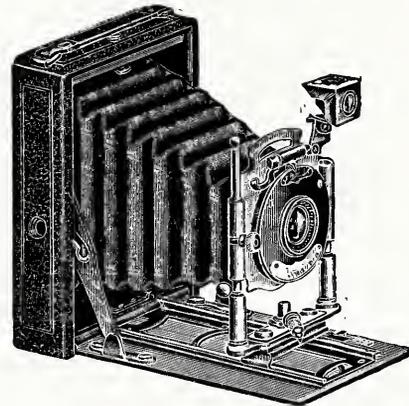
THE THORNTON-PICKARD PATENT SILENT STUDIO SHUTTER, NEW MODEL.—In the 1909 pattern of this shutter an improvement has been made in the lever release which renders the action of the shut-

ter still more smooth and certain. An ebonite tap is also provided on the pneumatic release, so that when keeping the shutter open for focussing or when giving long time exposures, the shutter may be



opened by pressure on the ball and the tap turned off in order to keep the shutter open as long as may be desired. The simple action of the shutter, two separate blinds, each rolling up on its own roller, gives a very silent action, and allows of exposures from ½-sec. long as desired. The shutter is sold for lens hoods from 2in. to 5in. diameter at prices from 20s. 6d. to 47s. 6d.

"ELF" FOLDING POCKET CAMERAS.—The series of cameras sold under this name by The Tella Camera Co., 68, High Holborn, London, England, is introduced to us in the shape of the 3½ x 2½ size instrument, which conveys the idea of the compactness of the camera in the fact of its outside dimensions being 4¾ x 3½ x 1½ inches.



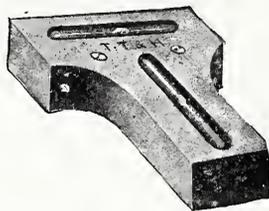
The extended camera, however, provides considerable rise of front, reversible finder focussing to 6ft., and time, bulb, and instantaneous shutter. The plates are carried in the convenient single metal holders, three of which are included in the price of the apparatus, which is 37s. 6d.

COOKE LENSES IN COMMERCIAL SHUTTER.—A form of mounting of the Cooke lens, which many photographers will appreciate, is that recently introduced by Messrs. Taylor, Taylor, and Hobson, of Stoughton Street, Leicester, England—namely, the supply of the lens in two separate cells, which can be screwed direct into the front and back tubes of a number of the popular diaphragm shutters, such as the Bausch and Lomb, "Volute," "Automatic," and "Unicum" in the No. 1 sizes, the 2A "Koilos," the No. 1 "Compound," and the Kodak "Automatic." The owners of these shutters may thus obtain a Cooke anastigmat in two separate parts which require only screwing into the shutter to be in correct optical adjustment.

DRY MOUNTING MACHINES.—Messrs. Hyde and Co., Chester, England, have introduced a new machine exactly on the same lines as their No. 1, now used in many parts of the world with great satisfaction. It is not convenient for every one to have a machine so large and so heavy as the No. 1 machine, which mounts 20 x 14 at one pressure. The present machine, No. 9, therefore has a platen 15½ x 12, and will take a mount 17½ between the uprights. This covers all sizes of enlargements usually made, and gives a very large range to the photographer. A print 20 x 16

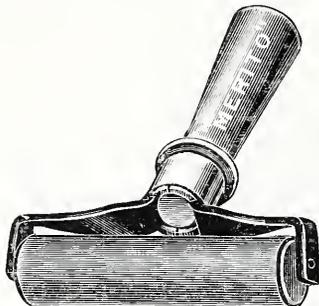
can with a little manipulation be mounted, and one of 24 x 15½ is quite easily arranged for. The price of the machine is £5 5s.

DOUBLE TUBE LEVELS.—Messrs. Taylor, Taylor, and Hobson, Ltd., Stoughton Street, Leicester, England, have long made special patterns of spirit levels for cameras, presumably as an outlet for the beautiful mechanical workmanship which characterises their lens mounts and other optical manufactures. A new pattern of level is that shown in the illustration which is designed for camera-



makers and others who require a double-tube level of as compact a form as possible. The level looks better than the usual square pattern, and may be obtained either bright, lacquered, or nickelled. Moreover, the level has that nice steadiness of movement which fits it for practical work, a level which is ultra-sensitive to the slightest tilt of the camera is a nuisance for practical photography. The price of the level is 3s.

THE "MERITO" ROLLER SQUEEGEE.—A special pattern of roller squeegee of very strong construction is made by Messrs. W. L. Parkinson, Ltd., 5, Commutation Row, Liverpool, England. It embodies the means of providing a very free-running roller. The rubber



band is prevented from shifting by means of a brass ferrule at each end of the roller, and, further, the arms of the squeegee are fastened to the handle by a plan which ensures very great strength. The squeegee is altogether an article to stand hard wear and tear, and is sold in the 6in. size at 1s. 6d.

THE "CHALLENGE" TRIPLE EXTENSION TROPICAL OUTFIT.—A brass-bound pattern of the excellent half-plate camera issued for the home market at the popular price of 75s. is made by Messrs. Lizars, of 101 and 107, Buchanan Street, Glasgow, Scotland, for £4 15s., inclusive of lens, time and instantaneous shutter, tripod, and double slide. The camera in its tropical edition is brass-bound, and with the woodwork of teak. The great rise of front—3¼in.—and the total extension of 24in., together with the wide-angle movement for the use of short focus lenses, render it an excellent piece of apparatus for the most varied descriptions of photography.

THE BEARD PRESSURE REGULATOR.—A modified form of this well-known gas regulator has been introduced by Mr. Beard, to provide for those occasions when the regulator is required for other purposes than limelight. In the new model the pressure can be adjusted to meet these wants. The regulator is fitted with two pressure gauges, one showing the pressure contained in the cylinder and the other the outlet of the regulator pressure. To adjust the outlet pressure the milled head is turned until the index of gauge shows the required amount. This should be done while the regulator is in use. Price £3 3s.

P. AND M. BACKGROUNDS.—A number of specimens of this standard make of background have recently been shown to us by Mr. C. A. Rudowsky, 89, Chiswell Street, London, England, who for many years past has been supplying them to professional photographers in all parts of the world. The series, we were interested in observing, is kept quite up to date in style and suitability to modern requirements, and the backgrounds in flatted oil or dis-

temper are sold in 8ft. x 8ft. size at a price of 45s. exterior 50s. interiors. Foreground pieces, 6ft. x 8ft., of the same quality are supplied at 15s. each.

A WATER TROUGH FOR PROJECTION LANTERNS.—For use in lantern for cutting off the heat rays, especially when projecting chrome slides or for the cinematograph, a tank has been made by Mr. R. R. Beard, with circulating tubes. It can be fitted above the lantern or in any more suitable position. The use keeps the slides or films cool, prevents scorching or burning, and will be found a most efficient method of preventing fire when the cinematograph is used. The tank has been in use at the Royal Photographic Society's Exhibition Rooms with the best results.

IN THE 1909 MODEL of the "Argus" reflex camera of Messrs. W. Watson and Sons, particulars of which we have given on past occasions, an improvement has been made of real convenience to the many workers employing the camera for Press and similar descriptions of photography—namely, the provision of a rack and pinion adjustment to the rising front. The camera retains many other good features as the instant accessibility of the ground glass for cleaning, and the automatic covering of the plate by the mirror after each exposure whilst the shutter is rewound.

A STUDIO SETTEE.—Of accessories for the professional photographer, of which Messrs. F. E. Jones and Co., 22, Gray's Inn Road, London, England, have originated a number of varieties, a new piece of furniture in the shape of a handsome settee of the Quatorze style is the latest introduction of this firm in this section. The article of furniture, which is made in solid mahogany, is of ornamental pattern, prices and freightage being obtainable on application to Messrs. Jones and Co.

RUBBER LANTERN TUBING.—The Thornton-Pickard Co. have now commenced to supply a rubber tube, either black or red polished of the same superior quality sent out with their various shutters as also a further special quality under the name of "Arabesque," which is recommended for its greater durability. Those using gas, either from the mains or from cylinders, for enlarging or lantern work, may be glad to obtain their supplies of tubing from this photographic house.

WASHABLE STUDIO ACCESSORIES.—A novel departure in accessories for the studio in the way of casement windows, etc., is made by Messrs. W. L. Parkinson, Ltd., 5, Commutation Row, Liverpool, England, by whom a series of these goods is now made in wood, lightly but strongly constructed. They are supplied of any required tone or colour, and are readily cleaned when dirty. The price ranges from £4 4s. for a casement window fitment.

A MINIATURE DEVELOPING TANK.—Messrs. Sanders and Co., 71, Shaftesbury Avenue, London, England, supply this neat little developing tank, which is made to take plates for cameras such as the "Blocknote"—that is, of size 1¼in. by 2in. It accommodates twelve plates, each held in a separate dipper. The tank is very nicely made in copper, and is fitted with a light-tight hinged lid. The price is 5s.

THE NEW "BROWNIE" CAMERA.—The latest addition to the "Brownie" series of cameras is one taking a quarter-plate and supplied inclusive of achromatic lens (with three stops), tank finders, time and instantaneous shutter, and two bushes for the tripod screw, at the price of 17s. 6d. The camera is made to take the No. 3 Folding "Brownie" or the No. 3 "Bull's Eye" black spools.

Wellington "Contrasty Enammo" Bromide Paper. Made by Wellington and Ward, Elstree, Herts, England.

In this new brand of bromide paper the makers have specially had in view the press photographer, the final destination of whose work—the half-tone proof—calls for extra vigour and brilliancy in the print, even though the adverse conditions under which he has frequently to work make against a negative of corresponding character. The paper is treated as regards exposure and development exactly as the ordinary Wellington "Enammo" paper, which has long been a standard article, but the results have much more pronounced vigour, their quality in this respect being perhaps slightly more marked than the Wellington S.C.P. (gaslight) paper. We found the paper to confirm the accepted high standard of the Elstree factory in the matters of cleanness of working and freedom

surface markings, and to give prints of fine vigour, and blue-colour. The paper should meet with general approbation in photography, despite the fact that in their "Carbon Surface" the makers provide a paper of the semi-glossy kind, which is fairly suitable for originals to be reproduced in half-tone.

Label "Zigo (Self-Toning) Paper. Made by Thomas Illingworth and Co., Willesden Junction, London, England.

This new variety of their well-known "Zigo" paper Messrs. Illingworth, whose name has become deservedly associated with self-P.O.P. of excellent quality, have effected further improvement in their manufacture, the result of which is, first, to facilitate production of a good tone in a plain hypo bath, and, secondly, greatly improved keeping qualities to the paper. So far as the first of these two claims we can fully confirm it, since the "Label" Zigo, printed from a decent negative—the self-toning of P.O.P. requires a negative of somewhat greater vigour than ordinary kind—gives very rich purple-brown tones on immersion in the plain hypo bath. The test of time alone can decide makers' claims as to keeping qualities, but our Colonial readers will see the easy and inexpensive means of applying to the makers a sample of the paper, and testing its behaviour on arrival at its destination. The paper is made in one surface only, the velvet or glossy variety, which is now perhaps the most popular description of surface for photographic papers in England.

Wellington "Press" Plate. Made by Wellington and Ward, Welwyn, Herts, England.

These plates Messrs. Wellington and Ward have catered particularly to the press photographer in providing an emulsion of very fine grain, yet one which yields full density in a short time of exposure, and also fixes rapidly. The maker of "news photographs," having usually to do his work under conditions which do not afford opportunities for meditation, is naturally anxious to use a paper which can be quickly put through to the wash water without loss of its quality, and this, in our experience of the new Wellington plates, can be done. The plates give clean, bright negatives of fine grain, and their properties, apart from the needs of the press photographer, are those which eminently qualify them for hand-work.

"Happy Thought" Camera Polish. Made by The Vanguard Manufacturing Co., Maidenhead, England.

The happy thought is that of the Vanguard Co., which in this connection to its numerous preparations for all kinds of photographic uses has added a means of reviving the woodwork of cameras, the photographer's furniture or panelling, in addition to a renovating action upon camera bellows, cases, or any kind of other goods. The preparation in practical use sustains the long-established reputation for efficiency, and should be a material of use to the photographer on many occasions. It is put up in tins, which sell in England at sixpence, post free eightpence, in larger quantities.

AUTOTYPE TISSUES AND TRANSFER PAPERS.—To the already long list of tissues which the carbon printer has at his disposal from the Autotype Co. a further seven varieties have just been added. These are: "Ivory black" (No. 94), "Cold bistre" (No. 102), "Turner sepia" (No. 142), "Green sepia" (No. 143), "Grey green" (No. 145), "Rembrandt sepia" (No. 160), and "Vandyke brown" (No. 169). Of these the "Ivory black" gives a print of bold, rich colour of great richness in the shadows, but preserving its fine grain and character in the more delicate passages. An excellent tissue for general work, and, of course, particularly for snow landscapes. The "Bistre" and "Turner sepia" are both tissues of distinctive colour, the latter more so than the former, as it is of a character which is perhaps a little too vivid for the taste of most photographers as a rule. The "Bistre," on the other hand, is a rich, old brown, which is very suitable for portraiture, particularly for the people. Of the other tissues, we like best the "Green" (it must be difficult for the Autotype Co., or anybody else, to give names for nuances of sepias) and the "Rembrandt sepia." The former has a tinge of olive green in its composition, but prints with the other tissues would be very acceptable for the portraiture work of a professional studio. A series of new transfer papers are still to be added, difficult to describe in words. No. 73, a dead-matt single

transfer paper of a pale tone, has a very nice surface and colour, whilst No. 74 is a slightly deeper cream and of albumen-like surface. No. 2,020 is a rough matt double transfer paper, whilst No. 75 is a cream tone semi-glossy paper also for the double transfer method.

AEROGRAPH WORK ON ENLARGEMENTS.—As an illustration of the remarkably effective use made of the Aerograph air-brush in professional photography, we may point out a pair of prints shown to us a day or two ago, one of which—a direct enlargement from a very defective negative—is a piece of work absolutely hopeless from a commercial point of view, being defaced by scratches and quite a variety of markings. A companion print, however, vignettted and worked up with the aerograph, has given a result which is almost incredibly different from the original. The enlargers, Messrs. Raines and Co., of Ealing, London, England, who keep seven aerographs in constant use, have not only removed the irritating background, the scratches and markings, but also the hand and braceleted arm of the lady, her waistband, and other portions of her attire, the untidiness of which had defaced the original photograph. Another example in colours of aerograph working up, also by Messrs. Raines, has shown the effective use to be made of the air-brush method in this department of finishing photographic enlargements.

THE AUTOTYPE OIL-PRINTING PAPER.—A third variety of paper for the oil-printing process has been introduced by The Autotype Co., 74, New Oxford Street, London, England, in succession to the two "medium rough" papers which we have lately noticed. The new paper, No. 3, is a "white smooth," of surface perhaps best described as semi-matt—that is to say, of the almost dead smooth texture possessed by many of the bromide papers now made. Like the previous papers, it is readily sensitised, both in the ordinary way and with the Autotype Co.'s spirit sensitiser (which latter is the more convenient plan), and possesses plenty of toughness under the pigmenting brush. Damage of the gelatine surface is impossible, short of really ruthless treatment with the inking brushes, and the "oil" worker may take advantage of this paper and the two others in getting the maximum of quality given by the process. The paper is sold in the usual sizes, most useful of which perhaps are the 9 x 7 and 12½ x 10½, the prices of which are 1s. 6d. and 3s. 6d. per packet of one dozen sheets respectively.

AUTOCHROME PLATES.—An announcement which will interest all photographers, and particularly those in the Colonies, is that just made by the Lumiere N. A. Co., 89, Great Russell Street, London, England, of the reduction in the price of the Lumiere Autochrome plates to the extent of about 33 per cent. Four quarter-plates are now sold at 3s. instead of 4s. 6d., as formerly, and simultaneously with this reduction a modified method of treatment has been worked out by the makers, the full account of which we must postpone for the "Colour Photography" Supplement, which appears with next week's issue of the "B.J." Sufficient to say that in place of the six operations and a corresponding number of solutions, the plate simply requires two baths—one a developer and the other a reversing solution. This modification should still further popularise the use of the plates, which still hold the premier position among the materials at present available for the making of colour transparencies direct in the camera at one exposure.

"SATIN" GOLDONA (SELF-TONING) P.O.P.—This new variety of the Goldona P.O.P. evidently represents a response on the part of the makers to the demand for papers of the satin-like surface, something like a waxed print of the old days, and with somewhat more texture to it than the almost obsolete albumen print, although with all the detail of that process. Such subtleties of surface are difficult to describe, but the prints which we have made on the new Goldona show us that the makers, Messrs. John J. Griffin and Sons, Ltd., Kingsway, London, England, have secured this very pleasing quality with much success. Moreover, the rich brown tone given by the paper on simple fixation in a plain hypo bath harmonises with the surface. It may be added that during the present year each packet of the paper will contain a copy of the "Goldona" manual, which deals fully with the results obtainable with the self-toning papers.

SULPHIDE TONING "SCALOIDS."—To the series of compressed "Scaloid" chemicals manufactured by Messrs. Johnson and Sons, of 23, Cross Street, London, England, a set for sulphide-toning has been added, the use of which follows the usual method of bleaching

and treating in a darkening or toning bath, each bath being prepared by dissolving one "Scaloid" in 2ozs. of water. The preparation, as those who have used developers, etc., of Messrs. Johnson's manufacture do not need to be assured, provides a most convenient and reliable means of sulphide-toning bromide prints, the tablet method being particularly applicable in this case, since half of the troubles and failures with the sulphide-toning method are due to the use of an exhausted bleaching bath, or to a sulphiding solution which has become stale. The "Scaloids" are put up in boxes containing sufficient to make 48ozs. of toning bath.

THE OZOBROME PROCESS.—A new booklet of the Ozobrome process, the convenient method of making carbon prints direct from bromides, introduced and marketed by Ozobrome, Ltd., 122, Allcroft Road, Kentish Town, London, England, contains one or two revisions of the instructions which should be noted by those already working the process, whilst others may obtain the booklet gratis in order to familiarise themselves with this simplified form of carbon printing. When working from a veiled or flat bromide print it is convenient to use the following bath:—

Water	25 ozs.	1,000 ccs.
Citric acid	60 ozs.	5 gms.
Chrome alum	180 ozs.	15 gms.

The plaster (i.e. tissue) is immersed in this bath for not less than 15 seconds before being placed in contact with the bromide print.

THE "THAMES" COLOUR PLATE.—We learn that the Thames Colour Plate Company are now proceeding to coat the emulsion direct on to the filter plate, the plate being thus obtainable as a single-screen plate. A recent example of the manufacture which has come into our hands is a colour-photograph of the acetylene spectrum—the red, green, and blue—which are rendered with great intensity and transparency. A more important advance on the part of the makers is, however, the production of a plate of much finer structure—viz., one containing 250,000 colour points per square inch of area and of very regular formation. Plates of this finer grain are put forward specially for photo-micrographs, the makers finding that the screen as at present made is fine enough for lantern projection.

ELECTRIC LIGHT CARBON TISSUE.—Messrs. Thomas Illingworth and Co., Willesden Junction, London, England, in order to adapt their material to the now very general use of enclosed arc lamps for professional and trade printing of all kinds, have produced a special variety of carbon tissue of the quality of which we have had an opportunity of practically judging. The tissue is one which gives an enhanced degree of contrast, and thus obviates the flattening or softening effect of an intensely actinic printing light such as the enclosed arc. Carbon printers will no doubt be interested in making trial of a tissue specially lending itself to the production of brilliant prints.

BROMIDE AND GASLIGHT PAPERS.—Two new brands of gaslight and bromide paper, named respectively "Cello-chlor" and "Cello-brom," are just introduced by Mr. C. A. Rudowsky, 89, Chiswell Street, London, England. The papers are characterised by a very nice matt surface, and an ordinary amidol or metol-hydroquinone developer gives prints of rich gradation and fine black tone. They are certainly both papers of high quality. Sample prints and papers are obtainable from Mr. Rudowsky at the above address.

GRIFFIN'S P.O.P.—The makers, Messrs. John J. Griffin and Sons, Ltd., recommend this newly introduced P.O.P. of theirs for giving bright and vigorous prints, though our short experience of it has discovered that the results certainly do not tend to hardness, but have a certain soft brilliance which admirably fits the average hand-camera negative. The paper tones very readily, gives a very nice tone in the gold-sulphocyanide bath, and appears to require but little gold.

LINGRAIN-CHAMOIS BROMIDE PAPER.—The new "Chamois" variety of this paper of fine linen-like surface possesses a full cream colour, which goes well with the broken texture of the print, even if no toning is done, but still more so if the print is sulphide-toned by the usual method. Messrs. John J. Griffin and Sons, Ltd., Kingsway, London, England, who manufacture these papers, list both at the standard prices.

THE WELLINGTON "PORTRAIT SPEEDY" PLATE.—In speed these plates do not fall much short of the new "Press" plate of the Wel-

lington factory, of which we have been able to write in praise elsewhere, but they have an even finer grain, and give a negative of the highly graduated character necessary for portrait work. Their rapidity of fixation is a further good point in their favour.

"GRAMME" DRY PLATES.—In introducing these new plates, Messrs. John J. Griffin and Sons, Ltd., Kingsway, London, England, have to offer a product which is both highly sensitive and negatives of all necessary contrast. The plates are boxed in dozens for the convenience of small users, at the price of 6s. in quarter-plate size; 1s. 2d. in half-plate.

Despite the length to which these reviews have run, several had to be held over for lack of space.

CATALOGUES AND TRADE NOTICES.

TYLAR'S CATALOGUE.—The large 550-page list of W. Tylar, 41, High Street, Aston, Birmingham, England, is quite unique among photographic price lists, for Mr. Tylar, while cataloguing certain standard goods, is nothing if not original, and practically every page of the catalogue describes apparatus which is a special line with him. To mention only a few:—The clock, which at the end of a selected time caps the lens of an enlarger; a "liner" for putting lines round prints or mount openings; portable shelves and tables for dark rooms; cloud-catching shutter; in addition to many novel pieces of apparatus in the way of cameras, wadding-tanks, and dark-room lamps. One particularly useful accessory is the pocket bradawl and screwdriver of a size for manipulating the tiny screws used on cameras, which latter Mr. Tylar also supplies. The catalogue is obtainable, price 2s., which amount is refunded on receipt of an order to a total of £2 during the period the catalogue is in vogue.

THE BUTCHER 1909 EXTRA LIST.—The supplementary list of many novelties in apparatus, mounts, etc., introduced by Messrs. Butcher, is particularly worth getting, first by those who value experience the fascination of stereoscopic photography. Messrs. Butcher also have quite a series of new lines in cameras, and one very attractive and saleable series of goods is the bric-a-brac frame furniture consisting of useful articles made in fumed oak with space left for the insertion of an enlargement. These take the form of bookshelves, firescreens, or useful cupboard, and are sold at very moderate prices. The list is one which dealers ought not to omit to get.

THE LIZARS CATALOGUE.—The large 200-page list of this well-known Scottish photographic house has just appeared in a new edition, which includes full descriptions of the firm's many special manufactures in the way of hand, stand, and reflex cameras and other appliances. Messrs. Lizars, whose head establishment is at 101-107, Buchanan Street, Glasgow, Scotland, are also universal providers of photographic goods, and their new list shows them to be quite in touch with the latest requirements of photographers. The twenty pages of hints and formulæ (pp. 1 to 197) should be specially appreciated by Colonial workers.

CHEMICAL APPARATUS.—As a reference book for the many uses of chemical apparatus and chemical substances which a photographer of experimental tastes may require, the very full catalogue of Mr. A. H. Baird, 33 to 39, Lothian Street, Edinburgh, Scotland, is as useful a book of the kind as can be had, while many of the appliances illustrated, such as the patent automatic wheel, gun-taps and stop-cocks for gas and water, gasburners, hot-ter funnels, and drying cabinets are items of equipment which photographers, who would have the best, may be advised to investigate.

Mr. CHAS. J. MILLER, who for some five years past has held the position of manager of the photographic department of the Fairy Photographic Company, has relinquished this post in order to take up the duties of general manager of the London branch, which Messrs. L. Gevaert and Co., the well-known Antwerp manufacturers of photographic papers, are establishing very shortly. Mr. Miller will carry with him the best wishes of his many friends in the photographic trade in thus taking up the representation of the famous Continental house.

Photo-Mechanical Notes.

Spots in Collodion Emulsion.

found that emulsion is much more liable to spots in dry weather, and one large firm has therefore installed an apparatus to steam into the dark-room when the hygrometric condition of the sphere falls below a certain degree. Since they have taken this precaution spots have disappeared. To those working in a small dark-room a barber's scent-spray might be used with advantage. This has been found of great service in laying the dust in dusty dark-rooms.

A Convenient Varnish.

A solution of gum dammar in benzole, recommended by M.M. for Autochromes, forms a most suitable varnish for the negative used in process work. It need not be made up in a strength greater than 5 per cent., and is then filtered and allowed to settle; the clear liquid decanted off for use. The advantage of this varnish is that it can be used cold, and that it will take pencil with ease for retouching purposes if required. If it is desired very tough, then after it is set will make it so.

Photography of Catalogue Objects

The operator in a process studio frequently fails when photographing objects for catalogues, by reason of the incorrect lighting. Accustomed to copy pictures which require to be lighted perfectly on both sides, he overlooks the fact that solid objects must be lighted mainly from one side, so that the slight shadows thrown give necessary relief to an object in the round. The light should also be rather more from above than below, striking at an angle of about 45 degrees. The avoidance of too much front light, too much top light, and too much light from below would make a marked improvement in much of the technical photography that we have seen.

Photo-lithography by Bitumen Process.

A good deal of fine chromo-lithography has been, and is being done, by the grained bitumen process. A notable example of this is the view of Nuremberg, now being sold by Messrs. Winsor & Newton, and other print sellers. The process is as follows:—The metal plate is coated with bitumen solution and then exposed to a continuous-tone negative. This, on development, leaves a surface of reticulated grain, which is then prepared and printed in the lithographic manner. The irregular grain gives the lithographic artist an excellent opportunity of putting in hand work where it being conspicuous. The methods have hitherto been practically secret, but exact formulæ were given at a recent meeting at the L.C.C. School of Photo-Engraving and Lithography, by Mr. Guy Symmons, Manager of the Photographic Department of Messrs. Alf. Cooke, Leeds, who are one of the firms, if not the only firm, working such a process in England. They are as follows:—

	For aluminium.	For zinc.	For stone.
Asphalt	7 gms.	7 gms.	5.6 gms.
Chloroform	100 ccs.	100 ccs.	100 ccs.
Benzole	9 "	8 "	5 "
Alcohol	35 "	36 "	28 "
Ether	50 "	50 "	50 "

Only benzole that can be used in the above is the yellow benzole obtained from the gas works. Messrs. Fox and Co., Chemists, Bethnal Green Road, supply this readily. The whole of the grain lies with this substance.

It will be seen that the formula varies slightly according to the material on which it is coated, but variation in the grain may be obtained by varying the formula. If too coarse, more benzole must be added, and if too fine, more alcohol. The ingredients should be dissolved in the order shown, and the last items should be added very gradually drop by drop while stirring all the time. The coating of the plates should be done in a room at a temperature of 60° F., absolutely free from any draughts of air, and the plate warmed throughout by blood heat, slightly warmer at the bottom than at the top. Pouring should be done through a funnel direct on to the plate, coating from left to right, rocking the plate all the time. The plates will keep for months when coated, if put away in a dark cupboard.

A great drawback to the method is the long exposure required, a negative not at all dense 1½ hours in bright sunshine is

not too much or an equivalent exposure to arc lamps is necessary. This runs to much more if the light is at all weak. The developer is as follows:—

Benzole	8 ccs.
French turpentine	50 ccs.
Aniline oil	1 cc.

and a good deal may be done when developing the plate in the way of removing unnecessary work, when the operation is performed by a capable man.

Analecta.

Extracts from our weekly and monthly contemporaries.

A Vignetter Amenable to Control.

In "The Amateur Photographer and Photographic News" for March 23, Mr. H. E. Corke describes a form of vignetting card, the method of preparing which allows of very nice adjustment of the negative, while at the same time it leaves the negative untouched. Place the negative in a printing frame as usual, and as a precaution firmly attach the negative to the printing frame with small pieces or strips of gummed paper. Then take a piece of thin cardboard and cut a hole in the centre, just as in making an ordinary serrated shape, but pay no regard to the actual shape of the hole, which should, however, be a good deal larger than the actual size of the proposed vignette. This card is then attached to the front of the printing frame with drawing pins. Next paste a piece of tracing-paper over the hole, procure some opaque paint, such as yellow ochre or Indian-red, and mix into a thick cream with water and ordinary office gum.

Then, while holding the printing frame up to a window or to a gas flame, and looking through the negative, as if we were using a retouching desk, we can apply the paint to the tissue-paper, working backhanded, as it were. It will thus be seen that the utmost precision is possible as to the actual shape. The edges of the vignette can be made to register more softly by either applying the innermost line of paint less thickly or by making uneven brushmarks, similar to rough serrations. For the purpose of local control of printing density also, this same method is extremely valuable. Any part of the negative which prints too darkly can be effectively restrained by the application of a dab or two of colour on the tracing-paper.

WE HUMBL Y APOLOGISE to all concerned for any omission or compression this week of regular features of the "B. J." As a rule we include in each issue:—

- News and Notes—items of what is happening.
- Commercial and Legal—reports of trade disputes, cases of fraud, etc.
- Patent News—accounts of new inventions.
- Photo-Mechanical Notes—practical hints and trade news of photo-engraving and "process" matters.
- Correspondence—views of our readers.
- Answers—and advice to correspondents on technical and business matters.
- Reviews—of new books, apparatus, and materials.

Analecta—quotations of notable items from other British journals. In addition to articles and notes contributed by British writers, and translations of the best matter in the French and German journals.

The very complete Index to the annual volume is a feature of the "B. J.," the volumes of which thus become storehouses of readily accessible information.

Colour Photography.—The first issue of the "B.J." in every month is enlarged to find space for extra pages recording the progress in colour photography. This "Colour Photography" Supplement serves the purpose of a separate publication in this important branch of photography.

Regrets—Held over.—Several articles specially written for this issue must be held over. These include:—"Press Photography in Canada," by David J. Howell; "Bromil Printing," by Harold Baker. Colonial readers will please note that these will appear in issues of the "B.J." immediately succeeding the present one.

Answers to Correspondents.

- * * All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- * * Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- * * Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
- * * For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

WARDER.—If the inventor obtain only a provisional protection for his invention he has no right to mark it "Patent." He renders himself liable to a penalty of twenty pounds for doing so. Of course, as no patent was granted, you, or anyone else, can make the apparatus, not only for your own use but for sale.

J. J. J.—Any good, smooth, hard surface paper is suitable for colotype. Hard enamel papers, such as are very generally used in lithographic printing, are also very suitable. From what you say we do not think your trouble is due to the paper but to the plates. The coating is too hard, so that the water does not get into the gelatine film, hence the ink takes all over the plate. It may be that the plates are over-exposed.

NON-PHOTOGRAPHER.—Although you paid the photographer to come to your house to take the groups, and paid him the travelling expenses as per agreement, the negatives are his property, and he is quite justified in refusing to give them up. The point has been decided in the Law Courts several times. You are not justified in withholding payment for duplicates because the photographer will not give the negatives up to you: He can recover the amount in the County Court.

ALBUMEN PRINTS.—I am anxious to turn out prints like those done by professional photographers twenty or thirty years ago on albumenised paper. I have got some of —'s ready sensitised paper, but can only obtain red brown tones, and if I tone beyond that the prints go grey and have a mealy look. I got some unsensitised paper and sensitised it myself in a 60-grain silver bath, and with it I got rather deeper tones, but not the deep purple I want. I used the acetate of soda toning bath and employed it freshly mixed, so that the fault would not lie with that.—COUNTRY PRO.

A probable source of your trouble is that you have used the toning bath while it was too new. The acetate bath should not be used until it has stood for twelve to twenty-four hours after mixing, or it is likely to yield mealy prints. Another cause of your trouble may be the negatives. For albumen paper much more vigorous negatives are required than for P.O.P. Unless they be of that type it will be impossible to obtain the rich purple black of old.

STUDIO QUERY.—I am thinking of having a studio built as plan sent; should be greatly obliged if you would advise me on the following points:—(1) Should any alteration in the plan or situation, or the light, be made? This light I copied from the plan given in your paper last May, 1908. Do you think this is sufficient when the partition (dotted line on plan) is taken down for larger groups? (2) Which do you consider is the best end to operate from? (3) Could you advise any book on what kind of curtains to use, and how to fix them; also how to arrange them in lighting for the best effects?—A NEW READER.

The form of studio is good. There will be enough light for groups when the partition is removed. (2) The camera had best be put at the north-west end of the studio. (3) If you refer to page 659 of the "B. J." for August, 1907, you will find an article on the "Studio and its Blinds," which describes a method of arranging and fixing blinds, very applicable for a studio of the kind shown in your sketch.

A number of answers are held over until next week.

COLONIALS AND OTHERS, PLEASE NOTE.

MAY we address a word or two on this number of "The British Journal of Photography"? Though we take this occasion to review many new introductions in the way of apparatus and materials and have therefore to make short shrift of some regular features this issue should show you that the "B.J." is primarily a journal of photographic information. We sometimes lay stress on this feature by advertising it as "the photographic journal with the reading interest which is to say that our policy is to leave to others reproduction of what is alleged to be "pictorial photography," and to disseminate with the articles which repeat the matter of a good shilling text-book. But if you are interested in keeping in touch with new methods, processes, and materials, as they arise, our claim is that the service rendered by the fifty-two weekly numbers of the "B.J." is wonderfully cheap at the price of 13s., for which sum our publishers (public philanthropists) send the "B.J." direct, post free, for one year.

We make a point of giving the news of the trade and the profession, of dealing with the money-making side of photography, and of investigating quickly the new departures in any branch of camera work which appears of industrial or scientific interest. The "Correspondence" columns of the "B.J." provide every week some of the most interesting reading in the paper—side-lights on trade methods, experiences of practical photographers—and form a means of communication between distant workers which is open to all without fear or favour.

Scarcely less in interest are the "Answers to Correspondents," which are given by one or other of the staff of the "B.J.," care being obtained, if needed, from outside experts—a much appreciated feature of the journal, so we are led to believe.

Of our comments each week under "Ex Cathedra," and our determination to be as soon as any other journal—if possible, a little sooner—with news of photographic progress, it behoves us to say little, but to let our readers judge for themselves from the journal. These features may not impress the reader as intensely novel, but their solid value to the photographer at home and abroad has been attested over and over again by readers who have grown to our age during the fifty-five years throughout which the "B.J." has regularly appeared.

* * * * *

The publishers desire to draw the attention of photographers and photographic dealers abroad to their standing offer to send "The British Journal of Photography" free for one month from date of receipt of professional or trade card.

The annual subscription to the "British Journal," posted direct by the publishers, is 13s. (thirteen shillings).

Some foreign equivalents:—Canada, United States, Cuba, Hawaii, Philippine Islands, Porto Rico, etc., 3 dollars 17 cents; German Empire and possessions, 13 marks 26 pfennig; France and colonies, 16 francs 35 cents; Russia, 6 roubles 13 copecks.

Back numbers of the "British Journal" can be obtained when still in print for 3d., post free. Application in each of the above cases should be made to Messrs. Henry Greenwood and Company, Publishers, 24, Wellington Street, Strand, London, England.

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SUMMARY.

Easter Holidays. Next week, in consequence of the holidays, "B.J." will be published on Thursday morning at 9 a.m. Advertisements to appear in that issue must arrive not later than post on Tuesday, April 6.

L. Haweis in the conclusion of his article on "British Columbia as a Field for British Photographic Enterprise," deals with such important questions as sampling, means of access to the coast, etc. He dwells on the coming greatness of the Canadian photographic industry. (P. 263.)

A short review of what is being done in Canada in the way of photographic work is contributed by Mr. David J. Howell. The Canadian and weekly press of Toronto and Montreal are the largest consumers of news photographs. (P. 265.)

A new method of preparing a mosaic screen-plate of coloured shellac has been patented. A means of determining the period of correct development has also been the subject of a patent. (P. 269.)

C. H. Hewitt has worked out a substitute for the Bromoil bath. (P. 270.)

American paper has given formulæ for preparing prints on parchmentised paper. (P. 267.)

Very work with the camera in general, and that of Surrey in particular, was the subject of the address by Mr. Hector Maclean in last week. Some very useful advice on the kind of photographic work desirable for such record collections was given. (P. 266.)

"COLOUR PHOTOGRAPHY" SUPPLEMENT.

Martin Duncan has recorded the result of a year's continuous working with the Autochrome plate. (P. 25.)

M. Lumière, while announcing reduction in the price of the Autochrome plate, have worked out a two-solution method of development. (PP. 26 and 32.)

Decisions and working methods of some members of the R.P.S. on the manipulation of the Autochrome plate are given on page 29.

Dr. von Hübl, in a lengthy article on the use of the Autochrome plate in the photography of objects illuminated by various artificial lights, has given formulæ for viewing- and taking-filters to be used when obtaining facsimile results. (P. 26.)

EX CATHEDRA.

An Opportunity for Professional Photographers. We learn on good authority that there are some good openings for photographers in the districts lying within reach of the Persian Gulf, especially in Bagdad. Although there is a constantly increasing demand for good portraiture, almost the only ones to supply it are itinerant photographers, who pay periodical visits to the various districts, without, however, making any serious attempt to organise business. The natives themselves have not so far taken to professional photography, though with the growing enthusiasm among amateurs it is only reasonable to expect that they may do so before very long. Therefore no time could be more favourable than the present for those who care to embark upon enterprises abroad. Another reason why intending photographers should establish themselves on the ground at once is the fact that the new Bagdad Railway is nearing its completion, and it is practically certain that this event will bring with it a large influx of Europeans, desirous of sharing in the profits to be had out of the country, and it goes without saying that photographers will add their quota to the number. Besides the possibilities awaiting portrait photography, there are indications that a good business might be done in pictorial postcards. The craze is catching on, and so far very little has been done in that line in the country itself. Most of the local views, for which there is always a demand in the press, are taken by chance tourists, or representatives of commercial houses during their journeys in the country.

* * *

Failures in Sulphide Toning. Mr. J. Brown, in a letter published in our columns of March 19, questions the formation of hypo in a decomposed solution of sodium sulphide, referred to in an abstract from "Photo Notes" published in our issue of March 12. In a leader on January 29 we dealt with the same matter, and pointed out how the presence of hypo in the sulphide bath accounted for the apparent refusal of prints to darken. There is, we believe, no room to doubt that sodium sulphide does decompose to hypo, for a completely decomposed solution will fix a bleached image out of existence. Mr. Brown's experiments on the effects of adding hypo to the sulphide bath do not form a parallel case to that of a decomposed sulphide bath, because he has the full amount of sulphide required present all the time. When the hypo is only formed from the sulphide by decomposition we have a very different state of affairs. The sulphide is steadily diminishing, and the serious trouble occurs when it is getting near the vanishing point. We see no cause to doubt that the explanation given in our leader is the correct one. That is, that the trouble is due to the replacement of sulphide by hypo. Mr.

Brown's theory that hypo in the bleacher is the cause is quite untenable. This would, as he says, destroy the finer details, and, in fact, the solution would form a reducer. When loss of image is apparent in sulphide toning it is not in the fine details that it commences, but in the deepest shadows, and this is only accounted for by the hypothesis that the hypo is present in the nearly exhausted sulphide.

* * *

Mr. A. R. Dresser and Amidol.

We were very glad to note Mr. G. T. Harris's reference last week to the use of amidol by the late Mr. A. R. Dresser, a notable worker who is too often forgotten. His formula will be found in the ALMANAC for 1894, page 761. We do not, however, think Mr. Dresser styled it an acid formula, or knew that an acid formula would act. He simply attempted to preserve the amidol in the same manner that he was accustomed to preserve pyro, that is, by dissolving one ounce of metabisulphite and one ounce of the developing agent in ten ounces of water. With this he used a 20 per cent. solution of potassium carbonate as an accelerator, and the final working solution was not acid, but alkaline. If he had used sodium instead of potassium carbonate he would have obtained a developer, acid to phenolphthalein, neutral to litmus, and alkaline to methyl orange, which would have corresponded very nearly with the modern acid amidol. So far as we know, he never tried an acid solution for developing at all, and, in any case, he very soon abandoned his 10 per cent. solution altogether, and fell back on dry amidol used with a stock solution of soda sulphite. We remember trying his metabisulphite formula on his recommendation, and finding, as he very soon found himself, that its keeping qualities were not very good. Mr. Dresser was, as Mr. Harris states, a very strong advocate of amidol, and so also was Mr. E. Hawkins, another prominent and very successful worker of the time. Mr. Dresser's work was remarkable for its size, and also for its boldness of treatment. His prints were, we believe, all bromide enlargements; but, unfortunately, he was devoted to uranium toning, and so probably few of the results are now in existence. Many were, however, varnished, and possibly these are still presentable. It would be very interesting to see them again and note how they compare with present-day work, but we have no idea where they are to be found. As a prolific and energetic worker he was unrivalled, and probably no other exhibitor ever secured such an array of medals.

* * *

Testing the Covering Power of a Lens

When a lens is said to cover a certain size plate there is always some uncertainty as to what is meant. A lens may "cover" a plate in three senses. First, it may give a disc of light big enough to contain the plate, without producing either sharp definition or even illumination over its whole surface. Many very poor lenses will "cover" fairly large plates in this fashion. Again, a lens may give fairly even illumination over a large plate without sharp definition to the margins. This is the case with many lenses of moderately good quality. They are so constructed that the full aperture is effective at fairly wide angles, but they are not very well corrected for oblique light at large apertures, though when stopped down they perform excellently. Then we have a third type of lens, so finely corrected that it will cover a very large plate with critical definition yet will not illuminate the whole of that plate evenly. The average photographer always interprets "covering power" as descriptive of the size of plate covered quite sharply to the corners at full aperture. This is what he also assumes the manufacturer to mean, but sometimes he is disappointed by finding that

the lens will not do so much, and sometimes he is surprised to find that it will apparently do much more. Generally he expects too much from a cheap variety of lens, and thinks he has gained more than he expected when he has obtained a good one. In the latter respect he is generally mistaken. A first-class anastigmat will generally cover, in all senses of the term, the plate it is listed to cover, but though it may cover a very large plate with critical definition it will generally be found that the illumination is not very good at the corners. This fact is often missed because with some subjects the falling-off is not very apparent. The test is to fix the lens in a large camera and expose a plate at full aperture, and then make a properly exposed and developed gaslight print from the negative. This will once reveal how large an area is covered with fine definition, but it may not indicate clearly the state of the illumination. To test this, a much under-exposed print should then be made, being developed as far as it will go. The centre of this will probably show no image at all, while the margins will be fully exposed owing to their thinness in the negative, which thinness is due to the falling-off of the illumination in the camera. These points will thus reveal the covering qualities of the lens very clearly.

ASSISTANTS AND APPRENTICES.

A LETTER in our correspondence columns a fortnight ago calls attention to a subject that is of considerable interest to those who contemplate entering the photographic profession as a source of livelihood, and more especially to parents or guardians who may be considering whether photography offers good prospects for their children or wards. The writer directs attention to the number of advertisements that appear in our weekly columns for pupils and apprentices, and arrives at the conclusion "that employers cannot afford to engage salaried assistants but endeavour to get their work done by learners whenever possible. The ultimate result," he adds, "will be, naturally, that these apprentices and pupils will shortly be thrown on the market to swell the already overcrowded ranks of assistants unable to find positions." We are afraid there is much that is perfectly true in what our correspondent says. Our advertisement columns, week by week, are a pretty fair criterion of the current state of the photographic labour market. Glancing through those that appeared in our last issue, we notice that there are somewhere about three times the number of those who are seeking employment than there are of situations vacant. That is certainly not encouraging to those who may be thinking of joining the ranks of photographic assistants. On reading through the advertisements one can form an opinion of the salary that many will be content with. For example, there are several operator-retouchers and managers, who claim to be experienced in all branches of the business, offering their services at wages varying from twenty-five to thirty-five shillings a week. This, one would think, is not a very alluring prospect to those who may be contemplating enlisting in the profession—till, there is the fact.

This state of things has undoubtedly, in great measure, been brought about by the fact that at the present time there is so little to be learnt in photography before a superficial knowledge of the art is acquired such as will enable presentable results to be obtained, and that, no doubt, has conduced greatly to so much competition in the labour market for employment. Any craft that is easy of acquirement is certain to entail low wages. It was different before the advent of gelatine photography—plates and papers. Then there was much to be learnt before a

worker could become really proficient, but when he had done so he could generally command a remunerative salary, and that without much difficulty. In the letter above referred to, and from which we are quoted, the writer refers to the system of taking apprentices and pupils with the sole object of getting work done for learners instead of by paid assistants, and we are sorry to say there is a good deal of truth in what he says. That would not be so very bad, after all, if those who take apprentices really did teach them their business, but a large proportion of them do not. They merely teach the work they want done, such as printing, toning, mounting, and perhaps retouching and copying, and nothing more. The most important part of the business—namely, studio work, management of sitters, is often not a subject of tuition, and, as a consequence, when the apprentice is out of his hands he often finds that he is unable to get an engagement as an operator, as he knows little or nothing of studio work. Many of those who take apprentices with the sole view of getting their work done at small cost evidently do not fully realise the obligations they are under, and the consequences to them if the apprentice is not thoroughly taught his craft. Supposing the apprentice is to be taught photography, say, in a portrait business. One of the most important parts of that is the studio work and the dealing with sitters, and that is the part that some do not properly teach the apprentice. The master attends to that part of the business himself, and so does not require the assistance of the apprentice in that direction. The con-

sequence not infrequently is that, when the apprentice has served his term, he finds that instead of being, as he should be, a proficient photographer, he is but a printer, and only qualified to take an engagement for that kind of work. In such cases the law will give him redress.

When a master has covenanted to teach an apprentice his trade, he is bound by law to do so in its entirety, and not in part only. If he does not do so, the apprentice, or those who apprenticed him, can sue for the return of the premium, if any, paid, also for damages for the young fellow's loss of time while he ought to have been learning his trade. It is not necessary that the term of apprenticeship be completed before action is taken, for if it is found that the apprentice is not being properly taught his trade, the master can be summoned before a magistrate, who has the power to adjudicate in cases of masters and apprentices, and if he thinks the complaint proved, he can order the return of the premium, if any, paid, or any part thereof, and also cancel the indenture and thus set the apprentice free. This is a thing that some, who take apprentices with the main object of getting their work done cheaply, may advisedly consider more seriously than they may have done, whilst apprentices and their friends should be cautioned not to pay money for indentures, unless with very good references as to the *bona fides* of the selected master. And in particular they should not forget that, so far as the middle-class type of photography is concerned, there is very little in it that cannot be picked up.

BRITISH COLUMBIA AS A FIELD FOR BRITISH PHOTOGRAPHIC ENTERPRISE.

II.

How Not to Sample to Professionals

In order to popularise a brand of English plates and papers the makers recently distributed free samples, each packet containing four pieces, and this they did in respect of all grades. There is, however, a general opinion among professional photographers that the experience gained by the trial of only four plates or pieces of paper is hardly sufficient to justify an order of several gross—a state of affairs quickly remedied by the "rust," which proceeded to scatter free packets of a dozen. One man is reported to have refused flatly to experiment with their plates or papers unless he could deal with samples indiscriminately selected from several packets of a dozen taken from different shipments. He was promptly supplied with what was required by the agent for the English firm in question. Individual idiosyncrasies have, no doubt, to be dealt with according to circumstances, and the case I quote is, of course, an exceptional one.

Criticisms of Canadian Wholesalers.

In the second place, the knowledge of how best to supply the needs of this country is imperfect, because English manufacturers are largely dependent upon agents and middlemen, who, for reasons good, bad, and indifferent, are up against propositions which, although they know them, they have (in some cases which have come to my knowledge) neither the live business methods nor the capital satisfactorily to exploit the goods they are agents for, in order to overcome them. I will interpolate here a criticism from the "Canadian Courier" of January 23, 1909:—

Judging by the remarks of the Canadian Trade Commissioners in Great Britain and other places, Canadian exporters are not living up to their opportunities. The Department of Trade and Commerce at Ottawa, through its excellent "Weekly Report," is doing much

to explain these opportunities and to show the line along which the exporter may develop. The limited capital in most Canadian enterprises, the limited knowledge of the methods necessary to successful exporting, and the limited experience Canadians have had in this work can be overcome but slowly. They will be overcome in time, no doubt. In the Report for January 4 Mr. Ray writes from Birmingham that Canadian goods are not being sold in Great Britain to the extent of our opportunity. Mr. Harrison Watson, writing from London, complains that Canadian exporters are discourteous, and do not even answer letters addressed to them. No one may peruse these excellent weekly reports without a growing conviction that we are still amateurs in the export business.

To this I would add that the remarks apply in some measure to Canadian importers as well.

It is generally accepted here in the West that most Eastern Canadian agents do not cross the Rockies. But I want to be fair. There are reasons in plenty why this is the case; but I am tempted to suggest that some of these reasons would only weigh with agents (who, besides having the goods of others, have also their own to push), and not with the proprietors who were in a position or had the mind to push their own goods. Also, it must be remembered that the travelling proposition west of the Rockies is one of increased expense, for rail rates through the mountainous regions of the Rockies and Selkirks are considerably higher than those prevailing eastward. After Calgary the stopping-places of travellers become less frequent; indeed, many representatives skip the whole bunch from Calgary to Vancouver and Victoria on the Island, not even troubling to visit New Westminster, a town of ten thousand inhabitants, south of Vancouver, on the Fraser River. One man recently informed me that to travel the whole of British Columbia and Alberta would take him but six weeks, and his visits presumably were to every druggist and photographer in the two provinces.

This, to my mind, implies something more and something less than bad business methods; it means that the business opportunities offered by New Westminster, the third largest town in British Columbia—to take only one case—are disappointing. Not but what New Westminster is somewhat exceptionally situated, since, being only twelve miles from Vancouver by electric-car line, it is to some extent overshadowed by its prodigy younger sister (Vancouver), with a population of ninety thousand by the last census.

Further, the distances in this wonderful country being comparatively enormous, representatives of firms stock themselves with quantities of goods which it is often impracticable for them to hawk from gallery to gallery. Some will carry round a gripful of samples; but these and others who do not carry a single sample will have two or three gripfuls at their hotel, which they will ask you to visit and inspect. This means that outsiders will be invited by letter, either from the representative on arrival or from the firm, warning him of their traveller's visit, or he will be neglected and left to discover the "man with the goods" by accident.

But that is not to say that an English firm introducing its own goods would proceed about their business in the same way; nor, I will confess, is it to say that any traveller of an English firm would do any differently from his Canadian brethren of the road. That, however, is not so much the point as that representatives do not cover the ground as, from the professional standpoint, they should, and that they do not implies either lack of time, expense, or inclination.

Eliminating the item of expense, which may be debited to advertisement account, and of time, which is another measure of the same thing, I suggest that personal inclination is frequently discounted by business results, and if these are poor in a certain district, the tendency will be for that district to suffer in consequence. But this should not be. The whole spirit of modern advertising is to "keep it up," to continue hammering on the same nail till that nail is home, not to give up because the tack happens upon a knot, and to leave it to get trodden over by the next more energetic solicitor for business who has a point to make, and will see that it gets, if not at once, at any rate finally, to its destination.

Then, again, rival goods are frequently in the same hands. I had a circular from a man the other day advertising the fact that he was agent for Ilford, Barnet, Wellington, Paget, and Rotary stock. Is this the best way for these respective firms to be served? And is there no other? Moreover, although this circular reached me in B.C., its terms were only truthfully applicable to other parts of Canada. Two of the agencies were not his to hold in B.C. at all, and another agency was pending; consequently the circular in question was calculated to make a quite erroneous, and perhaps damaging, impression upon one who might be supposed to know no better. And here I may interpolate that I cannot too strongly recommend English houses who have goods to push in B.C. to put this province in a separate agency of its own. I hardly think many Eastern firms would demur, and "sole agent for British Columbia" is a capital business phrase for the live Vancouver man.

But it is not live business for two different manufacturers to list their half-plates at the same price, and their 10 by 8 plates at different prices. For that is the case here at present. Two different plates in what is here called "cabinet" size ($6\frac{1}{2}$ by $4\frac{3}{4}$) at 65 cents, in 10 by 8 size are listed at \$2.00 and \$2.40 respectively. If prices are not calculated *pro rata*, comparison is invited which were better avoided.

And it must be recorded that, chance for chance, the "Trust" is not differently situated from any other firm not actually native to the country, with the distinction to which I have already alluded, namely, that they know the ground. Hence it comes about that "Seed" plates are now being manufactured in Toronto, thus saving to themselves the duty originally charged

up to the consumer. The "Climax" plate is, I believe, a purely Canadian manufacture, but, rightly or wrongly, it has not the patronage commanded by the "Seed." If, then, the two plates are not in the same class, neither are the prices, the "Climax" being supplied to Eastern photographers at 45 cents per dozen cabinet—that is, nearly half the price of the "Seed." But I do not gather that the price of the "Seed" plate is in any way threatened either by the present competition of the "Climax" or by the fact of the "Seed" being now manufactured in Canada duty-free. I should be inclined to believe, failing any information to the contrary, that the "Trust" is merely preparing for the future: that future when English firms will wake up to the value and profit of manufacturing in Canada, and will instead of finding a fair field and no favour, they will find themselves confronted with a full field and favour, in the form of bounties, discounts, rebates, and the rest, all waiting for them very much against them.

The Coming Canadian Market.

Neither do I forget that, vast as is this Canada, it cannot boast a population of more than six millions—at present I speak of the future, and counsel an early start. And this applies to every class of manufacture: plates, papers, and mounts. At present what B.C. wants in the way of mounts and mounting-papers it purchases from Montreal and Toronto in the East, and from San Francisco in the South, which involves the freight charges over a trifle of a few thousand miles, and considerable delay, which is not so trifling. The influence of Seattle and Portland are (I speak under correction) comparatively negligible. On the other hand, we have in B.C. enough timber to supply the world with paper for years on years. The ready American and Canadian syndicates are busy with the forests. English investors interested in newspaper-farming and kindred trades are not far behind; but I do not hear of any mount manufacturers directly or indirectly preparing for the future.

Tariff Relations with Canada.

And, lastly, in the third place, whether English firms although having the goods and knowing how best to supply them, are able or unable to compete with Uncle Sam and his methods, must depend largely upon themselves.

What Canada is doing with regard to Imperial preference for Old Country manufacturers, and what she will do, may or may not be two different things. But, in order to prepare for the future, it is reasonable not to neglect the present; and I would remark that the tariff along the international boundary and that facing the East are by no means the same. There is a preference with the Old Country which should be made the most of; and, although better terms would doubtless be acceptable, Canada would far rather see firms manufacturing on their own soil.

Ocean and rail freights are charges which must be met, and added to the cost of goods; but it may not be generally known that the through rates from the Old Country to B.C. are actually less than those between Montreal and Vancouver, these having recently been quoted here showing all the difference between \$3.10 per 100lbs. for the rail freight, and \$1.80 for the through rate—London to Vancouver. Besides this, as the Cape Horn Route has practical possibilities at 30s. per ton, it should not be impossible for English goods to be laid down in Vancouver at prices which it would pay respectable agents to handle.

So that the practicability of a market for English goods depends largely with what discounts English firms are prepared to allow, and Canadian dealers are willing to accept. One dealer accepts 35 per cent. on plates through from London via Cape Horn. He pays duty and shipping charges, and makes a profit of 7 cents per dozen on half-plates. Another dealer gets 33 per cent. on plates from Montreal via C.P.R. and makes 11 cents per dozen, and should be satisfied. A Missouri firm has offered a dealer 40 per cent. and 10 per cent. and 10 per cent. at sixty days

irty days with an extra 3 per cent., and it does not pay him handle their plates. An Ohio rate quoted for papers is 20 r cent. below list price, which, after duty and freight have en paid, permits of a profitable surplus. I shall not attempt reconcile these apparently contradictory conclusions. I quote em to show that considerable discounts are called for from glish firms if they are to compete with the really capital ock offering in the States, and that 40 per cent. on English pers has been cited to me as too little for the dealer who looks e a paying profit and an incentive to push. One word more, and I have done. I have heard it said here at the best way to popularise photographic materials (I do not y in Canada, for it may or may not apply universally, but in C.) is not to stock the druggists' windows with these articles, d simultaneously to push them among professional photo-

graphers. It seems absurd that such a prejudice should exist, if it really does exist. But commercial prejudices, to whatever mistaken ideas they may be due, must be respected. It is easy to cater for the amateur after the professional has been satisfied: I am led to believe that the reverse is not so easy.

It would be interesting to know whether the "Trust" has any knowledge or experience of this prejudice. If they have, they have known how to overcome it; if they have not, it may or may not be of negligible importance. It is possible that professional photographers have become inured to the ways of the "Trust," but that they are apt to resent or to regard with some degree of misgiving similar methods of any other less well-known firm.

Prejudices are frequently unaccountable, but they are none the less palpable for all that.

L. HAWES.

PRESS PHOTOGRAPHY IN CANADA.

most every newspaper in Canada makes use of photographic illustrations at some time in its career. If they have not yet published a special illustrated edition, it is one of the things that is to be achieved in the future. The daily or weekly in the cities that makes a feature of photographs of happenings and of persons who are brought into prominence are the envy and inspiration to the papers of the country, and causes a more frequent appearance of the special illustrated or souvenir number. These usually make some work for local photographers, though occasionally a specialist is employed. This work, however, is only occasional and necessarily limited, and can hardly be classed with what is now understood by press photography. Only in the larger cities is the press photographer fully developed, and the men who make this special work their business can be counted on the fingers of one hand. There is, however, a numerous class who occasionally make a hit and sell their work to newspapers, and a still larger class of amateurs who send in prints and consider the publication of such with their name sufficient reward for their skill and ability.

The dailies and illustrated weeklies of Toronto and Montreal are the largest users of current photographs. Among the dailies making use of illustrations in their regular issues may be mentioned the "Star," "News," "Globe," "Mail-Empire," and "World," in Toronto. The "Star Herald," "La Presse," and "Gazette" in Montreal. The "Globe" and "World" in Toronto issue a special illustrated edition on Saturday. The latter is called the "Sunday World," but is printed and sold on Saturday night. (No papers are allowed to be published or sold in Canada on Sunday.)

The "Standard" of Montreal is one of the most profusely illustrated weeklies in Canada. The "Courier," published in Toronto, is well illustrated and often uses a photographic design cover.

There are dailies and weeklies in the smaller cities which use illustrations from photographs, but to a more or less limited extent. Buffalo, Detroit, New York, and Chicago illustrated papers have considerable circulation in Canada, and are frequently supplied by Canadian press photographers with photographs of local events.

Among the men who are successful press photographers, perhaps the best known are Messrs. Pringle and Booth, of Toronto. Both of these men have wonderful enterprise, courage, and great capacity for hard work. Their prints are sold all over the continent (of America) and are not unknown in England. One example of their successful work was shown in connection with the Tercentenary celebration at Quebec last summer. Out of 162 illustrations used in Toronto papers during the first week of the celebration 150 were made by this firm. The following week the Montreal "Standard" used forty illustrations of the affair, twenty-four of these were by this firm, yet the "Standard" had its own man down there all the time.

The pictures of the Bishop of London, made during his visit to Canada, which have been used in London, are examples of what this firm has done here with some of our prominent politicians and others brought to the public eye. Their pictures of Sir Wilfrid Laurier and Mr. Borden added interest to the recent political campaign. One newspaper man said that there was only one complaint that he could make about the photographs, and that was that they cost so much.

Messrs. Pringle and Booth believe in getting full value for their work.

A. A. Gleason, of Toronto, is another enterprising and successful specialist in this line. He has obtained some remarkable records of horse racing, close and spectacular finishes, jumps at the hurdles, and of some terrible tumbles and falls. Some of his foot-race finishes are unequalled. Messrs. Smith and Rice, of Montreal, have done creditable work, but with each of these it is only a side line. W. Sharpe, of Montreal, an amateur, has been most successful in records of diving feats. One man whose photographs of Canadian life and industry command high prices, and while not exactly press photographs, are largely used as illustrations of more artistic merit, is R. R. Sallows, of Goderich.

Some of the exploits of the Canadian pressmen may be worth telling. One man was sent by his editor to get a picture of the delegates of a large convention "swarming" into the church. He arrived before nine o'clock, the time announced for gathering, but found only a few straggling in. There had been some misunderstanding as to the time, an important train was late, but he was sent to get a "swarm" of delegates, and it must be half-toned and ready for the press by one o'clock. He went into the church, and, in spite of objections, induced a goodly number of representative delegates to pose outside for a group. Making a bluff at making an exposure, he thanked them, and hurried around to the main entrance and got them as they were "swarming" into the church.

As an example of enterprise and perseverance, the photographing of a prominent politician is good. Life and action were wanted. No outdoor meetings had been addressed by this man so far in the campaign, and he was to speak to five thousand at the great hall that night. He could not be induced to leave his hotel. Next morning the organ of the party had two modest views of their leader seated at his desk. Imagine the editor's rage to see their leader in his most effective moments pictured to the extent of a full page in a rival paper. It was the wonder of the town and particularly of the newspaper men. "How did you get him?" "They are old pictures?" "We got them," replied the photographers, "but we're not telling how. We got them all right, and they are not twenty-four hours old." This is how:—The persistent person arrived at the hotel but could not see his man. He was engaged. The P.P. left his companion as guard, and the latter was soon rewarded by seeing a rival come out with camera and broad smile. The P.P. did not waste time, but got after the party organiser, an influential member of Parliament, and another prominent politician, and convinced them that it was desirable to arrange for him to get what he wanted. So back to the hotel he went with his reinforcements, and soon persuaded the prominent politician to go up on the roof of the hotel, and against the sky he rehearsed his speech, with all the gestures, for the great meeting, to the accompaniment of the clicking of the shutters of reflex cameras. The rest was easy.

The best men have reflex cameras of the latest and best type, special lenses for different kinds of work. These are often used for portraits. A clamp on the back of a chair is sufficient, and the great railway magnate, the political leader, or man of the hour is photographed amid his usual surroundings.

DAVID J. HOWELL.

THE WORK OF THE PHOTOGRAPHIC SURVEY AND RECORD OF SURREY.

[An address given by Mr. Hector Maclean, F.R.P.S., at the Seventh Annual Meeting, March 20, 1909, at the Borough Polytechnic Institute, Southwark.]

IN moving the adoption of the report, I think you will all agree with me that it contains many gratifying features, to which, however, I need not particularly allude. Enough that it indicates that we have already done a good deal, although at the same time we realise that there is very much more which remains to be done. Considering for a moment merely the particular corner of Surrey in which we are this afternoon assembled, there is a vast amount of subjects and objects which clamour to be recorded. Not that our members have entirely overlooked the claims of this ancient and historic district, for, to begin with, some very painstaking and valuable records have been made of your great cathedral church. I also recall the unique photographs which some of our members made of curious monastic remains, which a few years ago were laid bare not far from this room, and which indicated that some of the Surrey men in those early days were, judging by the gigantic skeletons, which were preserved in stone sepulchres, decidedly "fine and large." I will not now further refer to Southwark, for probably most of those in this room know a good deal more of the neighbourhood than I can tell them, but I would like to take the opportunity of alluding to those grand old galleried inns of which you, until comparatively lately, still possessed one particularly fine example, if not more; because some of you may have in your possession photographs of various parts of these inns, which would be great acquisitions to our collection. I therefore ask such of you that my words may reach, and who have such photographic records, to at least lend them to us to be copied.

Here let me remind you that the activities of this society are directed into two somewhat distinct channels, viz.: the making of records and their collection.

Until last year the latter phase of our work has not been so productive as might have been expected. But the securing of a large number of West Surrey photographs taken by Miss Jeckyl has drawn attention to the utility, and the necessity of rescuing from oblivion and destruction some of the numberless photographs relating to the county that are at present in the hands of various individuals, many of whom do not realise that certain of their prints may be of extreme importance to this Society, although possibly of no pecuniary—or other—value to their owners.

To my mind it is of far more importance to preserve the photographic records of the Victorian Age than to exhaust our efforts in making current records. Only those who have been actively engaged on county record work can fully realise what a deplorable destruction of grand old structures—the offspring of ages—took place during that period of architectural debasement—the 19th century. There was apparently a more or less organised gang of architectural wreckers who went about persuading gullible squares and parsons that the out-of-date, and dilapidated, church or chapel ought to be put in good order and beautified. Once in possession these architectural pot-boilers showed no mercy, but ruthlessly destroyed the olden order that they might be paid fat fees for designing their own vile improvements. It is possible that in several instances those who ordered the "restoration" of a church, chapel, or other important building had photographs made of the unrestored edifice for their own personal satisfaction; these would either be framed, or, what is more likely, relegated to an album or a portfolio. These then are some of the sources which should be tapped for records of the long since destroyed.

It should be remembered that such photographic records may—may, do—go back as far as the year 1841, when the so-called "Talbotype" was used. I have seen photo records done by this process by Mr. D. O. Hill which were taken at or about the above date. At the same time, although Surrey records on Talbotype (or Calotype) may be discoverable, the process was not very largely used. But in 1851, with the advent of the collodion process, there was an immediate expansion in the art of photography. Now it is between the years 1851 and 1876 that those records which are likely to be most treasured by our Society were made, because this period,

more especially the earlier part of it, coincides with the years when church wrecking was at its very height.

May I take this opportunity of appealing most earnestly to men of intelligence who are interested in the county, to rummage amongst their portfolios and albums, and those of their friends, for old photographs of persons, places, and things. The buildings need not be ecclesiastical, for there are plenty of other edifices which are every whit as important. For instance, I have in mind the "Fox and Hounds" Inn at Burford Bridge, where Keats wrote part of *Endymion*, and where Nelson said a last farewell to Lady Hamilton.

Has anyone got a photograph of this place before it was modernised and if so will he send it to us? While on this subject of wants, I may add that the Society would be grateful for a print of the Dorking Football Saturnalia, which has for some years been suppressed.

Amongst a host of objects which vanished with the nineteenth century, special attention should be given to prints of old bridge wind and water mills, and columbaries. A special class of subjects which also deserves particular attention is that of "Locomotion." The main forms of vehicles in use in Surrey during the past century should, if possible, be found in our collection. Although many such records would not be *exclusively* connected with the county it had some forms of locomotion which were peculiar to itself.

To give only one instance. There was the iron railway which ran from Gatton to Wandsworth. Again, let me emphasise that we do not ask for the gift of rare or precious records. Lend them to us, and one of our skilled amateurs will in very quick time copy your print without in the slightest degree harming them. None the less, if the actual and original print can be spared for our collection, we would naturally prefer to file it than to reply on a copy, which is often very inferior to an original.

I have sometimes been asked whether, bearing in mind the enormous output of illustration matter by the illustrated journals, and in the form of picture postcards, there is any real need for making such a collection as ours. Cannot everything be found by future generations in our current picture papers and postcards? My answer is that at least nine-tenths of our photographs depict subjects which cannot be seen elsewhere.

Sir Benjamin Stone, M.P., told us only last year what he estimated as the effective life of the average picture paper and illustration magazine, and stated that the mixture of wood-pulp and barytes which goes by the name of paper will hardly last out a generation. But even if these publications would resist decay for a century or two, they entirely fail to cover the ground which we are working over. Perhaps I may make this point clearer to you by citing a hypothetical case.

Supposing we wanted to illustrate the subject of man so that for instance, an inhabitant of Mars might learn everything about him. We should obtain a typical model and photograph him from different points of view, we should picture his skeleton, and his subcutaneous physiological structure, including his chief organs. We might furthermore depict him engaged in various characteristic operations, such as eating, drinking, writing, singing, walking, talking, running, riding, and so on. We might also include examples of the various races of mankind such as the Caucasian, Negro, Mongolian, Red Indian, and so forth. So that in the compass of perhaps two or three hundred photographs much of the salient information respecting man would be present. How much of all this would you get out of a collection of postcards? The chances are that you would not get 20 per cent. of this information from all the postcards in the world. The President of the Royal Photographic Society not long ago described the contents of an anthropological collection of postcards which had come under his notice, and which contained no less than 1,623 different pictures. And yet all the information that these cards embodied was little more than the "smile of Phyllis Dare"; every one of them depicting the laughing teeth of this fascinating lady! *Mutatis mutandis* it is somewhat the same all along the line.

the illustrations in the Press are chosen for their sensationalism, that every other consideration has to go by the board. In the way only spicy views of conspicuous or notorious persons, events, or things, find their way on to postcards. So that practically nine-tenths of the objects which should be pictured in our collection would be absolutely unrepresented in picture papers and cards.

I have commended the work of the Society to all Surrey men, and I trust that they will give it their hearty support, some may, not unnaturally enquire "What good shall we get out of it?"

Although there are, fortunately, but a few altruists in the field—some of whom, I know, belong to this Society—the average man always wants to hear whether he is going to receive any reward for his labour. To this I reply that you may be sure that in helping you will be in several ways helping yourselves.

To give one instance. Suppose that you spend a day in photographing some objects which are awaiting record; apart from the social recreation which this involves, at the end of the day your personal and direct knowledge of the things you have been engaged to photograph will be so much greater than it originally was that you will be a palpable gainer. Instead of having a vague, second-hand notion of the objects which have come under your microscope, you will have acquired a vivid mental conception of them which will be *all your own*.

Our days, when from very early morn to late at night a succession of newspapers ply us with news and fiction, the habit of obtaining information at first-hand has almost been completely suppressed. We really know nothing from our own actual knowledge, but are content "to take the world on trust," as described for us by the pithy journalist. So that two or three days of record photography will provide what I consider to be a distinctly precious and much needed addition to each one's personality.

Even those whose help is confined to hunting out half-forgotten photographs for the survey, are storing their minds with facts which enrich the sum of their knowledge.

I daresay there are some people who, priding themselves on their common sense, will refuse to allow that the indirect benefits which have been alluded to are worthy of consideration. Perhaps some people will respond to the claims made upon them by gratitude. Past generations have accumulated and carefully preserved for our advantage an almost endless number of ancient and valuable records. Shall we, then, with the wonderfully efficient power which photography places at our disposal, repay the past by neglecting the future? Is it not almost a sacred duty for the present generation to strain every nerve in order to perpetuate, as far as may be possible, the life and aspect of the world we live in?

There is, of course, no need for me to emphasise that these preserved records will prove of splendid value to our descendants, but that, I suppose, you all realise. What is perhaps not fully recognised is that the practical utility of our present collection has already been discovered by hundreds—if not thousands—of the present generation.

Writers, archaeologists, antiquarians, historians, lecturers, scientists, students and others are continually travelling to Croydon, where the collection is housed, in the Free Public Library, in order to fortify their work by the aid of our photographs; which, it should be said, now cover such a wide range of subjects connected with the county that very few branches of research which are capable of pictorial expression are unrepresented. In the course of a very few years a small band of amateurs have done as much as is indicated by our report, why, it may be asked, do I trouble to press the claims of the Society for support? Because, valuable and encouraging as is the work already accomplished, what we have so far done is as but a drop in the ocean.

As we have three thousand, we should have at least ten thousand prints. And if only one per cent. of the people of the county took about one per cent. as much practical interest in the Society's work as is done by the handful of enthusiasts who are engaged on this priceless labour of love, our rate of progress would be increased tenfold.

Therefore, I confidently appeal to my hearers, and to that wider circle which may read these remarks, to lend us their aid. If you do not take photographic records, you may send us such suitable objects as may be in your possession; failing which you may make it your care and duty to rummage all likely collections of prints and to beg or buy those which bear on our work. Finally, if you are too busy, or otherwise unable to contribute prints, it behoves

you to compound for your remissness by giving the Society financial support. If you can do no more you can become a member, for the 5s. annual subscription will be very welcome. But there are some few fortunate people whom I have in mind, and who are closely connected with Surrey, who might well be expected to give this Society liberal pecuniary assistance. I trust that the only reason that they have not already done so is ignorance on their part of the pressing need we have for more funds, and of the enormous value of the work which we have initiated.

HECTOR MACLEAN, F.R.P.S.

PRINTS ON PARCHMENTISED PAPERS.

A CORRESPONDENT of our Philadelphian contemporary, the "Bulletin of Photography," has worked out a modified procedure of a process of printing on parchmentised paper recently recommended in that publication. The following are the revised instructions for preparing what will be seen to be a variation of the plain salted-paper process:—

* * *

Although I was informed that the proportions of acid and water must be adhered to, I found that I could work better with more dilute acid bath. My plan is this:

Sulphuric acid (strong)	4 ounces.
Water	4 ounces.

Immerse the paper—a good stock paper being necessary—in this solution, raise quickly up, place on a glass, and see that all bubbles are dispelled. Immerse again, and again quickly place on the glass, with the contrary side up, and remove any air cells. Plunge successively into three changes of water, as directed in your formula; finally into water in which a little ammonia is placed. After a few minutes take out of the ammonia bath and press between clean blotters; then hang up to dry. Observe always to keep the ammonia bath alkaline by adding a few drops of ammonia when it tests red with litmus.

The paper is quite different from the parchment paper made by the plan you published. It is not at all difficult to manage, and the puckering up of the fibre is not so decided.

The paper does not contract much, and is slightly more absorbent.

To prepare a sensitive surface on this paper, which gives beautiful rich-looking proofs of pleasing brown colour, make the following solution:—

A.

Potassium iodide	1 grain.
Cadmium bromide	½ grain.
Barium chloride	10 grains.
Sugar	10 grains.
Water, impregnated with camphor	1 ounce.

Camphor in aqueous solution may be had of the apothecary.

Take a flat, smoothed, dry sheet of the prepared paper and apply with a brush or wad of cotton in the usual way this salting solution. Let it lie flat for a minute or two, then hang up to dry. When dry it is ready for the sensitiser:—

B.

Nitrate of silver	100 grains.
Citric acid	4 grains.
Nitrate of uranium	60 grains.
Distilled water	2 ounces.
Alcohol	½ ounce.

Dry quickly, but not too near the heat. Expose until the image is faintly visible, about as in the platinum print.

The developer consists of—

Pyro	4 grains.
Citric acid	8 grains.
Acetic acid (glacial)	1 drachm.
Water	8 ounces.

The development is rather slow, being retarded by the quantity of the acid, but this is advantageous. The dish is kept in motion during the development.

Develop the image until it shows considerable intensity, as it weakens somewhat in the fixing-bath.

FIXING-BATH.

Hypo	½ ounce.
Water	8 ounces.
Alum	2 drachms.

Fixing is accomplished in 15 or 20 minutes. The print is now placed in—

Alum	50 grains.
Water	8 ounces.

Let it remain in this bath for half an hour or more, until it assumes a rich brown colour. Wash as usual with other prints. I believe this parchment paper might be used in gum bichromate printing to good advantage. I intend trying it shortly.

LLEWELLYN GRIFFITH.

Exhibitions.

CRIPPLEGATE PHOTOGRAPHIC SOCIETY.

We never go to an exhibition where so much is crowded into so small a space and short a time as at the Cripplegate Institute. From the moment that the Lord Mayor (and suite) alights outside its doors in Golden Lane on the Monday afternoon to declare the exhibition open, to the hour of closing on the Thursday night, there is a round of musical selections, lantern projections, demonstrations of oil, ozobrome, bromoil, carbon, and platinotype, as well as of attractions at near a dozen stalls of leading manufacturers—leaving out of consideration for the moment from this *embarras de richesse* the pictorial portion of the exhibition—all of which could never by any possibility have been inspected by the Lord Mayor (and suite), but during the later hours of each day is inspected with every mark of interest by innumerable “somethings in the City,” to say nothing of visions of feminine grace, at whose feet the Cripplegate Institute, among other gifts of instruction, lays the inestimable boon of modern photography.

We crushed our way round the walls, and managed to see some of the exhibits. The members' classes, though not large, contain work most creditable to those responsible for it. “When the Day's Work is Done” (No. 62), by P. Schillang, is just a little cold and thundery in tone, not quite of the warmth to carry out the title. It receives a bronze plaque. In No. 73, J. G. Denyer has certainly produced a “Symphony in Grey,” the greyness somewhat overdone, we fear.

In the open classes we are glad to see an award go to Mrs. E. Peake's “Seeing the World.” Miss A. B. Warburg takes the other award for her photograph of “Church Parade, Dalecarlia.” No. 136 should surely have been “The Hear Maiden,” since the young lady would seem to be taking a telephone message. Why, in Class F (straight prints from straight negatives), an award should have been given to No. 219, a semi-silhouette of a figure standing nowhere in particular, is a mystery to us. And we are not with the judges in their award to No. 226. In “The Cathedral Steps” (No. 250), Mr. A. I. Hensler cleverly uses a figure to suggest the immense stature of St. Paul's. We do not know what Mr. D. Elgar wishes to suggest in No. 254, “An Englishman's Home,” a very factual photograph of a tiled house in a suburban road. No. 286, “Staple Inn by Night,” is the best night photograph on the walls.

The class for results in oil, bromoil, ozobrome, and gum did not bring forth much pictorial fruit, and the one coloured oil might have been dispensed with.

The trade attractions, as we have said, were great, and the number of stalls would have taxed the floor space but for the constant stream of fixtures, etc., which carried off bands of interested ones to “Classroom 4,” or the “refreshment room,” which latter, however, when we visited it, was the scene of an incisive demonstration of the platinotype process. The moral of all which is that our readers in the City inform themselves as to the Cripplegate Society and its annual exhibition.

PAISLEY PHILOSOPHICAL INSTITUTION (PHOTOGRAPHIC SECTION).

The twenty-third annual exhibition of the Paisley Philosophical Institution (Photographic Section) was held in their rooms, Oakshaw Street, from March 19 to 26, when over a hundred pictures were on exhibition. All the classes were for members—with the exception of one which was open to Associates of the Scottish Federation—and had thirty-two entries. The following is the full list of awards made by the judge, Mr. Dan Dunlop:—Federation Class.—

Bronze plaques: W. C. S. Ferguson, Glasgow; Robt. Ure, Glasgow. Commended: Thos. Carlyle, Paisley; Bert L. Forrest, Shotts; John Stewart, Paisley. Portrait, Figure, etc., Class.—Bronze plaque: Andrew Hamilton. Commended: Robt. E. Glasgow. Landscape and Seascape.—Bronze plaque: John Stewart; this picture, “Eight Bells (Midnight),” also gained the challenge gold medal. Commended: Thos. Carlyle. Novice Class.—Bronze plaque: J. Rankin Dunlop. Commended: J. B. Martin; Charles McConville. Outings.—Bronze plaque: Eric Mackay. Commended: J. B. Martin. Lantern Slides.—Silver plaque: Thos. Carlyle. Bronze plaque: John Stewart. Lantern Slides (novice).—Bronze plaque: J. B. Martin.

There was also a loan collection of photographs by leading workers.

THE BOROUGH POLYTECHNIC PHOTOGRAPHIC SOCIETY.

The fourteenth annual exhibition of the Borough Polytechnic Photographic Society was opened on Thursday last, the official duty falling this year to Mr. F. C. Tilney, who also acted as judge. The chair was taken by J. Pascall, Esq., who is one of the Governors of the Borough Polytechnic, and much amusement was caused by the adroitness of the honorary treasurer in seizing the opportunity of a vote of thanks to the chairman, to elicit future favours for the society from him in the name of his co-Governors. The exhibition reaches a remarkably high standard, and is numerically strong in relation to the membership roll. Many of the works, particularly those of the secretaries, Mr. A. G. Buckham, show considerable artistic feeling. This gentleman's misty landscapes are highly pleasing in their delicacy and truth of effect. One of them gains an award as the best print of the year. Good work is shown also by Messrs. Bedding, Bull (whose architectural views display choiceness of selection and lighting), Burdett, J. N. Spare, and E. H. Roberts, the President. The exhibition includes a collection of excellent lantern slides.

In the opening speech Mr. Tilney referred to the growing affinity between art and photography, and recommended the members to avail themselves of methods of control in printing, warning them at the same time that such methods were edged tools, and exhorted them to the cultivation of artistic taste by means of observation of Nature and works of art.

The awards were formally presented on Saturday evening by Mr. Coote, Esq., J.P.

Patent News.

Process patents—applications and specifications—are treated in “Photo Mechanical Notes.”

The following applications for patents have been received between March 15 and 20:—

CAMERAS.—No. 6,194. Improvements in photographic cameras. William Morris Jones, “Beauregard,” Babbacombe Down, Torquay.

CINEMATOGRAPHS.—No. 6,210. Improvements in cinematographic cameras. Simeon Hughes, 37, Moorfields, Liverpool.

STEREOSCOPIC REPRODUCTION.—No. 6,309. Improved method of reproducing animated and other pictures stereoscopically. William Friese-Greene, 3, Broad Street Buildings, Liverpool Street, London.

ENLARGING.—No. 6,413. Improvements in apparatus for enlarging and copying photographs, objects, and the like. Ralph Winward Robinson and Leonard Leslie Robinson, 4, South Street, Finsbury, London.

PLATES.—No. 6,455. Daylight-loading apparatus for photographic dry-plates. Albert Hawkins Clark, Fern Villa, Goodwick, Pembrokeshire.

CINEMATOGRAPHS.—No. 6,595. Improvements relating to cinematographs. Arthur Herbert Benson, 17, St. Ann's Square, Manchester.

PHOTOGRAPHIC CHEMICALS.—No. 6,652. Improvements relating to the preparation of packeting of chemical substances used in photography. Thomas Oliver Kent and Oppenheimer, Son, and Co., Limited, 322, High Holborn, London.

ILLUMINATION.—No. 6,747. Illuminating apparatus or appliances for the distribution of artificial light for photographic and other purposes. Curt Karstedt, 37, Essex Street, Strand, London.

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

Price in brackets is that of application in this country; or 10s. in the case of patents granted under the International Convention.

SCREEN-PLATES FOR COLOUR PHOTOGRAPHY.—No. 20,971, (January 25, 1908). This invention relates to the making of colour plates by means of dyed particles artificially produced in an emulsified state. For example, a solution of shellac spirit is divided into three portions, one of which is dyed red, the second blue, and the third green, with appropriate dyes. The three portions are then separately emulsified in turpentine, which emulsion, when only small quantities are concerned, can be made by pouring the shellac solution into the turpentine and shaking the whole by hand. For larger quantities known emulsifying machines can be used. The turpentine is, after the emulsifying, mixed with minute globules or particles of the shellac solution, which will sink to the bottom, the larger globules settling first. Leaving the emulsion at rest for some time and then drawing it to a certain height, it will be possible to draw off an emulsion of shellac grains or particles of about same size.

When three emulsions with differently coloured shellac grains of suitable size have been obtained it is necessary to spread these grains on a transparent plate—for instance, glass or celluloid. This can be done by applying a thin layer of lac to the plate and then pouring the lac emulsions over the plate, either separately or after previous mixing. The lac globules or particles gradually sink down to the lac layer, which, if necessary, may be sticky and become fixed to the same, and by placing the plate a little obliquely or by turning it by hand the dyed lac particles will cover the surface of the whole plate without, however, being superposed. By cautious heating or by pressure, or by a combination of both, the lac particles can be brought to amalgamate more closely with the under layer, at the same time becoming flattened so as to still better cover the plate.

Instead of shellac, other kinds of lac, resins, gum resins, or the like can be used for the coloured grains, and, of course, the turpentine can likewise be substituted by other liquids, as, for instance, toluol, petroleum, benzine, etc. It is sometimes advisable to add to the emulsifying liquid—in this case the turpentine—a substance having a specific emulsifying power. As regards aqueous solutions, it is known that casein has such power. A similar effect is obtained where turpentine and several other organic liquids are concerned by adding gum dammar or some other resin, soluble in the liquid in question.

Likewise, in place of lac grains or the like, for the same purpose in quite similar manner, gelatine emulsions can be used (the gelatine must then be melted at the moment of emulsifying) or other emulsions, albumen emulsions, etc. Emulsions of gum arabic, for instance, be produced by shaking a solution of 50 parts of gum arabic in 100 parts of water, which may be dyed with appropriate dyes, with a dammar lac consisting of 60 parts of gum arabic and 100 parts of turpentine. The gum dammar, which serves for emulsifying, can afterwards be removed by means of turpentine, for instance. Aqueous solutions of albumen and gelatine emulsions of these substances can be made in a corresponding manner.

Emulsions of lac and the like have the advantage that the film is not attacked by aqueous solutions (developer, fixing solution), thus not needing protection by a cover of lac solution, celluloid, or the like.

In many cases no special preliminary layer on the plate is needed to cause the emulsion particles to adhere to the same. On the other hand, a special effect can be obtained by the dyed particles in liquid or gelatinous state being able to yield dye to an underlayer by diffusion, the under-layer itself then constituting a screen if the screen particles are removed. Jens Herman Stensen, Sterrehus, Holte, Denmark.

DAYLIGHT DEVELOPMENT OF PLATES.—No. 25,370., 1908 (November 25, 1908). The invention consists in the use of a fogging method of developing plates for the proper time. The inventor has found that a fogged sensitised plate, when immersed

in any developer, will, in any condition of light, turn to a certain depth or shade of colour in a certain period of time. This period of time is not materially affected by the strength or quality of the light surrounding the plate at the time, but is dependent in the main upon the strength or quality of the developer. On this is based a method of estimating the correct time of development of a plate. For this purpose there is used a small surface of sensitised film on a suitable support in conjunction with a surface of any suitable substance coloured to a certain fixed standard depth or shade.

The sensitised surface is fogged by exposure to daylight before the device is issued from the factory. In this case the surface would be developed by the user in the same developer as the exposed plate is being treated to the depth of shade judged to be the correct one.

For general convenience, however, the whole surface of the device may be fogged in like manner and part only developed in the factory until the standard shade is reached and there fixed in the usual way, leaving the other part of the fogged surface to be developed by the user with the previously developed part as the standard. In place of fixing the part developed in the factory in the usual way it may be coated with varnish or grease or other suitable material, which would be equivalent to fixing for the purpose. The extent to which the plate is fogged is immaterial.

In using the device it is inserted into the same developer as that in which the exposed plate is being developed. The plate need not be disturbed until development is complete, and this is judged by the depth of shade of the fogged surface being developed at the same time. The latter may be from time to time removed from the developer for examination of the progress of development. This examination may take place in bright sunlight. When the fogged and previously undeveloped surface of the device has darkened to suit the judgment of the user or to correspond with the fixed or permanent standard shade thereof the plate may be removed from the developer as efficiently developed.

The standard shade, when indicated on the device, may be somewhat lighter than that required for correct development, so that when the latter is complete there will be a slight contrast visible on the device. Arthur Augustus Brooks, Cranleigh, Park Avenue, Ashton-on-Mersey, Cheshire.

DAYLIGHT DEVELOPMENT OF PLATES.—No. 25,074, 1908 (November 21, 1908). The invention relates to improved apparatus for developing plates, the improved apparatus being chiefly intended for developing plates contained in box-like sheaths divided in the plane of the plates, and particularly plates packed according to the system described in Patent No. 11,816, 1908.

The apparatus comprises a deep flat receptacle with a cap at one end and a hole in one of the broad sides for opening the sheath and separating the plates when inserted therein, means being provided for holding the plates apart while being developed. For facilitating the development of the plates there is a tank large enough to immerse the receptacle when upright or the plates therein, and preferably of a suitable size for receiving several receptacles at a time and keeping them apart. Arthur Augustus Brooks, "Cranleigh," Park Avenue, Ashton-on-Mersey, Cheshire.

CINEMATOGRAPH-PHONOGRAPH.—No. 27,435, 1908 (August 13, 1908). The claim is for the method of securing synchronous action of a cinematograph and a talking machine by including in the subject-matter of the photographic record an object moving at a rate proportional to the rate of movement of the cinematograph, projecting on to the screen, at the time of reproduction, an image of object moved by the actuating mechanism of the talking machine, and controlling the action of the apparatus so that the images of the objects, projected on to the screen, preserve a uniform positional relation to each other. Deutsche Bioscop G.m.b.H., 236, Friedrichstrasse, Berlin.

CINEMATOGRAPH MECHANISM.—No. 23,275, 1908 (October 31, 1908). The invention relates more particularly to the means used for imparting movement to the shutter by the act of adjusting the film feed mechanism and consists in using a shutter-spindle, the two parts of which are coupled with each other so that axial displacement of one part, produced by adjustment of the film, produces rotation of the other part. This construction has the advantage of occupying less space than, for example, the known arrangement of a planet-wheel carried by an adjustable pivoted

arm, and meshing with co-axial bevel-wheels which are connected with the driving mechanism and shutter spindle respectively. Alfred Duskes and Duskes Kinematographen und Film-fabriken, G.m.b.H., 46, Friedrichstrasse, Berlin.

New Trade Dames.

H. (DEVICE).—No. 310,248. Chemical substances used in manufactures, photography, or philosophical research and anti-corrosives. Arthur Holden and Sons, Limited, 218-9, Bradford Street, Birmingham, manufacturers of varnish paints and colours. February 8, 1909.

WE PUT THE WORLD BEFORE YOU (DEVICE).—No. 309,155. Cinematograph apparatus included in Class 8 and films for use therewith bearing taken photographs. The Charles Urban Trading Company, Limited, Urbanora House, Wardour Street, London, manufacturers and dealers in animated picture specialties. December 24, 1908.

CRITERION.—No. 309,752. Photographic printing papers. The Birmingham Photographic Company, Limited, Criterion Works, Albert Road, Stechford, near Birmingham, manufacturers. January 22, 1909.

(DEVICE).—No. 309,754. Photographic printing papers. The Birmingham Photographic Company, Limited, Criterion Works, Albert Road, Stechford, near Birmingham, manufacturers. January 22, 1909.

Analecta.

Extracts from our weekly and monthly contemporaries.

Bromoil Without the Acid Bath

Mr. C. H. Hewitt, in the "A.P. and P.N." for March 30, 1909, describes a modification in the Welborne Piper formulæ for Bromoil, which he has found successful with at least one bromide paper, Barnet "Smooth Ordinary." He dispenses with the acid bath.

In looking round for some other softening agent to use instead of sulphuric acid, ammonium sulphocyanide occurred to me, its softening effect on P.O.P. being well known to all users of the sulphocyanide toning bath. . . . If a print is bleached, rinsed in a dozen changes of water, and then placed in a 5 per cent. solution of sulphocyanide of ammonium, and rocked for five minutes two effects will be observed. First, the yellow image will be lightened just as it would if the print were placed in hypo; and second, a very satisfactory relief will be obtained. After again washing in a dozen changes the print is ready for pigmenting in the usual way.

The solution of ammonium sulphocyanide thus takes the place of both the sulphuric acid bath and the subsequent fixing bath, for the 5 per cent. strength would appear amply sufficient to dissolve out of the print all the silver bromide. Tests made with a precipitate of silver bromide in a test-tube confirm this.

With these suitable papers then the simplified routine becomes as follows:—

1. Bleach the bromide print in the ordinary way.
2. Wash in, say, a dozen changes.
3. Swell and fix in the ammonium sulphocyanide 1 ounce to water up to 20 ounces.
4. Wash in, say, a dozen changes.

The print is then ready for pigmenting in the usual way.

CATALOGUES AND TRADE NOTICES.

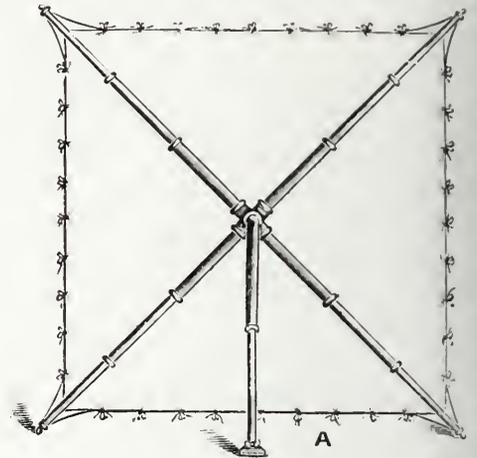
MESSRS. WILFRED EMERY, LTD., of 39, Cricklewood Broadway, London, N.W., have issued a price list of the various kinds of photographic work undertaken by the firm. The list also includes particulars of the "Apek" apparatus and materials which they manufacture and supply. Copies may be obtained post free on application.

"ENSIGN" ROLL FILM COMPETITION.—Mr. George Dutilh, Crédit Lyonnais, Alexandria, Egypt, is the winner for March of the three-guinea camera which Messrs. Houghtons offer every month for the best negative on "Ensign" film. The entries close on the 3rd of the month. Entrance is free, and a competition form is enclosed with every spool of "Ensign" film.

New Apparatus, &c.

The "Merito" Telescopic Tilting Screen Stand. Made by V. L. Parkinson, Ltd., 5, Commutation Row, Liverpool.

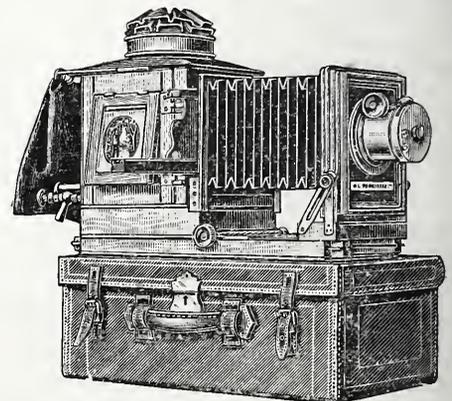
This very portable lantern screen stand consists of a telescopic seamless steel tubes, which, with the aid of a centre-way piece and a bracing cord, form a screen for a 12ft. sheet once strong and rigid, and possessing the advantage that the



can be tilted. The stand requires but one screw to affix it to the platform, where it stands firmly without projections, such as a lecturer might stumble against in the dark. The whole outfit packs into a waterproof canvas case 3ft. 6in. x 4in. x 4in., making room for a 12ft. sheet as well, a triumph of compactness upon which the makers are to be congratulated, and in verifying which all the above claims we have ourselves been most satisfied. The price with case, but without sheet, is £3 15s.; but a cheaper pattern is made, with tubes of iron in place of the seamless steel, at £2 15s. 2ft. square, best quality calico screen, with one seam, £1 2s. 6d.

The "Parkinson" Folding Optical Lantern. Made by V. L. Parkinson, Ltd., 5, Commutation Row, Liverpool.

A fully-equipped optical lantern, which packs within a suitcase case measuring 18½ x 10½ x 6½in., and even then leaves room for a 12ft. lantern screen, is what Messrs. Parkinson have accomplished in this apparatus. They have achieved this result without any sacrifice of the efficiency of the instrument by an ingenious construction, by which the side and front walls of the lantern body are hinged so as to fold on themselves, the objective front, with the objective still in position, also folding on to the baseboard extension, and the whole apparatus when thus closed for carrying representing a block with scarcely any interspaces unoccupied. The work

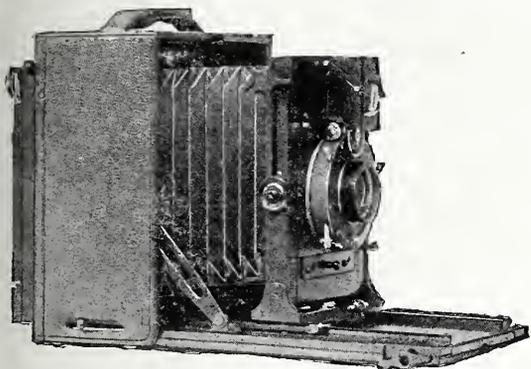


ever, of erecting the apparatus for use is a matter only of few seconds. The lantern body is 8in. in width, and can accommodate a full-size lime-jet. It is fitted with a Russian iron lining, one also of asbestos, and has one specially excellent feature—the 3¼ x 3¼ ground-glass panel in the door, by which the slide can be comfortably examined before being placed in the lantern. The stage is open at the top, and accommodates the very convenient "Parkinson" carrier, in which the slides are inserted and removed from the one side of the lantern. Focussing is by rack and

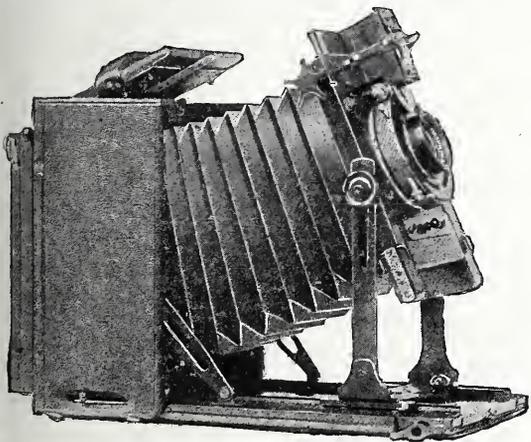
sion of the baseboard, and also by the rack and pinion on the
ive, which is provided with slit for tinting-glasses and the
r-flasher. Complete with a real leather case, with lock and
the price of the outfit is £7, or with a superior case of solid
r hide £8.

Adams "Vaido" Universal Camera. Made by Adams and Co.,
), Charing Cross Road, London.

illustrations, which are direct photographs of the camera,
very clearly the range of movements which the makers have
ed in this instrument of the self-contained hand-stand type.
show the result obtainable, but unfortunately they do not

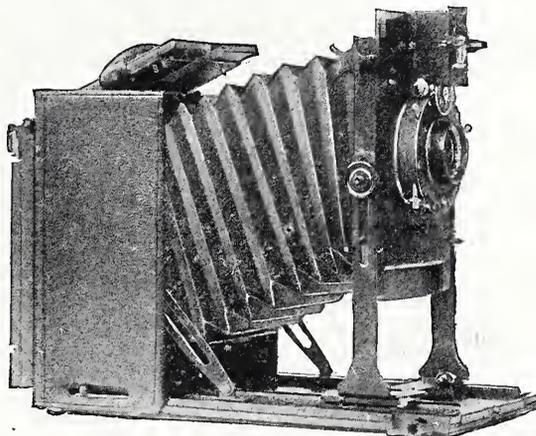


cannot show the many nice devices and ingeniously contrived
of mechanism which permit of convenient and rapid manipula-
Remove the occasion of fumbling with a screw or a catch
ou provide a camera capable of better work is a sound
le, and one which makers who know not only cameras but
rs of them will confirm. And that principle is evidently one
ich the makers of the Adams cameras keep prominently
them. It is because the new "Vaido," one of the first of



instruments we have just examined in detail, has numerous
of superiority which the discriminating worker will appre-
Take, for example, the rise of front. Mr. Adams provides,
many makers, the most convenient rack and pinion adjust-
f it. But he goes further, and gives the head of the pinion
form seen most plainly in the third photograph, so that
he front is close in at the wide-angle position, the worker
e one finger only and do easily with a poking movement
e could not readily do in the case of screw-head requiring
gers to move it. A refinement perhaps, but nevertheless
ich the worker will be grateful for. The same purpose to
fittings which make for smoothness of manipulation might
anced in other items—but why should we demonstrate to
world how the photographer is so pampered by makers
ssrs. Adams that he has but to pull out a lever somewhere
ow the rest to happen? At any rate, he is relieved of the
thinking much as to the adjustment of his instrument.
e drawings show, the "Vaido" is fitted for use in the
y aid of its focussing scale and the most valuable Adams
which indicates the change in the picture when the front
l. The "Vaido" has a large rise, and useful as that move-
in hand-camera work, its value is practically negated
he finder shows what is happening.
olly valuable, too, is the rotating back, which dispenses

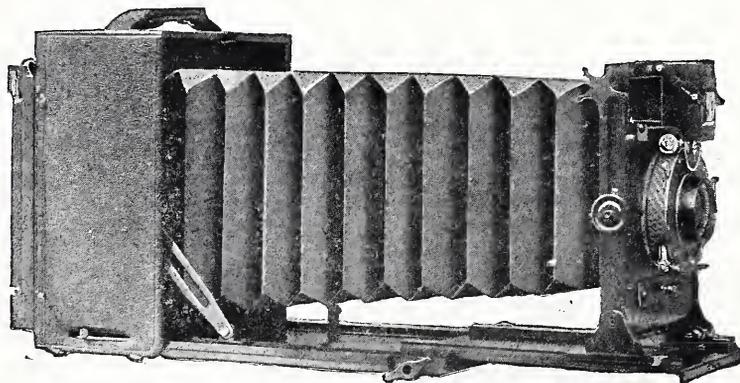
with the loose reversing frame, and permits the change from upright
to landscape with the plate all ready for exposure. The central-
swing movement of the lens panel is still another feature that earns
our commendations, not only for its simple method of being put
in and out of action, but for the fact that though the whole camera



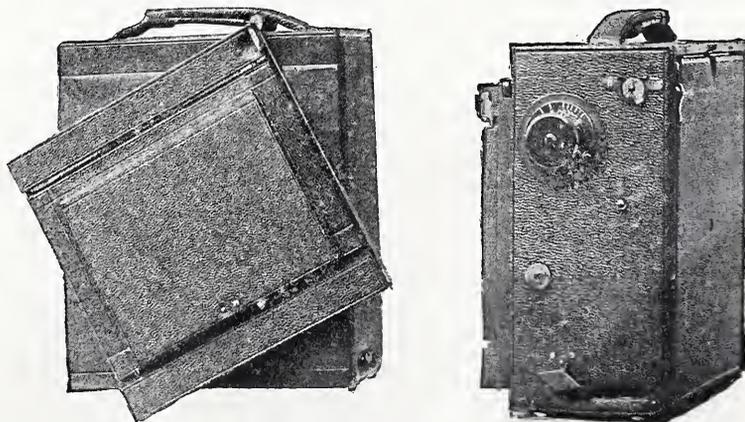
is highly compact, the lens panel accommodates the large $f/4.5$
anastigmats of suitable focus.

The camera provides a full long extension, and is fitted with a
second scale for the half-lens or a second lens of long focus, while,
of course, the hooded focussing screen allows of actual focussing
being done in the many circumstances when such course is necessary.

We have left to the last the new focal-plane shutter, the
"Minex," fitted to the camera. This is a quite new pattern, em-



bodying features which give one good cause to think that the last
word in focal-plane shutters has here been said. First, the
shutter is self-capping. Secondly, the shutter is set by a half
turn of the key. Thirdly, the speed is changed by turning the
same key with the shutter set or run down, and the speed dial
is marked with the actual speeds. Fourthly, with the shutter set
at a certain speed, the repeated release and rewinding of it brings
it always to that speed; it has not to be adjusted for speed at



each rewinding. Added to this, it gives the usual wide range of
instantaneous exposures— $\frac{1}{8}$ to 1-1,000—automatic time exposures
up to 3 seconds, and time and bulb adjustments.

This triumph of shutter design is supplied only with the "Vaido"
camera, and with a new studio reflex camera which Messrs. Adams
are shortly issuing.

We have said enough to show that in the "Vaido" the makers have provided an instrument without a single loose part, light, compact, and simple, yet capable of responding to the most extreme claims of the photographer.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, APRIL 2.

Sutton Photographic Club. Ten Minutes Lectures by Members.
Guernsey Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.

SATURDAY, APRIL 3.

Kinning Park Co-operative Camera Club (Govan). Outing to Inchinnan.

MONDAY, APRIL 5.

Stafford Photographic Society. Lantern Slide Competition.
Hastings and St. Leonards Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Catford and Forest Hill Photographic Society. "Bromoil." Demonstration.
Folkestone and District Camera Club. Photography Prize Slides.
South London Photographic Society. Annual General Meeting.
Bradford Photographic Society. Y.P.U. Prints.
Redhill and District Camera Club. 8 p.m. Lantern Evening.

TUESDAY, APRIL 6.

Royal Photographic Society. "Some Interesting Absorption Spectra." C. E. Kenneth Mees and S. H. Wratten.
Worthing Camera Club. "The Picturesque Arun, from Source to Mouth." W. E. Carter.
Forest Gate M.M. Camera Club. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Wimbledon and District Camera Club. "Platinotype." H. Brigden.
Leeds Photographic Society. "Yesterday and To-day." Burroughs, Wellcome & Co.
Handsworth Photographic Society. Council Meeting.

WEDNESDAY, APRIL 7.

Sheffield Friends Photographic Society. Dutch Lantern Pictures. A. E. Staley & Co.
Great Eastern Railway Mechanics Institute (Photo Section). "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Croydon Camera Club. Odds and Ends and Home-made Apparatus.
Edinburgh Photographic Society. "In Nature's Workshop with a Micro-Camera." Illustrated. R. Wells Brown.
Tyneside Geographical Camera Club. French Lantern Slides. A. E. Staley & Co.
Leeds Camera Club. "In the Sunny Senois." Rev. C. O. Stewart.
Borough Polytechnic Photographic Society. Rummage Sale.

THURSDAY, APRIL 8.

Handsworth Photographic Society. Lantern Evening.
North-West London Photographic Society. "How to Develop a Plate." Beginners' Night. Walter Kilbey.

ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held Tuesday, March 30, the president, Mr. J. C. S. Mummery, in the chair.

Mr. E. Fenske gave a demonstration of his "Aurora" colour screen-plate, beginning by coating a plate with powdered colour and showing the result in the lantern. He next developed and reversed a plate which he had exposed that morning and showed the result, together with a number of other examples, by projection in the lantern, at the same time giving full working particulars. A short discussion, concluding with a hearty vote of thanks to the lecturer, brought the proceedings to a close.

CROYDON CAMERA CLUB.—An interesting lecture was given by Mr. John Bawcomb last week, illustrated by nearly 150 slides, and entitled "An Evening with the Microscope." The majority of the slides were not secured by ordinary transmitted light, but by what is known as "dark ground illumination," obtained by means of a stop in the sub-stage condenser, a method of lighting giving very beautiful effects and frequently neglected by workers in photo-micrography. Generally speaking, the system is only applicable to low or moderate powers, though Messrs. Zeiss provide a somewhat expensive apparatus for use with high-power objectives. Irrespective of other advantages it readily permits of the subjects being tinted with various dyes to match the originals as far as possible, and some fine slides fully illustrated the effectiveness of the addition of colour.

Beginning low down in the scale of life with the minute Amoeba, which without any properly organised being is capable of performing its vital functions, the lecturer passed on to deep-sea surroundings, foraminifera, strange crustacea, marine worms, and many other wonderful and frequently beautiful denizens of the microscopic world. The extraordinary structure of the sponge well illustrated Socialism in its most simple form. A poor, degraded mass of animal life at one

dead level, each individual patiently waiting for the food to find his way through the minute channels of the sarcodae. Other examples showed a common stomach for a community, a state of social infection mankind can never hope to attain. The Entozoa, such as trichina spiralis, were pictured embedded in the human muscle, and their marvellous, if extremely unpleasant, metamorphosis explained. It appears that trichinae are inherent to the economic rat, with its dead; pigs in turn eat rats, and so transmit the disease to man.

In the discussion following the lecture, Dr. Mees inquired for some of the very high magnifications shown were obtained. A member said that, having partaken of pork for dinner, he was interested in the slides of trichinosis; he understood that it was destroyed the nematoid worm. He derived comfort from the fact also from the fact that he had never seen a pig chasing a rat. A fair field and no favour he would lay heavy odds on the rat. The rat. Mr. Bawcomb said he had never suggested pigs were suitable quadrupeds for rat-catching. A dead rat, however, would be a succulent morsel. Trichinae would resist considerable heat, and all forms of pork should be thoroughly cooked. In reply to Dr. Mees, the lecturer said he never used a higher power objective than was absolutely necessary, preferring the employment of low, or moderately high, powers, with a long camera extension. With a 1 1/2 inch apochromat and a high power compensating ocular, with a long extension, magnifications up to 5,000 could be obtained without difficulty.

PETERBOROUGH CAMERA CLUB (Canada), since its organisation four months ago, has had a remarkably good programme, and the work has been fortunate enough to have attended the meetings of all regularly have been much benefited. It consisted of papers at the "Dark-room," "Photography as an Aid to Surveyors and Surveying," "Art of Negative Making," etc. The officers of the society are: Dr. J. A. Morgan, president; his Worship Mayor Rush, hon. president; R. S. Rose, first vice-president; Mrs. A. M. McCarthy, sec. vice-president; N. A. Howard-Moore, 191, King Street, Peterborough, secretary-treasurer. Committee: A. W. Patterson, A. Rogers, J. A. Brightman, R. Pecord, J. A. Dealisle, A. McCarthy, and Jos. English.

HACKNEY PHOTOGRAPHIC SOCIETY.—At the meeting on Tuesday, the 16th inst., a very interesting and useful lecture on the gum bichromate process was given by Mr. C. Wille. The lecturer considered this to be the best of all photographic processes, and showed that by systematic working it was possible to get almost any result desired, and by modifying the treatment equally good results could be got from negatives varying greatly as to their scales of gradation. This, however, applied to "multiple" gum, for single gum would not allow the use of a wide scale of gradation, and the negatives must consequently be soft. Mr. Wille explained in detail the whole process, from the preparation of the materials to the final print, and the examples of finished work quite confirmed his claims as to the value of the process worked by him.

Commercial & Legal Intelligence.

ROTARY PHOTOGRAPHIC COMPANY, LTD.—Particulars of £10,000 debentures, created May 25, 1908, and secured by trust deed dated May 25, 1908, filed pursuant to Section 10 (3) of the Companies Act, 1907, the amount of the present issue being £10,000. Property charged: The company's undertaking and property, present and future, including uncalled capital, and lands and buildings at Newbury, but excluding leaseholds for less than thirty years. Trustees: R. Back, 46, King William Street, E.C., and E. Haenel, 1, New Union Street, E.C.

LEGAL NOTICES.—At the Bradford County Court recently a receiving order in bankruptcy was made against Arthur Sagar, residing at 27, Hall Road, Shipley, and carrying on business as a photographer at The Studio, Church Street, Keighley.

COMPENSATION.—At the meeting of the L.C.C. on Tuesday it was reported that the claim of Miss F. Collings, photographer, in respect of disturbances to part of 53, East Hill, required for the Wandsworth Road to East Hill improvement, had been settled by the payment of £75.

Correspondence.

do not undertake responsibility for the opinions expressed by correspondents.

respondents should never write on both sides of the paper. notice is taken of communications unless the names and addresses of the writers are given.

THE BANE OF CHEAPNESS.

To the Editors.

Gentlemen,—I have read the letter signed "Disgusted" with great interest. There is a lot of truth in the remarks, but at the same time I think your correspondent is a little hard on the class he terms "traders." I suppose I am what he would term a trader, although entirely the fault of circumstances. After serving an apprenticeship of three years and working as assistant for a further two, I set up on my own account in my native town. About the time I married, and as my wife is an expert photographer we had a good chance. I took an empty studio and fitted it with the latest and best apparatus, aiming at a high-class trade. My window with sepia carbons, sent out nice little booklets, and generally did what a new man must do if he expects to become successful. Weeks passed, my stock of money began to grow less and my wife came and looked at my work, and would remark, "Ain't it nice?" then, like the weeks, they passed—to a cheap man further down the street. I knew my work was good, but I couldn't persuade him to buy it. For twelve months I stuck at my profession and my dwindling capital, what time my cheap rival kept a staff of men in order to cope with his weekly rush. People used to ask me, "Why don't you charge the same price as ———?" In the end I came down to his price, and incidentally descended from the rank of a "professional" man to that of a mere "trader." My business immediately began to grow better, and when I had had about six months of fairly good trade a new rival opened his doors at half my low prices, and as a bait he is offering stamp photographs at 2d. per dozen! Here is a list of his prices: Twelve post-cards, 6d.; four cabinets, 1s. 6d.; framed 12 x 10 enlargements, 5s. Could "Disgusted" do? I know what I intend doing at the earliest possible moment, and that is getting out of photography anything more profitable.

"Disgusted" says about men with no training, and his suggestion I thoroughly agree with. Why cannot photographers band themselves together and get a law passed compelling anyone who contemplates setting up as a photographer to pass an examination showing himself to be competent? At present the trained photographer is at the mercy of any broken-down tramp who can either beg, borrow, or steal a camera, and then set up as an "artist." If photography is a profession, why not make it impossible for anyone but a competent person to enter it? A man must needs be something more than an ordinary man to become a doctor or barrister. The same requirements ought to apply to photography. Until that happy time I am afraid I must sign myself
A TRADER.

To the Editors.

Gentlemen,—May I be allowed to express my views in reply to your correspondent who for obvious reasons signs himself "Disgusted"? Only about six years ago I opened my business in a very attractive style, and with an artistic display of pictures, etc. I was, in every way what your correspondent would term a "successful" professional. As such I carried it on for about two years, with a result that all I could get out of it was a mere pittance. Naturally, with that I was not satisfied, and began to think that something should be done to improve my position. I soon started to consult with what he calls a "second class" or a "mere trade" photographer. I have still the cheek to call it a "profession" by inviting the local clergy, local doctors, and other local people of note to patronise my gallery. I found this paid me very well, so went further and now I have such clients on my books as I am certain to have even as much as have known of my existence; in fact, I have had my schemes so far that, far from their being likely in any way to lower my dignity, it is just the contrary, and my banking account is at present quite all right. Should your Mr. "Disgusted" care to have my name and address, kindly give it him, for if I have any desire to communicate with me I should prefer to do so through you. For the above, and obvious other reasons, I sign myself,
SATISFIED PROFESSIONAL.

QUOTATIONS AND MISQUOTATIONS.

To the Editors.

Gentlemen,—Mr. Bland's strictures on the subject of quotations, misquotations, and non-quotations, should be a very wholesome warning to the editors of photographic journals, and, in fact, to editors and photographers generally. In the case of the misquotation (how can it be a non-quotation?) under notice, it is to be hoped that the majority of your readers are sufficiently subtle-minded to appreciate the far greater incisiveness and wit of the correct version. Indeed, but for the editor's footnote, readers of this and other photographic journals might have been inclined to give the "misquoters" credit for a deeper and fuller knowledge of the inner meaning of the original text than we ordinary people possess, and to regard what, at first sight, seem to be serious lapses from accuracy merely as revised translations. If the axiom that "a quotation must be made *correctly* or not at all" is to hold, how would Mr. Bland deal with a well-recognised mistranslation? For instance, if the editor of a photographic journal, in scanning the "copy" of an exhibition critic, should read, among the usual illuminating remarks, that a certain artist was at last promising to "blossom as the rose," would he feel it his duty to amend the quotation (as per axiom) to "blossom as the polyanthus-narcissus"; or, if the text were not sufficiently Solomonesque, to put it, as I once heard a learned preacher quote it, to a country congregation, "as the crocus of Sharon"?

Take, again, what would generally be accepted as a quotation, even in literary circles, "One swallow does not make a summer," should not a well-equipped purist go strictly back to Aristotle's *Ethics*, where it appears in "literary" form, probably for the first time (and quoted correctly, by the way, by the Rev. F. C. Lambert, in the current number of the "A.P."), and rule out, by axiom, of course, all more recent versions, including that, for example, by the misguided Cervantes?

Lastly, one may misquote with a purpose. Look at the picture (and the title) on p. 291 of this week's "A.P." and you will find that the author of the canal-like scene was too good an artist to call the water "ocean," so he adopted the unimpeachable compromise of "sea." One hopes that, in this case at any rate, the shade of Coleridge (and possibly Mr. W. R. Bland) will be sufficiently charitable.—Yours obediently,
F. H. CLIFFE.

Haileybury College, Hertford.

March 22, 1909.

To the Editors.

Gentlemen,—I cannot tell whether Mr. Cliffe is holding a brief for me or whether he is merely heaping blame with one hand and mercy with the other, as when the discriminative interloper says: "Don't hit him; tell his mother!" I only know that I am overwhelmed with a growing consciousness of the enormity of my crime, and that my punishment is greater than I can bear, in writing which I intentionally omit inverted commas. Peccavi! Peccavi!! That I should have been weak enough to use a phrase, as I have heard and read it so often, without hunting it up in a quotation dictionary—a thing I do not possess! Of course, pedantry is the essential thing. It is the letter, not the spirit, that counts. Behold, all is vanity and vexation of spirit. As it happeneth to the fool, so it happeneth even to me. The fool walketh in darkness. The words of the wise are as goads. This also is vanity and vexation of spirit. Let us hear the conclusion of the whole matter. Much study is a weariness of the flesh. There is nothing better for a man than that he should eat and drink. For which you'll overhaul your Ecclesiastes.—Yours,
THE MISQUOTER.

FAILURES IN SULPHIDE TONING.

To the Editors.

Gentlemen,—I noticed a letter on the above subject in your issue of March 19, which, to my mind, shows very clearly the futility of photographers who are not chemists attempting to conduct chemical experiments and form theories from their results. To begin with, the writer doubts the fact that hypo is formed as the result of the decomposition of sodium sulphide, and says he has been assured by several authorities that such is not the case. I cannot understand anyone posing as an authority on chemistry making such a statement, as it is proved beyond a doubt that one of the products of the oxidation of sodium sulphide is sodium thiosulphate (hypo). Then, I am afraid that his experiments are quite valueless for one very simple

reason; all along he uses a 1 per cent. solution of presumably pure sodium sulphide, and even when the solution contained quite a large quantity of hypo it also contained still the same 1 per cent. of pure sulphide.

Now a 1 per cent. solution of sodium sulphide will act on a bleached photographic image in a very few seconds, long before anything but a very strong solution of hypo would have any solvent action. But in the case of a solution of sulphide that has become partly oxidised things are very different, as instead of 1 per cent. the proportion of pure sulphide is perhaps only one-tenth of this, and before it has time to convert much of the silver bromide present to silver sulphide the remainder of the bromide has been acted on and dissolved by the hypo, giving a weak yellow image. Of course, if you add hypo to the bleaching bath you form a modification of the well-known and popular Farmer reducer, and after a print has had its image removed in this it is not surprising that it does not darken in the sulphide bath, but I think that anyone who gets their bleacher contaminated with hypo deserves to spoil their prints for their carelessness.

In conclusion, I should like to suggest a simple experiment to Mr. Brown that I think will prove to him the way in which sodium sulphide deteriorates. Let him take some pure sodium sulphide that will give good tones in practice, fill a bottle with this, and cork it tightly, then spread a layer of the same sulphide on a dish in the open air and leave for a week. Then compare the action of the sulphide from the bottle with that kept in the open air. After this I do not think he will again doubt that sodium sulphide does deteriorate, and is the cause of prints refusing to darken.

EXPERIMENTER.

To the Editors.

Gentlemen,—Our experience, now spread over a good many years, confirms that of your correspondent, Mr. J. Brown. Among other experiments, we have kept a 10 per cent. sodium sulphide solution in a large jar merely loosely covered, for over six months, and at the end of that time it has acted perfectly. We have now a 10 per cent. solution, bottled in January, 1904, which tones prints quite satisfactorily. We find that prints insufficiently washed will sometimes bleach satisfactorily to all appearances, but only tone in sulphide to a disagreeable yellow, and we are inclined to believe that many troubles arise through insufficient fixing or washing, as well as to contamination of bleaching solution with hypo.—Yours faithfully,

Avenue Road, Southgate.

WELLS AND CO.

March 23, 1909.

[The letter by Mr. J. Brown, referred to above by Messrs. Wells and Co., is commented upon in "Ex Cathedra" this week. Quite pure sodium sulphide will sometimes keep a very long time. If prepared in the way advised by Mr. D. J. Carnegie it will keep well even in a weak solution, but the commercial white variety, as a rule, must be kept in a strong solution of at least 10 per cent. We believe the trouble mostly arises when weak solutions of working strength are kept. We cannot admit that hypo is at all likely to exist in the bleaching solution as an impurity. It might be carried in with an unwashed print, but then the effect could hardly be a loss of density in the heavy shadows alone. We should like to see and experiment upon some of the yellow prints described by Messrs. Wells, if they have any available.—Eds. "B.J."]

LONDON PHOTOGRAPHERS' FIRES IN 1908.—The annual report of the London Fire Brigade for the year 1908, which has just been issued, states that during the twelve months there were only six fires in photographers' establishments, none of the outbreaks being serious. The causes of the outbreaks were as follows:—One from curtains coming into contact with gaslight, one curtains coming into contact with spirit stove, one defective electric circuit, one hot ashes, one over-heat of gas stove, and one stove improperly set. There was also an outbreak in a studio, the cause of which was unknown. No serious damage was caused. There was one fire in an artist's premises, caused from a spark from fire. Another fire occurred in an artists' colour-man's premises, caused through a light being thrown down, no serious damage being done. The total number of fires during the twelve months was 3,238, and by far the largest number (894) occurred in private houses. Licensed victuallers head the list of trades with 67 outbreaks, an increase of ten on the previous year.

Answers to Correspondents.

PHOTOGRAPH REGISTERED:—

J. W. Rogers, 46, Stanley Road, Wellingborough. *Combination Photograph entitled: "Percy Agutter's Studies in Songs and Rag Pictures."*

D. I.—The use of silver nitrate is quite impracticable for gelatin plates, as plates so treated would stain and fog to an enormous extent, and, of course, would not keep at all. We should advise your best course would be to colour-sensitise the plates, say with 1 in 50,000 pinacyanol, as suggested by Mr. Payne in the "Journal," March 8, 1907.

It is no use using either ammonia or silver with pinacyanol. Silver and ammonia work with many dyes, but not with the isocyanines and their relatives. We doubt if you are right in using so fast a plate as the "350." The essential thing for sensitising with the isocyanines is to have an emulsion which has not been made with ammonia, and there is no doubt that your plate is made with ammonia. As a general rule, a medium speed plate is much better than an extra rapid plate for sensitising.

AUTOCHROME, SYRIA, and others.—In our next.

COLOURED VARNISH.—I wish to try the effect of varnishing the backs of negatives with varnish coloured with yellow or blue aniline dye. I find that the negative varnish decomposes on adding the dye dissolved in water, and the same result occurs by adding water, hot or cold. Can you inform me how the varnish is prepared for this purpose?—DYN.

All the trouble is due to using dyes dissolved in water. Dissolve them in alcohol and you will have no trouble. Water will always precipitate a spirit varnish.

VARNISH FOR MIRROR.—I should be obliged if you could tell me of a transparent varnish for silver mirrors, such as is used in the trade for the mirrors of reflex cameras. Could you give a formula, with directions? I have heard of a varnish made by dissolving celluloid in ether, but do not know the proportions or method of preparing.—REFLEX.

Dissolve transparent celluloid in a mixture of equal parts of amylacetate and alcohol. Make the solution about the consistency of ordinary negative varnish or a little thinner.

INTERNATIONAL COPYRIGHT.—I have in my possession a fine enlargement of Villars, Switzerland, and should like to reproduce it. Supposing it has been copyrighted, how does it apply to this country? It is not marked copyright, but may be all the same.—A. MCG.

As Switzerland is a party to the International Copyright Convention, if the photograph is copyright in that country it is also copyright here.

J. GIBSON.—The B instrument is of rather simpler construction, but A will give you a finer line of colour, otherwise there is very little to choose between the two.

STEREOSCOPIC SLIDES.—Can you tell me where I can obtain stereoscopic views of the White City, also the great earthquake?—T. L. HOWE.

Messrs. Valentine and Son, Dundee, will supply you with the former, and probably the latter also. Better communicate with them.

COPYRIGHT.—A photographer asked a gentleman, whom we will call A.C., to give him a sitting, to which he consented. The photographer gave A.C. two mounted photographs from the negatives. Now A.C. has given me an order for a thousand postcards from one of the photographs which was given to him. What I want to know is, can I accept this order without infringing the copyright; also, whom does the copyright belong to?—E. A. B.

Your statement points fairly clearly to the fact that the copyright is the property of the photographer who invited the gentleman to the sitting. He (and no one else) has the sole right in what shall be done with the photographs. Therefore, you will be liable for infringement if you make the postcard copies, and A.C., who has given you the order, will be equally liable.

IMPROVING NEGATIVE.—We have a 12 x 10 large group negative, taken very late in the day in ordinary room with skylight only.

quence, negative very much under-exposed, also slightly in prolonging development. As this is a most important we wish to know if by any possible means we can make a negative of same. I am afraid ordinary intensification would them too white in the faces, with the shadows very black. Is there any method with which we could bring out the detail and shadows in greater proportion than the high-lights?—C. H. F. I could have told better by seeing a print, but if it is simply a case of bad under-exposure we are afraid there is not much to be done, and we should think your best course is to either intensify the uranium (single solution) intensifier, or to take off the print you can, say on gaslight paper, and make a new copy-plate in the camera.

PHOTOGRAPH.—I am twenty-six years old and in a situation as a photographer, wages 30s. per week. I have also a good private position. I do not find sufficient scope, however, and see no prospect of further improvement. I am ambitious and suffer from a very great longing to travel and improve my position. What do you advise me to do? Does cinematograph work offer scope, or are there any positions to be had which would give a variety of experience and opportunity for travel?—FOTO-STO.

PROGRESS OF THE CINEMATOGRAPH BUSINESS NOW IS IN THE WAY OF increasing and photographing dramatic stories. The older firms of course, make a great feature of taking films of outdoor sports and current events. We should advise you to apply to the following for the most convenient list of them in the present issue of the journal, "The Kinematograph Weekly," published by Heron and Co., 9-11, Tottenham Street, London, W.

ADON LENS.—I use a Euryplan lens, $f/4.5$, $5\frac{1}{2}$ in. focus, on a quarter-inch Adon lens. I wish to lengthen this focus for portraiture by means of an Adon lens. What loss of intensity will there be with the lens working at $8\frac{1}{2}$ in. focus and $10\frac{1}{2}$ in.?

ADON LENS.—The back lens of the Adon is only three-quarters of an inch in diameter it will reduce the aperture of your lens to about $f/7$. The intensity should still be the intensity when the focal length is about 8 inches, but the question is a somewhat complex one. If you refer to the "B.J." for May 23, 1902, you will find an article by Dallmeyer, in which this matter of intensity is dealt with.

ADON LENS.—I have a Darlot's universal lens, set No. 2, portrait size, covering up to 10×8 , landscapes, 45 deg. covering $6\text{in.}, 7\text{in.}, 10\text{in.},$ and $14\text{in.},$ doublets 90 deg., covering $3\frac{1}{2}\text{in.}, 4\text{in.},$ in all about 23in. combinations all in perfect condition, in a size-lined leather-covered case. Could you give me any estimate of their value? I think the set was listed at eleven pounds.—G. C. CUNNING.

ADON LENS.—I do not appraise the value of second-hand apparatus. We can tell you, however, that although the set you have may be valuable, it has but little present market value, having been superseded by more modern sets that are much more rapid in action. You are under a misapprehension in saying that the portrait lens in the No. 2 set will cover 10×8 , as it will only cover about 8×6 at that size, also with regard to the cost, which, if we remember the set, was £9 only.

ADON LENS.—We wish to know if there is a book published on photographing pictures and antique furniture. Your reply will be highly appreciated.—MARK E. MITCHELL AND CO. There is no book specially devoted to these subjects. Articles on the subject, however, are to be found in back volumes of the journal. If you consult the advertisements in the "Almanac" for the present year you will find the addresses of several firms that deal in cinematograph apparatus, accessories, films, and all other requirements for cinematography.

ADON LENS.—There is no doubt that your trouble is due to the use of the sulphite.

ADON LENS.—The address of the "Thames" Colour Plate Company is 254A, High Holborn, London, W.C.

ADON LENS.—Could you oblige by stating (1) whether an agreement made with an apprentice to photography just out of time for a further term of service, bearing a sixpenny stamp signed by the employee and employer, in addition to a witness, would be legal in a court of law? Further (2) if it would be necessary to have the said employee's father's signature or not, employee

being just of age? (3) Where could particulars of the British Photographic Association be secured?—KNOWL.

(1) Yes, if the employee be of full age at the time he signs the agreement, not without. (2) No, not if the employee is over twenty-one. (3) We know of no such association. Possibly you mean the Professional Photographers' Association. If so, the hon. secretary, Mr. A. Mackie, 89, Albany Street, N.W., will send you full particulars.

SKETCHY PORTRAITS.—Would you kindly inform me how the crayon portraits or pencil sketched photographs are done that you see in most of the high-class firms of to-day? Are they hand-done?—SKETCH.

Yes. The portrait is printed with a white, or nearly white, background, and the figure and accessories sketched in by hand.

STRIPPING FILMS.—Will you kindly tell me how to prepare plates so that I can strip off the film when dry? I have tried to obtain stripping film plates, but the makers have ceased to issue them.—NEW READER.

Make a thin solution of indiarubber in benzole and coat the plates with it and allow them to dry. Then coat with the sensitive emulsion and dry as usual. When the negative is dry the film is cut round the edges and stripped off. Most persons now prefer to use ordinary plates and strip the films by the hydrofluoric acid method.

METOL-HYDROQUINONE DEVELOPER.—The following is the formula I usually make up, diluting it to one-sixth strength for actual use:—

Metol	10 gms.
Hydroquinone	5 gms.
Sulphite	100 gms.
Carbonate	100 gms.
Water, to	1000 ccs.

My difficulty is that it does not keep very well, and I should be grateful if you could suggest how this should be overcome. Would the addition of potassium metabisulphite attain this end, and if so, how should it be added and what would be the effect on speed of development?—Q. S.

Our experience of this developer is that it keeps excellently. We do not, however, keep it in quite such a strong solution; we use twice as much water. Perhaps your sulphite is at fault. Try a better quality, also be careful to let sulphite solution cool down before adding the metol. Dissolve sulphite first in warm water, add hydroquinone, and when cool add metol already dissolved in cold water; add carbonate last. Metabisulphite would be of no use in a single solution developer.

WASHING.—Would you kindly give your advice on the following points? (1) Does a plate require more washing to eliminate hypo, after being hardened with alum, than one not hardened? (2) What is sufficient washing in either case? (3) If a plate is washed free from hypo and then hardened in formalin or alum, what amount of washing is necessary to free film from the alum or formalin? (4) Is a trace of alum or formalin injurious to a plate?—STAIN.

(1) The film being somewhat harder, it is advisable to wash a little more. (2 and 3) That will depend upon the way the washing is done. No harm accrues from a prolonged washing, so it is well to be liberal with the water. (4) If much alum is allowed to remain in the film it will crystallise out and impair the transparency of the image.

REPAIRING LEASE.—We should be grateful if you would, through the medium of your valuable journal, kindly inform us in what position we stand, also what procedure to take in the following:—Our premises are rented on a lease. The flooring of studio is gradually giving way, owing to rot caused by dampness. Although the floor at one end of studio (brick building) is three feet or more below ground level, there seems to be no protection, by means of concrete or other material, for keeping damp out. There is a clause in lease as follows:—"And also will at all times during the said term keep the inside of the said premises (including all fixtures and additions thereto) in good and substantial condition, and the same in good repair and substantial condition deliver up to lessor, at the expiration or sooner determination of the said term." As the dampness is caused through faulty construction (upon which the borough surveyor has given his opinion, and says plans ought not to have been passed), I do not see that we are liable. We have complained to agent of property some months ago, and cannot get any definite

reply as to whether landlord will repair it. As it is a danger to operator and sitters we would like to know whether we can make landlord repair same and also provide efficient protection.—F. BEESTON.

We expect that you will have to do the necessary repairs. The clause you quote makes it clear that you are to keep the premises in good and substantial repair, and we don't see that the alleged faulty construction of the place will relieve you from it. If the landlord does what is necessary it seems to us it will be as a matter of grace, and that only. If an accident happens, either to the operator or a sitter, you will be held responsible, as you know the faulty state of the floor.

LONDON COUNTY COUNCIL.—Could you kindly inform me, through your valuable columns, where to apply for a situation on L.C.C. photographic staff, and what degrees are necessary?—READER.

You had better write to the L.C.C., Spring Gardens, S.W., for the information you require.

COPYRIGHT.—Having sent an assistant out to take some photographs (my material and time, etc.), he has secured rather an exceptional one. He now claims the copyright of same. Is he entitled to it, or does it belong to me?—H. L.

The assistant, being paid by you to do the work, has no copyright in the picture. That belongs to you, and when you register it mention his name as the photographer who took the negative.

PYRO.—So far as our information goes, the photographic labour market in Canada is as well stocked as it is in England. Unless you are capable of doing the very highest class of work we should advise you (a lady) not to emigrate to that country without due consideration.

WOODEN TRAYS.—In the "Journal" I notice you advise use of wooden dishes. I have often tried to get these made to special sizes, but so far have not been successful. Would you be good enough to send me address and prices, so that I can get some made?—S. W. B.

Any local carpenter will make the trays if you explain to him what your requirements are. Those we have were made by a local man, and they answer their purpose well.

PRICE OF PHOTOGRAPH.—(1) I should be very glad if you will be good enough to advise me on the following:—I have a taking photograph of a milkmaid, which I want to sell for advertising purposes to some milk or milk chocolate firm. Can you tell me how to set about it? Also what price I ought to get? It is a half-plate negative, three-quarter length figure. Ought I to deal with an agent, and can you recommend me one? (2) I also want advice about a camera for taking portraits in their own homes and for general work. What should you advise? I thought 1/2-plate size, and I suppose I ought to have a portrait lens and an R.R.—ELEANOR DUNDAS.

(1) The best way is to write to such firms as you think the picture would be useful to. You cannot expect them to pay much for such a commonplace subject, if they will buy at all. (2) The portrait lens will be the quicker of the two, though an R.R. will be the more useful for work other than portraiture.

ALBUMEN PAPER PRINTING.—Would you be kind enough to inform me, through the medium of your inquiry column, (1) if there is any guide book on the market on the working of albumenised paper? (2) What class of negative is most suitable for this process? (3) Is it possible for me to obtain almost equal results with readily sensitised albumenised paper as if I sensitised for use myself? (4) What baths and processes are recommended in sensitising my own? (5) Could you oblige with any formulæ for, or hints on, the toning process to obtain plucky results of a good rich tone? My past experience is that the tone is too red and the whites not clean-looking, and, although I have tried many baths, I cannot get a bluer tone without washed-out-looking prints.—PROCESS.

(1) "Albumen and Plain Paper Printing" is about the latest. It may be had from Dawbarn and Ward, 6, Farringdon Avenue, E.C., price 6d. (2) Good vigorous ones, such as are best suited for carbon and platinotype. (3) Yes. (4) A solution of nitrate of silver, 50 to 60 grains to the ounce of water, with about a couple of drops of nitric acid to the pint. (5) The above-named book gives formulæ. We expect your trouble is due to the use of unsuitable negatives. Unless they are of a vigorous character it will be impossible to get rich purple tones, no matter what toning bath be employed.

CARBON PRINTING.—Kindly let me know the latest and most practical book on carbon printing. I have the "A.B.C. of the Art of Carbon Printing"—CARBON.

"Carbon Photography Made Easy," by Thos. Illingworth, 1s., is a later book. It is published by Thos. Illingworth, Willesden Junction, N.W.

E. WOOLCOTT.—The pictures are very pretty. On the whole, it will be better, in the long run, to sell the copyright than to spend £50 on photogravure plates and printing and publishing them yourself. A fair price for the copyright of the pair would be from five to ten guineas.

RUSTED BURNISHER.—I have a burnisher which has been in my studio, not used in the winter, and now the bars are rusty. I clean it? If so, how? If not, would it be better to send it to the makers? Can you give me the address of one, as if I sell to a wholesale house there is a double expense?—WEEDEE.

(1) If the rust is not deeply in you may possibly be able to do the work yourself with very fine emery-cloth and afterwards rubbing the bar longitudinally on an oilstone. Failing this, the burnisher should be sent direct to its maker. (2) It is quite against our rule to express any opinion on the comparative merits of different makers' goods. Both the firms you mention have good reputation, and you will get full value for your money from either.

TWO AMERICAN EXHIBITIONS.—Two interesting exhibitions have recently been held in the Photo-Secession Galleries, 291, Fifth Avenue, New York. The first, which was open from February 26 to March 15, consisted of a number of etchings, dry-points, and book-plates by Mr. Allen Lewis, the front cover of the catalogue being artistically illustrated with a design by the artist. The second, open from March 17 to 27, comprised twenty-six drawings by Miss Amelia Coleman Smith, of London and New York.

NATURAL HISTORY PHOTOGRAPHS.—We have recently had an opportunity of inspecting some excellent examples of natural history photography, the work of the well-known photographer, Mr. R. B. Lodge. These include some of the rarer species of birds, such as the eagles and vultures of the Carpathians and Southern Spain, herons and ravens of Albania, together with a number of others, which being photographed in their natural surroundings, should prove of interest to lovers of natural history. These photographs (the work of the "Birdland" camera) are sold by Messrs. Sanders and Co., 71, Shaftesbury Avenue, London, W., from whom prices and full particulars may be obtained.

NEWMAN AND GUARDIA, LTD., have transferred the whole undertaking of their firm to Nos. 17 and 18, Rathbone Place, Oxford Street, W. The new premises comprise on the first floor a well-appointed show-room, wherein it is hoped to establish a gallery of photographic prints, in conjunction with an elegant and comfortable lounge for the convenience of patrons, a waiting-room for trade customers, general and private offices, and a suite of drawing-rooms. On the upper floors are located the factories, stores, testing and experimenting room, packing-rooms, and the works manager's office. A hydraulic passenger lift from the street level serves all floors.

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SUMMARY.

are sorry to record the death on Sunday last of Mr. Hector Maclean. (P. 289.)

Another link with the past history of photography is also severed by the death of Mr. R. H. Bow. (P. 290.)

C. M. Kurtz, of Buffalo, U.S.A., who was to have taken a prominent part in the forthcoming international exhibition of pictorial photography in America, died on March 21. (P. 294.)

Bromoil Process.—The first part of a paper by Mr. Harold Baker on Bromoil printing contains many useful hints by this well-known worker in the process. Mr. Baker has found best a semi-glossy paper such as the Ilford "Carbon" bromide. He gives detailed instructions for bleaching and pigmenting the prints. (P. 279.)

Give in this issue the paper recently read before the R.P.S. by Mr. E. A. Salt, in which is described the apparatus for testing the efficiency of shutters devised and made by the author. The apparatus is described in a simpler form the principle of the rotating plate shutter described by Sir William Abney. As Mr. Salt's paper, however, describes in a very simple way many of the somewhat obscure points in connection with shutters, the whole of it is deserving of careful reading. A number of the measurements made both of speed and efficiency are particularly interesting, as showing, among other things, the remarkable efficiency of some diaphragm shutters even at the highest speed. (P. 282.)

Under "Photo-Mechanical Notes" some practical advice is given concerning the many causes of imperfect register in three-colour work. (P. 290.)

An apparatus for daylight development and a method of cinematograph projection in a lighted room figure under "Patent News." (P. 290.)

An unorthodox but efficient method of removing silver stains from negatives is described in an editorial note on page 277.

Give on page 278 a simple rule for calculating the magnification produced by the "Adon" lens.

E. W. Foxlee, in a short article on page 281, calls attention to a new and useful test for the photographic purity of a mounting-board.

Photographers in Cardiff have to thank their Public Librarian for having issued a classified list of the photographic text-books in the reference and lending departments of the Libraries of that town. (P. 277.)

EX CATHEDRA.

Photographic Books in Public Libraries.

We congratulate the Libraries Committee of the City of Cardiff on having issued a classified list of the photographic text-books included in the reference and lending departments of their library. This list, which costs one penny only, is one of seven classified lists which have been issued, whilst four others are in preparation. By thus putting compactly before the student the material which is at his disposal, a library is greatly adding to the help it provides. In the case of the photographic list the work of classification and cataloguing has been done by someone who is either intimately acquainted with photographic processes, or has taken pains to become so. Much good might be done by drawing the attention of other library committees to the useful work done by Cardiff.

* * *

"Proofs to be Returned."

A recent instance of the trouble which is still occasioned to many photographers by the non-return of proofs sent out to sitters makes us think that such causes of annoyance will not be completely set on one side until some standard of etiquette among photographers themselves is established. The particular grievance to which our attention is now drawn concerns the sending out of a number of proofs, from none of which an order was given, but instead the sitter took the prints to a rival (and cheaper) photographer in order to get a considerable number of prints of a cheaper class. There are, we know, some photographers who, if ordered to do such work, would consider it *infra dig.*, and would advise the customer to go to the studio where the negatives were taken, but instances of such *esprit de corps* are, we fear, all too rare, and therefore the photographer who wishes to safeguard himself against such happenings must make it clear to the sitter that the proofs, if not returned, are to be paid for, or must so deface the proofs themselves that no use can be made of them.

* * *

Silver Stains.

The following treatment for removing silver stains from negatives has been found quite efficient, both in cases where a drop of rain or other moisture has caused a print to adhere to the plate, and where the spots have formed while the negative has been stored away. Plunge the negative with adhering print, if any, into a strong hypo fixing bath, one containing a hardener for preference. After a time a print which has stuck can be quite easily removed, without fear of damaging the negative, as the gelatine will become saturated and so lose its adhesiveness. The negative should then be thoroughly washed and dried in the usual

way. When absolutely dry lay the plate film up on a perfectly even surface, but not a slippery one. A few flat sheets of paper laid over a large plate-glass cutting shape answer the purpose admirably. Saturate a large tuft of cotton-wool, in which there must be no trace of grit, with methylated spirit, and hold the negative firmly to the level pad by pressing on its edge with the fingers of the left hand. Then with the right hand rub the wet wadding on the film with a very firm pressure, working swiftly and evenly in small circles all over the plate until every stain has disappeared, which should be very soon. On no account rub in straight lines, or the negative may be reduced in streaks. The motion required is the same as most retouchers use to apply medium, but the pressure should be quite hard, and the whole of the negative must be gone over, so that if there is any reduction in density it will be quite even and so negligible. If the bed on which the negative is laid is even, no amount of pressure will crack the plate. Finally, with a fresh tuft of wool and more spirit, wipe off any scum that may have been formed by the previous "polishing" process.

* * *

Toned Bromide Prints.

The hypo-alum bath which, despite the modern improvements in sulphide toning methods, continues to be used for much commercial work, is a solution with which the beginner usually experiences a crop of difficulties, the chief of which is the tendency of the freshly made bath to exert a semi-bleaching action upon the prints placed in it. While the hypo-alum mixture speedily improves as regards this defect with use, its ripening may be accelerated by such a simple expedient as stirring up with it a handful of clippings of ordinary untuned or fixed P.O.P. This may be either gelatine or collodion, the only essential being that the bath shall quickly take up the silver salts from the paper. Probably the very finest results with the hypo-alum bath are obtained on prints which have been developed with iron (ferrous oxalate), but with a suitable paper—all papers do not tone with equal readiness in hypo-alum—the rich warm purple, described in the trade as the "hypo-alum" tone, is readily obtained.

* * *

A Useful Accessory.

A little piece of apparatus for the technical photographer, who is often called upon when away from the studio to photograph small objects, such as vases, glass-ware, etc., is a pair of boards, about 2 ft. square, hinged together with a leather strap screwed to each outside edge to serve as a pair of handles. The inside surfaces of the boards are covered with good black velvet, affixed with glue. The boards, when opened out, provide both a base and a background for the object being photographed, and although a black background is not very suitable for many objects, a penny sheet of cartridge paper, purchased at the stationer's, will complete the photographer's outfit, and may be thrown away when the work has been done.

* * *

The Magnification of the Adon.

In a paper on the Adon lens read by Mr. T. R. Dallmeyer before the R.P.S. some years ago, and republished in the "B.J." for May 23, 1902, the author stated that he found it convenient to make the positive lens of the Adon of the same focal length as the ordinary lens with which it was to be used, and the negative lens of half the focal length of the positive. He did not give a reason, but recently, while going into the optics of the Adon, we noted that when these conditions are fulfilled the use of the Adon is very greatly simplified. Under the conditions described by Mr. Dallmeyer, the magnification is always equal to the focal length of the Adon positive, divided by

the separation of the Adon components. Thus, if the positive is of $5\frac{1}{2}$ inches focal length and the separation is 2 inches (which will be the case when the camera lens is working at its own focal length of $5\frac{1}{2}$ inches), the magnification is 2. With a separation of 3 inches (which involves racking in the camera), the magnification is $1\frac{5}{6}$, with one of $2\frac{1}{2}$ inches it is $2\frac{1}{5}$, and the camera is extended. The smallest separation possible seems to be about 2 inches, at which the magnification is $2\frac{3}{4}$, therefore the greatest focal length that we can get is about 15 inches. With a longer focus camera lens a greater magnification can be obtained, but then the rule will not apply. The separation of the Adon components can, of course, be marked on the mount in such a way as to either show the magnification or the focal length. The Adon actually in use does not conform with Mr. Dallmeyer's conditions as described in his paper in regard to aperture, and we are not sure whether it does so or not in respect to the relative focal lengths. If it does, then there is no difficulty in making use of the very simple rule of magnification that we have described.

IRIS AND FOCAL-PLANE SHUTTERS.

MR. E. A. SALT's paper on shutters, given at the R.P.S. on February 23 and reprinted with some few additions in this number, covered many points of interest, amongst which the very high efficiency of some of the modern iris shutters was not the least interesting. The efficiency of these shutters is not very great at their highest speeds when used at full aperture, but at the lower speeds they give very remarkable results. It need not, however, be assumed that they excel the focal-plane shutter in this respect. Even though both shutters may give exposures with efficiencies a very little under 100 per cent., yet the focal-plane generally comes out slightly best.

The modern iris shutter of the best type owes its high efficiency to the fact that it always requires the same time to open and close, whether set to a high speed or a low one. At its very highest speed there is no measurable period of full opening, while the movement is practically continuous, and may be considered uniform, therefore we shall not be far out if we consider the efficiency to be one-third when the lens aperture is the same size as the shutter aperture. This means that a total duration of exposure of, say, $\frac{1}{200}$ second, is equivalent to keeping the aperture full open for a period of $\frac{1}{600}$ second, so that the real exposure is deficient by $\frac{1}{300}$ second. If, then, we run the shutter at a lower speed, the same deficiency will exist, so that a nominal $\frac{1}{10}$ second will really equal $\frac{1}{10} - \frac{1}{300}$ or $\frac{29}{300}$ seconds. This is, of course, a very highly efficient exposure, but it is worth while to compare it with a similar $\frac{1}{10}$ second exposure given by a focal-plane shutter.

Assume that the blind of our focal-plane shutter works at the rate of 40 inches per second. A 4-in. slit will pass a single point in $\frac{1}{40}$ second, so that if the blind works in the focal-plane, a 4-in. slit will give a fly efficient $\frac{1}{10}$ second exposure. Usually, however, it works half an inch from the focal-plane, and if we have a 5-in. lens working at $f/5$, the blind intersects the lens pencils in a plane in which they have a diameter of $\frac{1}{10}$ inch. To give a duration of exposure of $\frac{1}{10}$ second in this plane the shutter-slit must be reduced by $\frac{1}{10}$ inch, so that a slit 3.9 inches wide is required. Such a slit passing across a pencil $\frac{1}{10}$ inch in diameter has an efficiency of $\frac{3.9}{4}$. The true value of the $\frac{1}{10}$ second exposure is therefore $\frac{3.9}{40}$, which is greater than $\frac{29}{300}$ by $\frac{1}{1200}$ part of a second.

If we use a bigger lens shutter having a full opening equivalent to $f/4$, then the efficiency with a lens aperture

$f/5$ is increased to $\frac{1}{3}$, or the deficiency is $\frac{5}{9}$ instead of $\frac{7}{9}$. In these circumstances the relative efficient exposures on the focal-plane and the iris shutters will be as $\frac{39}{400}$ to $\frac{7}{2}$, or the former will still be the more efficient by the $\frac{1}{5}$ part of a second. If we increase the shutter aperture to $f/2.5$, while still using a stop of $f/5$, the iris shutter has the advantage over the focal-plane by $\frac{1}{1200}$ second. These figures show how very nearly equivalent shutters are, but also indicate that the focal-plane shutter has a very small advantage over the other in conditions that will generally prevail in practice. It must also be noted that the focal-plane slit will usually be more than four inches wide, and that its efficiency is then higher than the amount given. Suppose, now, we compare the shutters when both work at $\frac{1}{200}$ second. As already explained, the iris shutter under these circumstances gives an efficient exposure of $\frac{1}{200}$ second. The focal-plane shutter naturally will give the least efficient exposure if we alter the slit only and keep the tension the same. Assume, as before, the blind travels at the rate of 40 inches per second, then a distance of $\frac{1}{5}$ inch in the focal-plane will represent a duration of exposure of $\frac{1}{200}$ second, so that in this position the slit must be $\frac{1}{5}$ inch wide. If, however, the blind is half an inch from the plate and intersects the light pencils in a line where they measure $\frac{1}{10}$ inch in diameter, a $\frac{1}{5}$ slit will give a duration of exposure of $\frac{3}{400}$ seconds. The slit must be reduced to $\frac{1}{10}$ inch to give $\frac{1}{200}$ second, or be made the same width as the diameter of the light pencil. In this case the efficiency is $\frac{1}{2}$ and the efficient exposure is $\frac{1}{100}$, which is 50 per cent. greater than the efficient exposure with the iris shutter. To counteract this

difference we must use a bigger iris shutter, with an aperture equivalent to $f/3.75$. We are, however, assuming that the focal-plane shutter is being used at a disadvantage. If we simply double the slit and increase the tension so as to still give $\frac{1}{200}$ second, the efficiency goes up to $\frac{2}{3}$ and the efficient exposure to $\frac{1}{300}$, which can only be equalled by the iris shutter when it opens out to an aperture equivalent to $f/2.5$. It is apparent from these calculations that the focal-plane shutter still has advantages over the other form in spite of the great improvements that have been effected in shutters that work on the iris principle. It is, however, also evident that the efficacy of the latter type is greatly increased by using as large a shutter as can be fitted to the lens. It must of course be remembered that the efficiency of $\frac{1}{3}$ which we have taken for the iris shutter when working at full aperture and top speed assumes that it resembles an actual iris in always having a circular opening. Many have non-circular or star-shaped openings, and on this account their efficiency is over one-third. Assuming it to be one-half instead of one-third, and the shutter aperture to be equal to the lens aperture, then at an exposure of $\frac{1}{10}$ second the focal-plane and the iris will have equal efficient exposures in the first of the cases that we considered, and the iris will have a little advantage in the other two cases. When set to the highest speed of $\frac{1}{200}$ the iris will only be equal to the focal-plane shutter when the latter is working under the worst conditions, that is, with narrow slit and low tension. It is, however, a matter of doubt whether an efficiency of one-half can be realised in lens shutters under the conditions assumed unless their size is increased.

BROMOIL PRINTING.

[Brief working instructions for the Bromoil process were given in last year's "Colonial Issue" by the inventor, Mr. C. Welborne Piper. Mr. Baker, one of the most skilled Bromoil workers, now gives very full instructions in the working of this fascinating process, wherein a bromide print or enlargement is bleached and then "re-developed," with any desired modifications, by applying greasy ink with a brush.—Eds. "B.J."]

The rapidity with which oil printing has grown in popularity is remarkable. I do not remember any new process coming so quickly to the front, and this fact speaks volumes in its favour. On my own part, I consider it is the finest and most adaptable printing medium that has ever been invented. Of the two methods I prefer Bromoil, for several reasons. In the first place, no daylight is necessary, and this makes it suitable for a busy man who has but little time in daylight to devote to photography. In the second place, Bromoil seems to me more certain, and less liable to failures than oil printing; and I think it gives more control in producing the effect desired. And, in the third place, enlargements can be made without a large negative. The great advantages of oil printing are obvious—limited choice of colour, enormous control over effect, and permanency as great as paper and printers' ink can furnish. It was the account of the exhibition at the office of the "British Journal of Photography" which first induced me to try the process. I must confess that, for some weeks, my efforts resulted in a ghastly failure, and I was almost giving it up in despair. Success came at last, and I think I may claim to have succeeded as any one who has tried it.

A Suitable Bromide Paper.

The method is peculiar, for, after a good bromide print has been obtained, it has to be destroyed before the really interesting part begins. One important element in successful working is the bromide paper used, for I have utterly failed to obtain good results with any kind of "matt" paper. I attribute this

to the addition of arrowroot to the emulsion to secure the dead surface. Such paper, in my hands, will not take enough ink on the shadows, and will take too much on the light parts. I believe the best results are obtained on paper which is made with nothing in the emulsion but pure gelatine, and, of course, the silver salts. The paper on which I have secured all my best results is Ilford "Carbon" Bromide, either "white," or, for brown ink, "ivory"; in the latter the cream colour is, apparently, in the emulsion, and not in the paper. This is an advantage, as it is easy to see by the back of the print when the yellow colour of the bleaching solution is washed away. This paper has a very pleasant surface, smooth but not shiny, and finished oil prints give a suggestion of being on parchment. This is especially so with the "ivory" colour. I do not like many Bromoils I have seen on matt paper; they have a coarse, speckled appearance, which is very objectionable to me.

No doubt rough papers, such as Kodak "Royal," can be used with success, when they have a good coating of gelatine; but I have not tried them since my early efforts, and I am very well content with the smooth paper. Rough papers might, perhaps, be better for large work: so far, I have not tried anything larger than 15 by 12.

The Kind of Bromide Print.

The quality of the bromide print is of great importance. Some recommend that it should be brilliant and dark. I do not find this the case. *The print should be the best the negative will give*—full of detail in the high-lights, and not too dark in the deepest

shadows. It is especially necessary that there should be full detail in the high-lights, as it is just in these parts that loss may occur, and if the shadows are very dark, the deepest tones and those not quite so deep will ink to the same depth.

The development of the print is of some importance. Quick-acting developers, like metol, are not satisfactory. Many workers recommend amidol as a slow-acting developer. I have not tried this, as I have been well satisfied with that recommended by the makers of the paper—viz., metol-hydroquinone, with soda, not potash; but I prefer to use it more dilute, or weakened by previous use for ordinary bromide prints, so that a full exposure may be given.

It seems necessary to give a full exposure, so that the silver image shall be deep down in the body of the gelatine film. I imagine this result is produced by a full exposure and a slow developer, and that a short exposure and a rapid developer gives an image much more on the surface of the gelatine, so that a great deal of the thickness of the gelatine, in the latter case, escapes the tanning action of the bleaching bath.

The "Bromoling" Solution.

I find that where the water is soft (as in some of our large towns, where it comes from mountain reservoirs) it is necessary to fix in an acid hypo bath containing alum, and I prefer to bleach the prints as soon as the hypo is washed out of them, and I have found that this washing need not be very long. I have bleached and inked successfully prints that have been washed for only ten minutes. The bleaching solution is made by adding 80 grains of potash alum and 20 grains of citric acid dissolved in 15 ounces of water to a 5-ounce bottle of Ozobrome solution, or the formula given by Mr. Welborne Piger, the inventor of the process, in the "British Journal of Photography," March 27, 1908, may be used, namely:—

Ozobrome stock solution	4 parts.
10 per cent. potash alum solution	4 parts.
10 per cent. citric acid solution	1 part.
Water to make solution	20 parts.

The bleacher should be kept in a yellow bottle, and sufficient taken to bleach as many prints as are ready. In a few minutes the prints should appear as if bleached for toning with sulphide: a good washing is necessary to remove the iron salt in the Ozobrome solution, or blue stains will afterwards appear. The used solution should be put away in another yellow bottle, and may be used again if it remains bright yellow; if a black tinge appears in the solution it should be thrown away, as prints bleached in it will not ink well. If the contrast of the print needs to be made stronger, the quantity of citric acid may be increased. When the yellow solution has been thoroughly washed away the prints must be removed to a 5 per cent. solution of sulphuric acid for two or three minutes; in this bath the yellow-brown image becomes paler, and they should remain in it (with constant moving, to ensure even action) until a slight relief is seen on the print. The best way to look for this is to blow a piece surface-dry, where a high-light comes against a dark shadow, and the high-light should stand up slightly above the shadow. It is then washed to remove the acid, and it may be dried, or, better still, fixed again, to remove the silver bromide still remaining. For the second fixing plain hypo should be used, but a small quantity of sulphite of soda may be added, to prevent precipitation of sulphur by the acid which may be left in the prints. The fixing should be followed by a short washing, and the print may be inked at once; but I prefer to dry it and re-soak before applying the ink. If it is dried at this stage, the surface moisture must be blotted off; for, if beads of water remain on the print, they prolong the drying in patches, which may afterwards refuse to take the ink. The blotting-paper must be clean, and quite free from particles of iron, such as float about a room heated by a stove. Every speck of iron will produce a blue stain which cannot be removed.

The Acid Bath.

The preparation of the dilute sulphuric acid requires care, or serious accidents may occur. If the concentrated acid is measured in a graduated glass, and cold water poured into it, sufficient heat is generated to break the bottom of the measure, which may fall off and splash the acid in all directions. It destroys clothing and burns the skin badly. It is best to take 19 ounces of water in a measure, add 1 ounce of acid, and pour out into a porcelain dish. Enamelled iron dishes should never be used either for bleaching or acid baths, as some of the iron is sure to be exposed where the enamel is chipped, and blue stains will appear in the prints.

How the Print Should Look Before Inking.

When the dried print is to be inked, it should be soaked in water until a decided relief is to be seen on the surface. In cold weather it may take some time to produce the relief, and it may be hastened by giving a minute or two in the acid bath, or by a short immersion in tepid, not hot, water. The need for the acid or tepid water must be decided by the condition of the print. Some of my prints that inked beautifully and made successful pictures never had any acid bath at all, neither after bleaching nor after drying. I never ink a print now until it has been dried after bleaching, as I find they always work much better. Those inked at once without drying will often take the ink very well for the first half of the necessary time, but they soon become too soft, and the ink is deposited in a coarse granular manner, and the detail in the lighter parts is lost, sometimes completely, and they require great care to finish them.

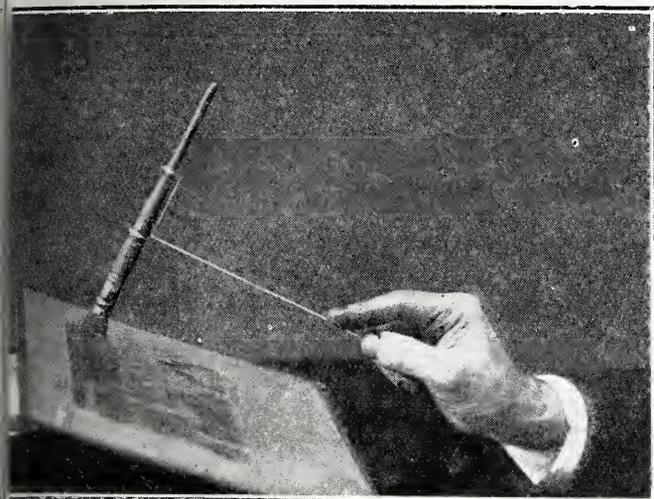
Those that have been dried will take the ink just as well at the end as they do at the beginning of the process, and the lighter tones and the details are not lost. I prefer to bleach the print before it has been dried, because the process goes on in a very uniform manner: in bleaching after drying some parts are very obstinate, and require a long time to bleach, and although eventually they do bleach, those parts will not take the ink well. Some recommend using the bleaching solution at a temperature of 80 deg.; but the results have proved very uncertain in my hands, sometimes quite good, and at other times utter failures. It is better to keep to the usual method of bleaching, etc.; the results are likely to be more uniform.

Brushes and How to Use Them.

As to brushes, the bevelled ones of fitch hair, known as china painters' "dabbers," are very suitable; but those specially made for oil printing are far the best. I prefer those sold by Jas. A. Sinclair, of 54, Haymarket, London, S.W. One cannot have too many brushes: it is a great convenience to be able to pick up a clean, dry brush at any moment when inking a print. But it is just as well to buy only two or three at first, and purchase others as experience may suggest. One or two brushes of square will be useful for "hopping," but hopping should be avoided as far as possible; it is necessary sometimes, although the best results are usually obtained without it.

The brush, when applying the ink, should be held upright, with the index-finger resting on the top of the handle, the other three fingers on one side, and the thumb on the other, and the elbow resting on the table. By this method the bristles at the "toe" of the brush press on the paper first, and bend and spread out a little before the "heel" of the brush comes down. This gives a beautifully fine, grainless deposit of ink, but I doubt every worker finds his own particular way; and, of course, to him, that is the best. When the brush is first applied the ink "takes" everywhere, lights and darks alike, but a few gentle dabs on the same spot will bring up the details and tones in a manner most fascinating; and very soon one finds that different methods of dabbing produce different effects: quick, smart touches produce contrast and detail; very gentle, smudging dabs give softness, and reduce the sharpness of the details.

can be made to obliterate it. But patience and persistence are necessary, and a print which at the first few touches seemed to be, by repeated application of the brush will grow into a fine one. If too much ink has been put on, a clean, dry brush often put matters right. A dark part may be lightened by "hopping," allowing the brush to fall from the height of an inch or more, and catching it as it rebounds, or by fixing in a wire a continuous series of taps, gentle or vigorous, may be used. For this a square-cut brush is best. The result is a considerable lightening of the light tones and a strengthening of the darks, with occasionally a coarseness of grain that is un-

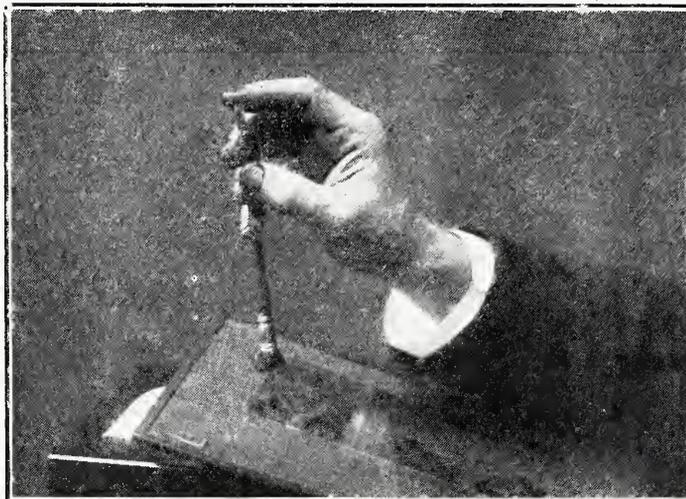


"Hopping."

pleasant, and possibly a harshness of the "values." But both defects may be remedied by very gently dabbing with a clean, dry brush of the sloped "hart's-foot" shape. Sometimes when the distance has been lightened by hopping it may show too much detail; this may be softened by the gentlest dabbing, and the detail reduced as far as may be necessary. But all this the enthusiastic oil-printer will speedily discover for himself, and the beginner may find the hint will help him over his first mistakes.

Whenever the brush has been recharged with ink it is best to apply it to a dark part of the subject, and to wait until the

amount of the pigment in the brush has been reduced before proceeding to the lighter parts, and those places which are intended to be very delicate may be inked with a clean brush, relying on picking up enough ink from the surrounding darker parts. It will soon be found that enormous control may be exercised over the "effect" of light and shade desired by under or over inking. One danger must be guarded against, and that is loss of aerial perspective by piling up dark on distant shadows. It is so easy to obtain lustrous, juicy shadows that one is liable to be carried away by their beauty, and tempted to scatter fine deep shadows everywhere. But this belongs more to the artistic



Inking.

side of the process, and each one must work out his own salvation, getting whenever he can the advice of artist friends.

After some practice it should be possible to pigment a Bromoil of whole-plate size in half an hour, unless it contains an elaborate sky, which itself may take longer than the landscape part of the picture. When skies are attempted trouble begins with fluff floating in the air, and hairs from the brushes, especially when they are new. It would be very nice to have a small room like an operating room in a hospital, where dust, etc., is regarded as a deadly enemy.

HAROLD BAKER.

(To be continued.)

A USEFUL WORKING TEST FOR THE PHOTOGRAPHIC PURITY OF MOUNTS.

It is by no means an unusual thing when a photograph shows signs of fading, or within a short time becomes yellow in the corners, for the mounts to be suspected as the cause. In many instances correspondents have written us that they are almost certain that the fading was due to the mounts, since they knew that the prints were thoroughly washed, evidently overlooking the fact, which has been constantly pointed out in the "B.J." thirty years past, that washing is but of secondary importance. The prints have been perfectly fixed in the first instance. There is no question that in days gone by a considerable amount of fading was brought about by the use of unsuitable mounts. It was not altogether surprising, seeing that at that time the mount-makers were scarcely to blame. They did not know the requirements of photography, and they merely supplied a board that was of good quality as a cardboard. The paper, however, of which a board is composed may be of the best quality for the ordinary purposes to which card- or drawing-boards are applied, and yet may have a deleterious action on silver photographs. Now, however, mount-makers

know the requirements of photographers, and, as a rule, supply only such boards as are suitable. Still, complaints are occasionally heard of fading said to be caused by the mounts.

One of the alleged proofs of such fading is that unmounted prints of the same batch have remained unchanged, while those mounted have shown signs of fading within a comparatively brief period. That, however, though exciting suspicion, is not conclusive evidence, since the actual cause may be, and frequently is, the mountant. For instance, I have observed the use of starch paste that would certainly have more or less injurious action on silver prints. This mountant soon becomes unsafe, even while it retains its adhesive properties. It should be made on the day of use.

Many are under the impression that the testing of mounts in order to ascertain if they are free from such matter as would act deleteriously on photographs requires considerable chemical knowledge. So it does if one wants to know what the injurious matter consists of; but what a photographer wants to know in practice is whether there is, or is not, anything present that will

act on his pictures. There is a very simple and practical way of deciding this point. The following is the procedure:—

The mount to be tested is taken, and half of it covered with a thin piece of glass or celluloid. It is then laid on a glass plate, and on that, face downward, is placed an albumen or collodio-chloride print—preferably made from a thin negative and lightly printed. On that is put five or six thicknesses of pure blotting-paper that has been well moistened with water. On this, again, is put a sheet of celluloid or a glass plate. It is well for convenience in examining from time to time to secure one end of mount, celluloid, print, and blotting-paper together with a couple of paper-fasteners. The whole is then put into a printing-frame, pressed tight, and kept in a warm place for a time. It will be seen that the glass plate, back and front, is for the purpose of preventing the evaporation of the moisture. Any silver pictures kept under these trying conditions will eventually succumb. If, however, that portion of the print which has been kept in contact with the mount shows signs of deterioration or spottiness before that which was insulated from it by the glass or celluloid, it is obvious that that change is due to the mount. In very bad cases we have known three or four days to produce a marked change. In others a month or more of this treatment has shown no difference between that portion which has been in contact with the mount and that which was protected from it. The prints had changed equally all over alike. The reason why albumen or collodion prints are used is that gelatine ones, if kept damp so long, would be liable to

stick to the mounts, and so prevent examination from time to time.

P.O.P. prints are not so liable to suffer injury from mounted on impure mounts as are albumen ones, for this reason: with both of them the raw paper has a baryta coating, which, to an extent, insulates the image film from the paper, and consequently the mount is the less likely to affect the picture.

It may sometimes happen when coloured mounts, more particularly those of chocolate colour, are tested in this way, after a time, the print becomes stained by the colouring-matter on the board. That, however, does not show that they are entirely unsuitable for their purpose—supposing the image itself remains intact. That is best judged of by examining the picture by transmitted light. On some of these mounts the colours are liable to tint the whites of pictures mounted upon them. This can generally be avoided if they be mounted dry with a thick mountant (one that contains but a minimum of water), and then put up to dry as quickly as possible. This course is advisable in all cases of mounting, especially if the mount is not above suspicion, for it is obvious that the longer a print is kept in a moist condition on an impure mount the more likely it is to suffer injury therefrom.

With the dry mounting system impurities in the mounts, for a little moment, inasmuch as the print is not in actual contact with it. The intermediate sheet of adhesive material serves as an insulating medium between the print and the mount.

E. W. FOXE.

SOME POINTS IN PHOTOGRAPHIC SHUTTERS POPULARLY EXPLAINED, AND A SIMPLE "SHUTTER-TESTER."

[A lecture given by Mr. E. A. Salt before the Royal Photographic Society on the 23rd February. In the following report a few points have been slightly amplified.]

THE subject of photographic shutters can be dealt with in several different aspects: "Mechanically," involving methods of construction and design. "Theoretically," which is almost synonymous with a mathematical treatment. "Historically," an interesting point of view which does not seem to have received the attention it deserves; and finally, for want of a better term, "Practically," considering the applicability of shutters to varied photographic work, and their respective merits and limitations.

With your permission I propose to-night, in plain language and without formulæ, to touch upon a few points which seem to me interesting, though selected, perhaps, in a rather haphazard sort of way. Also, I propose to bring to your notice a simple shutter-tester possessing some novel features, to explain its construction, and finally to show some characteristic diagrams of well-known shutters on the market. The difficulty in preparing a paper of this description has been not so much what to include, but what to exclude. Little which is new can be said on a subject which has received fair consideration in the past, though information is rather scattered, and occasionally contradictory.

Manufacturers of lenses have given us objectives of such precision and excellence as to almost approach the ideal. The shutter lags behind a little for the reason that it is almost impossible to comply with every condition. These are many and varied, and frequently conflicting in nature. Still a considerable advance in certain directions has been achieved in recent years, and the modern instruments can fairly be described as efficient, some are highly so. In many cases they exhibit a marvel of mechanical ingenuity packed into a very small space.

Classification.

Photographic shutters may be divided into three broad classes:—

1. Those that work in front of, or immediately behind, the lens.
2. Those that work between the components of the objective.
3. Those that work contiguous to the focal plane, immediately in front of the plate.

In the first class the familiar Thornton-Pickard roller-blind

shutter—of which I think Kershaw's was the pioneer—undoubtedly the most popular. Other types are "studio," "foreground," and the almost obsolete "drop-shutter."

Shutters of the second class, working close to the diaphragm, may be subdivided into those forming part of the lens mount, such as the Goetz "Sector," Staley's "Compound," the "Union," and many others; and those built into the camera, and more or less inseparable from it, as is instanced by the type adopted by Messrs. Newman and Guardia.

The third class, working immediately in front of the plate, of course, represented by the well-known focal-plane shutter, which much inventive talent has been exercised. The foregoing classification is, however, arbitrary, and relates more to the type of shutter rather than its performance. All shutters, in fact, of type, might be separated into two divisions, namely those which are efficient so far as light-action on the plate is concerned, and those that are of low efficiency. Again, it would be possible to draw further distinctions in the nature of classification. Firstly, in the case where the light-action on the plate does not vary in proportion to the duration of exposure, and secondly, where it is approximately proportional for one particular stop.

Conditions Involved.

As already indicated, the conditions which a shutter designer has to meet are so many and formidable that it is almost out of the question to embody them all in any one instrument. It is a wonder is that so many have been closely realised. It is not worth while just glancing at a list of these, which certainly appears sufficiently long, and might possibly be extended:

1. Freedom from vibration.
2. Non-liability to get out of order.
3. To have a fair range of speeds.
4. Marked speeds to approximate actual speeds, and to vary from time to time; or ratio of speeds to remain constant.
5. The amount of light transmitted to be as great as possible.
6. To work equally well in horizontal and vertical positions.

- To be light and portable.
- To possess simplicity of adjustment.
- To be reasonable in price.
- So far as possible, to illuminate the plate evenly.
- To be fairly noiseless in operation.
- Not to open on being set.

First comes "Freedom from vibration," a shutter which gives no vibration being useless. A shock after the exposure is not much moment unless so severe as to injure the lens. It has been suggested that a glass of water be stood on the camera, and the surface observed to see whether it shows signs of tremor on use of the shutter. Such a test trial has shown is too unreliable, and might condemn a useful and serviceable tool.

The second requirement, that the shutter shall not be likely to get out of order, is of self-evident importance.

The third, providing for a fair range of speeds, say from half second or longer to 1-40th or 1-60th, is not asking too much of a lens-shutter.

The fourth condition, that the marked speeds shall approximate the actual speeds, is reasonable, also that they shall not vary widely from time to time; or, alternatively, that the ratio of actual to marked speeds be fairly constant. Very few shutters comply with either of these conditions, the slower speeds in the region of 1-20th second being generally faster than indicated, and the higher speeds slower. In many cases there appears to be hardly any relationship between the "actual" and "marked" speeds. It is curious to note, but a fact, that many workers express a complete indifference on this point, frequently justifying their attitude by urging there are many uncertain factors present when taking a photograph that more or less will make no difference. In this connection I have been gravely informed by a plate-maker that he did not care a farthing whether his shutter "banged off" at 1-20th or 1-40th second, though he subsequently admitted that if one second exposure for a portrait in a studio he would be indifferent to prolonging it four times, which seems hardly reasonable.

Thanks to the latitude of modern dry-plates, presentable results can be obtained from widely varying exposures, but the average hand-camerist accepts, with the resignation of the inevitable, a much larger percentage of failures than he would tolerate in giving time exposures. The panchromatic plate and its associated filter are coming more and more into use, and have a tendency to stay. They certainly demand more care in exposure than the older monochromatised plates, even of extreme speed.

Artificially indeed is the case of the would-be careful beginner, who scrupulously uses a meter, and for future reference and convenience tabulates, with other factors, "Ananias" and ever increasing shutter speeds as records of fact. Provided that the actual shutter speeds—even if they do not agree with those marked—are fairly constant, accurate work, based on past experience, can no doubt be done. It is easy to be captious on the question of shutter speeds. In my opinion, if the "actual" and "marked" agree within 25 per cent. there is not much to be said about.

The fifth requirement relates to the ratio between the time required in opening and closing and the amount of light admitted during that period. It is of importance and will be dealt with later.

The remaining conditions do not require much comment; No. 11 is of distinct benefit to the up-to-date press photographer, as tending to prevent breaches of the peace, or even on occasion destruction of, or injury to, the camera. The last requirement is, of course, essential for magazine and roll-film cameras, and is advanced in all cases.

It would be possible to try and estimate how far the various shutters on the market meet the conditions laid down. No definite conclusions could be drawn, and it would be more or less waste of time to attempt it. To the shutter-designer the necessity of complying with commercial requirements as to weight, bulk, price, and so forth, or even with the fads or fancies of users, must be the most exasperating restrictions and limitations.

Methods of Controlling "Speeds."

We can now turn our attention to the various methods adopted for controlling "speeds," the most ineffective and erratic results

being due to variation in spring-tension alone. Shutters fitted to the cheapest hand-cameras are examples. The highly efficient and reliable roller-blind shutters might be held to fall under this category, but here the spring has a long uncoil, and the blind must act somewhat in the nature of a brake.

Another and favourite method depends upon pneumatic regulation. This may be accomplished by packing a piston air-tight in a cylinder, the piston being connected to the actuating parts of the shutter, and allowing the air to escape through an orifice adjustable in area, in turn permitting a variable rate of movement. Messrs. Thornton-Pickard in their familiar "time-exposure valve" employ an ingeniously devised air-leak, and have applied a neat modification to their latest diaphragmatic shutter, the "Sunbeam." Speaking generally, this method has been largely superseded, but it may be remarked in passing that enlarging a hole by means of a slide allows leakage out of proportion to area. By opening a series of minute holes of equal area, a more proportional effect is obtained. The difference observable is doubtless due to air friction.

The system of pneumatic regulation chiefly adopted at present, illustrated in the "Unicum" and other shutters, is to fit a plunger loosely within a cylinder, with a consequent air leak between the two, the cylinder is linked up to the actuating parts of the shutter, and alterations of speed are made, not by varying the air leak, but by altering the length of travel of the cylinder. The slowest speed utilises the full travel, the higher speeds proportionally less. In theory this is admirable; in practice the plunger and cylinder are usually made far too small. In a valuable paper read by Mr. Wm. Taylor on "Shutter Design" some years ago,* it was pointed out that at the highest speeds the range of movement of the cylinder is sometimes so small as to be inoperative. Before air can leak it must obviously be compressed, and a very short travel probably merely compresses the air, without allowing the controlling leakage to come into play. Consequently, the "1-50th" and "1-100th" second marked on the shutter may be one and the same, and at the same time neither of the marked speeds. A deposit of damp or dust may very seriously alter the rate of air-leak, as when plunger and cylinder are of small dimensions they must necessarily be fairly close fitting. If made larger, a looser fit is allowable, with a greatly lessened tendency to alter through outside influence. Shutters fitted to, and forming part of, the camera front generally allow of this being done. To obtain retarding action approximately proportional to the travel, the residual air-space should be constant, but this is more a matter for the designer than the user. The plunger, of course, should never be oiled. Irrespective of any deficiencies in the pneumatic control, in some shutters the leaves are pivoted so close to the thrust that a deposit of damp on the sectors must exercise a powerful leverage against the somewhat weak spring. Under these conditions "speeds" will vary with climatic changes.

Mechanical friction brakes acting by pressure are occasionally adopted in lieu of pneumatic action. Such brakes require making with great care, and it has been stated they vary largely from time to time without apparent cause.

Another method of regulation which ought to be mentioned has application to a disc or segment of a circle, having an aperture passing across the diaphragm without alteration of spring tension. The method consists of reducing the aperture to increase "speed," and is the principle adopted by Messrs. Beck. Ltd., in their "Frena" and "Cilverex" shutters, presently to be referred to.

Efficiency.

The next point in shutters which can usefully be examined, and at somewhat greater length, is that of "efficiency." This question is certainly a most complicated one if all factors are to be considered. On the other hand, if we are content with approximations, but approximations amply sufficient from a practical aspect, then the subject can be simplified. The "speed" of shutters has been several times alluded to, a common if not precise term for expressing "the total duration of time occupied between the first opening and final closing of the shutter or lens-aperture"; an expression merely indicating an interval of time, not necessarily having any definite relationship to the amount of light allowed to pass during such period. This is usually and conveniently designated "dura-

* "Phot. Journal," 1905, p. 34. Abstracted in "B.J. Almanac," 1906, p. 739.

tion of exposure." The duration of exposure contrasted with the amount of light allowed to pass may be considered in one or two simple examples. In the first place, suppose we give a "cap exposure" of five minutes, then the time occupied in taking the cap off and replacing it is obviously so small in proportion to the whole exposure that it may be neglected. The duration of exposure has been five minutes, the plate has seen the full aperture of the lens practically all the time, and has therefore received an effective exposure of five minutes also. The "effective exposure" and the "duration of exposure" in this case therefore coincide. Different would be the case of an "on and off" cap exposure of, say, half a second. Here the plate would only see the full aperture of the lens for a fraction of the total time. If we assume that during the total duration of exposure, half the light which would otherwise have reached the plate has been obstructed by the lens cap, then although the duration of exposure has been half a second, the effective exposure is quarter of a second only.

Exactly the same course of reasoning applies to all photographic shutters, excluding the focal-plane, which in a sense may be taken to uncover the plate, not the lens. Some light must be obstructed by the sectors of a diaphragm shutter, or blind of a Thornton-Pickard, whilst in the act of opening and closing. In a hypothetical and ideal shutter, taking no time to open and no time to close, then the duration of exposure and the effective exposure are identical, and it is convenient to gauge all shutters in comparison with this ideal. Let us suppose an "iris" shutter opening and closing in circular form at constant or uniform rate and having no period of full opening—that is to say, no sooner is it fully open than the leaves begin to close. Such a shutter on paper is one-third

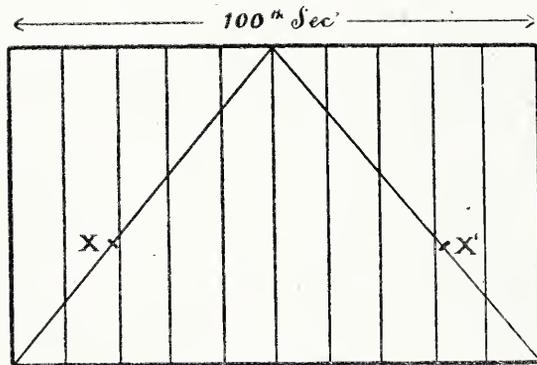


Fig. 1.

of the ideal, or in usual phraseology has an efficiency of $33\frac{1}{3}$ per cent. If the duration of exposure is one second, then the effective exposure is obviously $\frac{1}{3}$ sec.

To determine the efficiency of shutters with complete accuracy we should have to ascertain the time the shutter takes to open and close, the way in which this is effected, any acceleration or retardation, and the period of full opening. Next we should have to calculate what part of the initial opening and final closing will have no appreciable light-action on the plate. To solve this pretty little problem the type of shutter would have to be considered, and the capability of the plate for registering minimum light-action, which I understand is a relationship between the H. and D. number and the power of giving density. The result obtained might be true for the centre of the plate. For other portions, corrections would have to be applied for the loss of light due to the obliquity of the iris, together with any cutting off by the lens mounts. A change of stop would necessitate still further calculations. The final result if correct would be a splendid example of misdirected energy, utterly out of proportion to any good that might accrue.

Qualifying Factors.

Fig. 1 is a conventional diagram of an exposure given by a shutter having no period of full opening, and moving at a constant rate. If we assume the total duration of exposure to be 1-100th sec., and the shutter to be an iris one, then the theoretical efficiency as just stated will be $33\frac{1}{3}$ per cent., and the effective exposure 1-300th sec. only. This looks very bad, but is not quite so bad as it seems, one of the factors, and the most uncertain one, in the calculations just mentioned, coming into play. To illustrate this, let us divide the total

duration of exposure into ten equal parts, as shown by the vertical lines. Each division, therefore, will represent 1-1,000th sec. Now let us give an f value to the full opening—say $f/6$ —and with a pair of dividers find out where the iris first reaches the diameter represented, say by $f/16$, and again closes down to that aperture, point X X' in the diagram, nearly four divisions. Taking three divisions only, representing about 1-330th of a second duration, is there any operating at such a small average effective aperture that the exposure may be inappreciably affected, especially if it has to record a rapidly moving object. The net result of this is that although on paper the duration of exposure is 1-100th sec., in actual practice it may work out at nearly 1-150th sec. It follows that as the d

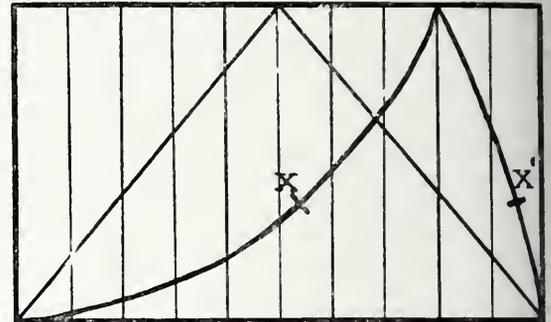
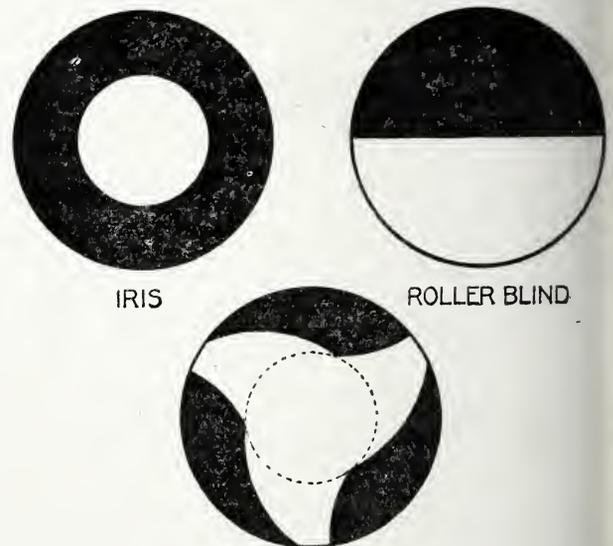


Fig. 2.

tion of exposure in effect decreases, the efficiency of the shutter so increases, and that very noticeably. I have not worked out the value representing the average area of opening to $1\frac{1}{2}$ division on each side of the diagram, but it would be a small one. The point is by no means new, but it frequently escapes notice. It is a disturbing factor which can hardly be allowed for, it applies more strongly to diaphragmatic shutters, and probably most powerfully of all to the iris shutter instanced. It diminishes the theoretical value of "lap" in the shutter, and in the case of the "iris" tends to upset calculated depth based on a stop representing average aperture. In the case of shutters which open and close from the side, it may happen that owing to the length of the lens-barrel, the centre of the



STALEY'S COMPOUND

Fig. 3.

plate may receive no light until an appreciable amount of underexposure has taken place. The same problem presents itself in a slightly different way. We assumed "constant rate" in the case of the iris, whereas probably in all shutters acceleration occurs. Acceleration on paper infers diminished efficiency. Fig. 2 is a rough representation of acceleration as the square, every fifth division will illustrate an extension of the principle under consideration. Here, compared to "constant rate," the efficiency has been apparently very seriously reduced; but if we take similar points X X' , representing diameters of $f/16$, the efficiency of the acceleration curve may agree fairly closely with that of constant rate. The

Comparison is not exact, for in the case of "acceleration" a longer time is occupied in reaching the aperture stated. Various values representing "efficiency" have been given to different types of shutters, on the assumption that there is no period of full opening, or occasionally on certain other assumptions that may not occur in practice. From what has been said they can only be approximations at best, but they are useful in estimating the efficiency of the different portions at the beginning and the end of the exposure. Generally speaking, provided the rate of opening and closing is uniform and there is a fair range of full opening, it does not matter much in what manner that opening and closing is effected. It is, however, material with diaphragmatic shutters when the lens is not at full aperture, the period of full opening being small or nil. Fig. 3 shows three diagrams of popular shutters are shown, each having a diameter equal to half its diameter. The roller-blind, as can be seen, rapidly covers a considerable area. The iris at this stage shows up badly. The first half of the diameter is very inefficient; from this point on it greatly improves. The method of opening adopted in the "concorde" gives undoubtedly greater efficiency than does the "iris," under conditions remaining the same. The "Unicum" would occupy an intermediate position, its initial opening being elliptical. No comparison, based purely on the mode of opening and closing, can be made between the roller-blind and diaphragmatic shutters; any conclusions drawn from the diagrams must not be pushed too far.

Methods of Testing Shutters.

According to the methods adopted for testing shutters, these have many and varied, and can be sharply distinguished into two classes:—

Those that measure the duration of exposure only, either by visual inspection or photographic impression; and

Those that not only record duration, but by calculation, simple or otherwise, enable the effective exposure and efficiency of the shutter to be deduced. They are the more useful.

Class (1), the revolution of a bicycle wheel with silvered beads attached to reflect a point of light; or the oscillation of a pendulum with a similar bead against a scale; the rotation at variable rates of a slotted or slitted disc, allowing flashes of light to pass; a wavy line on a dry-plate made by movement of a camera with lens fixed on a naked arc of known alternating period, are examples. Carnegie has ingeniously recorded the travel of a falling ball by photographic means, different distances representing different durations of exposure. A defect in most of these systems is that when records are made photographically, the beginning and end of the exposure are usually vignette away so imperceptibly that it is difficult to say where one begins or ends. Neither is the method of visual inspection free from error. A suggestion has been made to give a long-known method by hand with a very small stop, and to compare the results obtained with those secured by shutter exposures with a large stop. Coming from memory, it was, I think, claimed that the shutter durations—viz., durations of exposure—could by this means be arrived at accurately enough the method would only show effective exposures, though even here disturbing factors creep in. No indication of the efficiency or duration of exposure would be possible, unless the former were known in advance the latter might be approximately calculated.

A Pneumatic "Speed" Recorder.

Another method of timing "durations" was evolved by Mr. J. Smith, of the Platinotype Co., quite recently. It applies to diaphragm shutters only opening from and closing to the centre. It is certainly very simple. In fig. 4 "T" is a tube adjustable up and down, out of which a gentle current of air is flowing. B is a board having the circular opening shown. M is a mica disc, attached to one end of the board by means of a flattened watch-spring, which has just sufficient force to allow the disc normally to close the opening. On the underpart of the disc, M, is fastened a camel-hair brush, charged with aniline dye solution. S is a stop to limit the action of the disc. R is a drum rotating at known speed, around which is wound some white paper. The shutter to be tested is placed over the aperture in the board, the pipe brought down centrally. Air is turned on, either by a stopcock into the tube, or in any other convenient way, and the

shutter released. The mica disc is instantly depressed, and the brush leaves a recording streak on the rotating paper indicating the duration of exposure. Time has not permitted a complete test of this appliance. For a given varying shutter-speed repeated, it will indicate, practically speaking, the same length of trail each time, and there is little doubt that such trail will be a close approximation of the duration of exposure.

The contrivances in class No. 2 vary in detail, but in nearly all cases cause a shadow-image, or image focussed by a lens, to be recorded itself on a film or dry-plate, one of the earliest and probably as

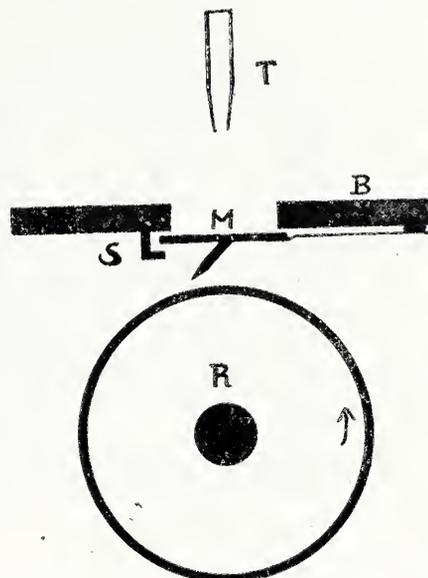


Fig. 4.

efficient as any being Sir Wm. Abney's. It is, however, complicated so far as number of parts are concerned and not within the scope of the ordinary amateur.

A Simplified Shutter-Tester.

The shutter-tester now to be described was an attempt on my part to reduce the device to the simplest proportions, and can only claim to be a modification of what has gone before. It is fairly easily constructed, comparatively inexpensive to make, is portable, and will record duration of exposures within reasonable limits with exactitude, and the efficiency with quite sufficient accuracy for practical purposes. Fig. 5 is a diagrammatic representation of the appliance. On the right is a light-tight box

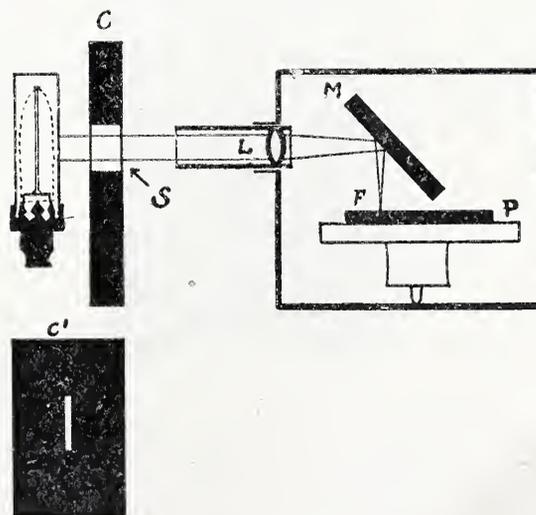


Fig. 5.

or camera, fitted with a lens in sliding tube for focussing. On the left is seen in side and front elevation, a board CC, behind which is an incandescent burner illuminating a slit S. This illuminated slit is focussed on a dry plate P, by the lens, by means of a mirror M, set at an angle of 45 deg. The dry-plate is supported by a carrier capable of rotation at definite speed.

On the release of the shutter a point of light is first recorded:

on the rotating plate at F, broadening into a circular band representing full aperture, and tailing off again into a point on the completion of the exposure. By applying the developed plate to a home-made protractor on glass, secured by copying a drawing in the camera, the number of degrees covered can be read off, and deducting the width of the slit image the duration of exposure is ascertained. The efficiency of the shutter can be closely arrived at by noting the number of degrees occupied in opening and closing, and in the period of full aperture. The *tailing-off* portions of different types of shutters are given a value. The "iris," for instance, $33\frac{1}{2}$ per cent., the roller-blind, and diaphragm shutters

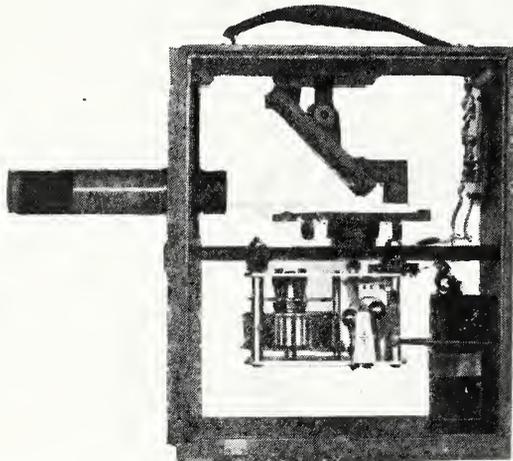


Fig. 6.

such as the "Cilverex," 50 per cent., and so on. A simple sum will then give the efficiency direct. The lens and slit both rise and centre to allow several diagrams to be made on one plate.

Fig. 7 shows a side view of the camera with both sides removed.* The carrier holding the mirror slides in and out, in grooved pieces affixed to the top, parallel with the front. The lower part can be swung into a horizontal position to permit removal of the plate-carrier underneath. The latter movement is a refinement which can well be dispensed with. One occasionally may forget to restore the carrier to its normal position, prior to making a test. The mirror is surface-silvered. If any difficulty is experienced in either doing this or getting it done, Mr. Calver, the

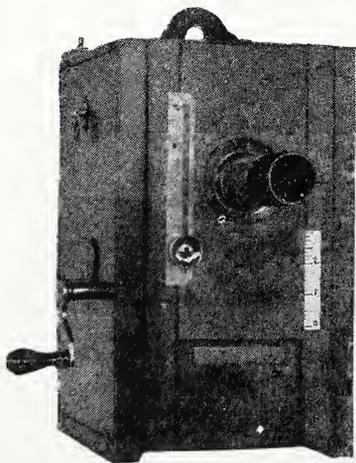


Fig. 7.

well-known maker of reflecting telescopes, will silver a slip of thick plate-glass at a nominal cost. The block of wood protruding to the right is bored vertically to take a pencil, which, when inserted and pressed down, describes a circle on the dry-plate, and allows of its being subsequently centred on the protractor. A special spring motor sold by Messrs. George Adams and Co., of High Holborn, for driving gramophones is used to rotate the plate. It is extremely well made, and at two revolutions per second repeated tests have failed to record more than one per cent. variation in speed. There is plenty of power in the main spindle, which at one

* In the illustration the lens is shown too low.

winding will revolve about 400 times at a maximum speed of three revolutions per second. At one revolution per second does not run with so much accuracy. In practice two revolutions per second are adhered to. Speeds of half a second and slower can be recorded if necessary, by slightly lowering the rising front when an exposure is made. A rackwork attachment would facilitate this. The lower part of the plate carrier is conically tapered to take the main spindle, which slightly tapers at its upper end. At the right of the motor is seen a dry-cell, the current from a contact point on the main spindle, actuating a small magnet and armature shown above it, giving an audible click at each revolution. A switch is placed on the top of the camera to prevent possible contact being made when not in use. The interior of the camera is divided into two, to prevent leakage of light from the winder aperture.

The motor is stopped by a push and pull knob at the back. Both sides are removable and are rebated to prevent light entering.

Fig. 7 shows the rising front and scale, the winder being on the left, the regulating knob just behind it. The other side is quite free and can be removed in an instant.

Fig. 8 is a diagram of the plate-holder. The shutter mechanism illustrated was originally designed to take plates $4\frac{3}{4}$ inches square. The more handy quarter-plates have been substituted with no apparent disadvantage. P is the plate. It is held simply and securely in position by a slotted sliding piece B, which causes the plate to bear against the stops S S'. The stop S' shows the

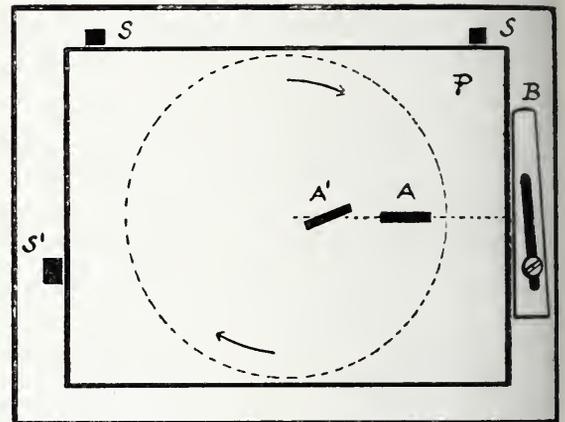


Fig. 8.

opposite the thrust of the sliding piece, viz., the screw in the slot. In use the image of the slit is focussed on a piece of white paper gummed on to an old quarter-plate negative, which can conveniently be ruled into fractions of an inch, so that the length of the slit image can be noted, and the amount of rise necessary for each successive exposure arrived at. The slit image is recorded at the end of the plate, or in the middle, when stationary, so that its width may be deducted from each reading. Its value, of

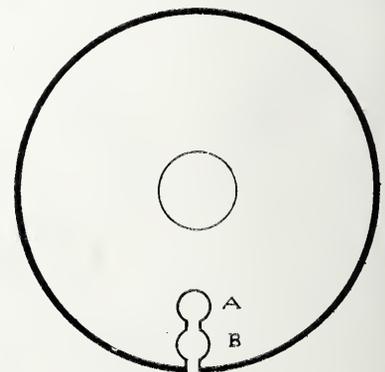


Fig. 9.

course, varies, very materially close to the centre. It is of importance that the slit image shall coincide with a radial line from the centre of rotation as shown at A. If non-coincident as illustrated nearer the centre A', actual durations of exposure will be lengthened, except in the case of diaphragm shutters opening and closing to the centre; but even here the record will be dis-

ted in shape. A slight error due to inaccuracy of construction can be remedied by an inclination of the slit from the vertical. The apparatus is also designed to take a drum, around which sensitive film on celluloid is fixed. At very high speeds 1-100th sec. and over (rare in lens shutters) the readings on the plate are all, and errors in readings may occur. An easy way devised for attaching the film is to bore two slightly tapering connected holes, shown in Fig. 9 in plan. The film is wound round the drum, and its two ends brought together in A, a tapering wedge is then inserted which grips the film, a second wedge at B tightens it. Fig. 10 shows the slit-carrier on the left, slits of various lengths being held in the square recess. The circular black lines drawn

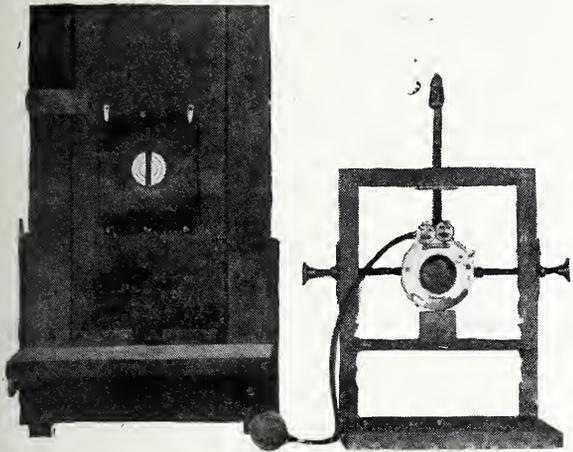


Fig. 10.

and the slit enable the shutter to be centred with ease. On the right is the shutter-carrier, which is self-explanatory. The ends of the screws are filed flat and faced with leather to prevent injury to the shutter. The shutter-carrier is clamped to the shelf of the slit-carrier.

Fig. 11 is a side view showing the back of the slit-carrier, with a gas jet behind, and with pointer on scale to indicate amount of rise, the clamping screw being underneath. The whole apparatus is mounted on a baseboard, on which the camera slides, and strips being attached underneath. Several slit images, six

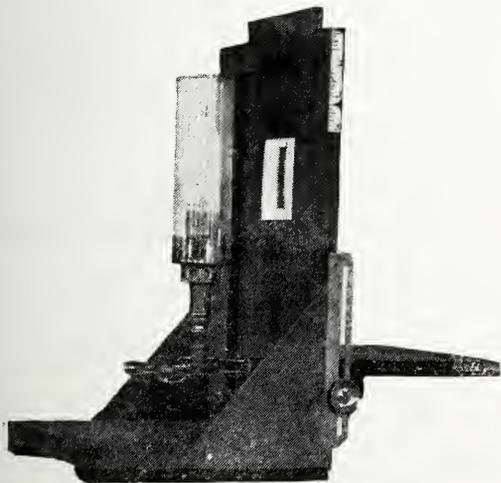


Fig. 11.

more, can be taken on one quarter-plate according to the scale provided. If large scale diagrams are required, focus should be adjusted for a few varying lengths of slit images which should be referred to, the amount of rise ascertained, and tabulated for future reference. This is not quite so simple as it appears, for the rise of the slit-carrier causes the image to traverse the plate in the opposite direction to that imposed by the rising front of the camera, and the ratio will alter with alterations of distance. On the other hand, if the object is merely to record speeds, or durations of exposure, then the slit-carrier and camera can be set at such a distance apart that the rising front of the latter will be practically equivalent to the movement of the slit-image on

the plate. An alternative method of construction would be to dispense with the rise altogether, and cause the plate-carrier and motor to slide bodily back in grooves indicating the amount of such movement by a scale. This would cause the slit-image to fall on different portions of the plate; a rise, however, is necessary if a film on a drum is employed.

The protractor used is shown in fig. 12. In order to avoid crowding it is divided into twenty-five divisions, each being sub-divided into five—125 in all. These can again be mentally sub-divided into quarters, should an inexact number of divisions be occupied. In practice each division is read as representing four degrees. Then with the motor rotating twice a second, each degree will represent 1-1,000th sec. The highest speeds are taken towards the circumference to obtain wider readings, the slower ones towards the centre, where errors in draughtmanship in the protractor are more likely to occur, and are of the least consequence. The readings could be made to automatically record the speeds by the simple expedient of mounting the protractor over, and in contact with, the dry-plate.

Some Typical Diagrams.

We can now consider some typical diagrams of representative shutters on the market. In all, the beginning of the curve repre-

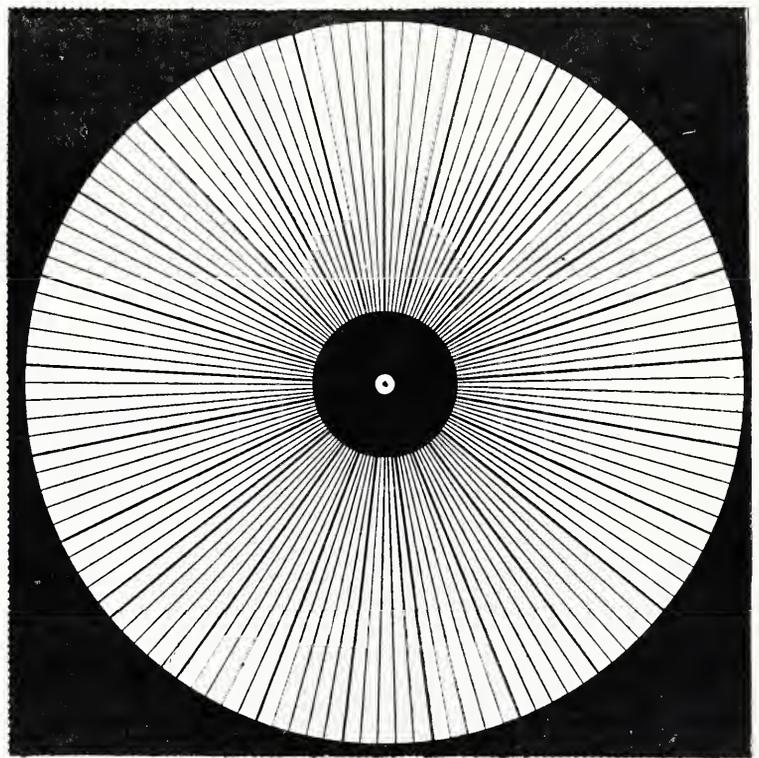


Fig. 12.

senting the opening of the shutter points in the direction of rotation, indicated by the arrow head. Slow speeds are taken nearest the centre, and vice versa.

Fig. 13 shows a diagram of an old form of iris shutter at full aperture, opening and closing at approximate constant rate, and having little or no period of full opening. The theoretical efficiency is 33 1/3 per cent. A large part of the tailing-off portions would probably have little or no action on the photographic plate, and the efficiency is therefore greater than it might appear. The departure from the circular form is due to the lowering of the camera front for a test of one second, which it lamentably failed to record. Subsequent tests revealed the fact that occasionally it omitted to entirely close. When set to "time" it opened to one aperture, when set to "instantaneous" to another. It would never give the same diagram twice, or record the same speed. By an irony of fate its owner is a particularly careful worker in the field, and if he had not habitually used the instrument with its vulcanite leaves in front of an enlarging lantern in the dark-room, the foregoing eccentricities probably would never have developed.

Fig. 14 is a diagram of a similar, but later, model, the leaves having greater velocity. Approximate actual exposures 1-30th and 1-5th.

It will be noticed that at the slower speed the leaves open considerably faster than they close, due, no doubt, to the pneumatic regulation not becoming effective until the air begins to be compressed. At the top speed there is no period of full opening, and the efficiency is low.

Fig. 15 represents the same shutter, each record being 1-5th sec. The outside one full aperture, 1½ in. diameter. The second diagram shows the effect of substituting a slit of three-quarters of an inch representing a medium stop. Much greater efficiency is obtained, as can readily be seen. In this type of shutter the leaves themselves form the stop, and open only to the point indicated by the iris scale. Stopping down did not materially alter the efficiency, the same characteristic diagram being obtained. In the majority of sector shutters, such as the "Unicum," the "Volute," etc., the leaves open to constant diameter, and, as is well known, with smaller stop a very great gain in efficiency results. The diagram illustrates this, and not the particular shutter tested; the slit being reduced, not the iris.

A record of Messrs. Beck and Company's "Cilverex" shutter is illustrated in Fig. 16. Here variations in speed are obtained solely

gives a diagram closely resembling the outside one in fig. 16, and therefore not quite so efficient as some other models. To counterbalance this, the ratio of "duration" to the effective exposure is roughly the same at all speeds, a no mean advantage; it is simple design and construction, and consequently there is little chance of derangement even under adverse conditions. Accurate adjustment of speeds is not only possible, but attained. The cameras are in use all over the world, and have acquired a reputation for reliability second to none.

Fig. 17 is a record of a 1½ in. Thornton-Pickard roller-blind shutter. Actual speeds 1-20th and 1-50th approximately. A lens of one inch was used, representing *f*/6 in a 6-inch lens, or *f*/8 in a normal focus for half-plate. The length of the aperture in the blind was 2.9-16ths inch. This being so, high efficiency was expected, and, as the diagram shows, is realised. The 1-20th sec. shows slight retardation of the blind towards the end of exposure. With this shutter and others of equivalent type, the stop is reduced the efficiency is increased. The "effective exposure," however (as Mr. Welborne Piper has shown), remains the same throughout. Thus, suppose with full aperture the du-



Fig. 13.
Old Form of Iris.

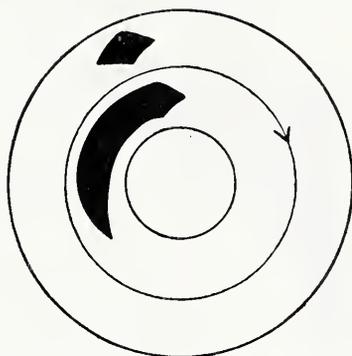


Fig. 14.
Iris.

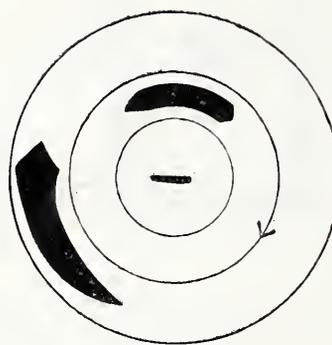


Fig. 15.
Iris.

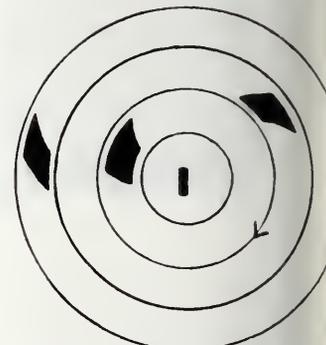


Fig. 16.
Beck's Cilverex.

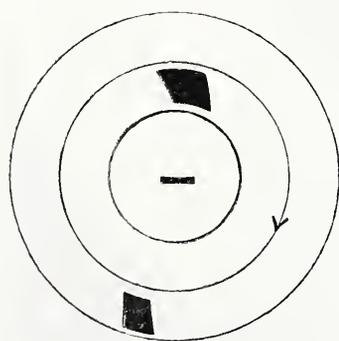


Fig. 17.
Roller Blind.

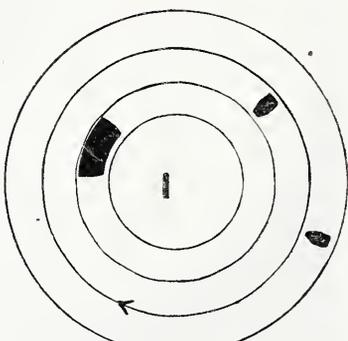


Fig. 18.
Staley's Compound.

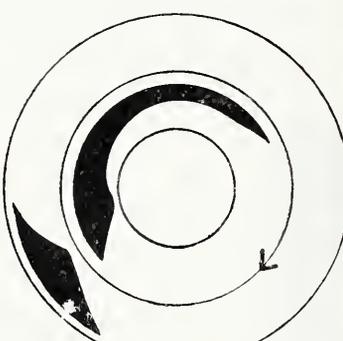


Fig. 19.
Busch Foreground.

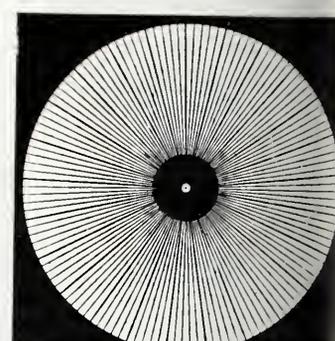


Fig. 19a.

by varying the length of the aperture in a blade passing across the diaphragm, the spring tension remaining constant. Owing to the system adopted it is claimed that the speeds are proportional to each other. Thus 1-40th sec. will be always half of 1-20th, and so on—a valuable feature in itself. Unfortunately the efficiency diminishes as the area is reduced, and the ratio of the "effective exposure" to "duration" alters with each exposure. In the diagram marked exposures of 1-10th, 1-20th, and 1-40th sec. are recorded. The gradual drop in efficiency is indicated, though there is not much to complain of anywhere. Acceleration is observable in the slower speeds. The 1-80th sec. consists of an opening little more than half the area of the lens, and is therefore very far from being efficient. The shutter, from a mechanical point of view, is well thought out, and beautifully made. Notwithstanding inevitable limitations, the principle involved is undoubtedly good. The excellent results obtained with the "Frena" cameras are sufficient evidence of this. The type adopted in one of the most expensive cameras on the market, in its essentials also consists of a blade passing across the diaphragm, but of constant aperture, with extremities of reversed curvature to that of the lens to gain a little in efficiency. Variations in speed are pneumatically regulated. This shutter, at moderate and fast speeds,

tion of exposure was 1-35th sec. and the effective exposure 1-50th sec. Then on stopping down, the duration of exposure might be diminished to, say, 1-45th sec., but the effective exposure would remain as before, 1-50th sec. For reliability and efficiency this shutter is most certainly hard to beat. The name attached to it is sufficient guarantee of its being well made.

Fig. 18 is a diagram of Messrs. A. E. Staley's "Compound" shutter. The outside diagram marked 1-100th sec. is as a matter of fact slightly faster, viz., 1-120th sec. It is not usual for the actual duration of exposure to be less than those marked. I must confess the diagram astonished me. It speaks for itself. The tapering ends of the 1-25th sec. (nearest the centre) are almost radial, and even the higher speeds show little signs of falling off. For all practical purposes the effective exposures may almost be regarded as equivalent to the duration of exposure. The leaves must open and close with great velocity. As this shutter opens in irregular form, the diagram, strictly speaking, is approximate only; the slit, however, occupied a fair average position, and no appreciable error is introduced. The shutter is a very fine example of workmanship and is exceedingly neat in design. The present model gives a better diagram than the same type preceding it.

the inner of these two figures (fig. 19) is not a representation of a tadpole, but a diagram of 1-5th of a sec. given by Messrs. Busch and Co.'s foreground shutter, a very useful instrument for securing natural clouds and landscape on one plate. As the lifts and descends. The portions of the diagrams away from the centre represent exposure to the foreground, which naturally receives more attention than the sky.

At the 1-5th sec. the shutter opens quickly and closes slowly. At higher speeds the travel is more regular. The shutter is well made and highly finished.

The author concludes the diagrams of lens shutters. Their main object would of course usually be to check the veracity of speeds marked on the dial, but they are instructive in other respects. They show that some types closely approach the focal-plane shutter at high speeds recorded, though at high speeds the latter must hold its own. Its position is, however, threatened, for from a pamphlet I have perused, a new shutter will shortly be on the English market, with speeds up to 1-2000th sec. On special occasions 1-1000th sec. is said to be reached.* Some very unkind things have been said about focal-plane shutters in general, supported by reasons which are particularly novel. For instance, it is pointed out that "a small slit irritates the light"; probably if the slit were further reduced, it would be positively exasperated, which could hardly be otherwise than detrimental. From a testimonial published it would appear that the shutter is about 15 times more

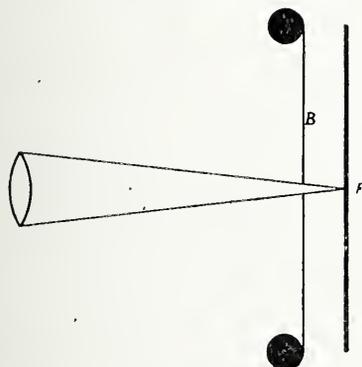


Fig. 20.

efficient than a sector shutter; at a moderate computation this would make it about 5 times better than perfection.* It need hardly be said this shutter hails from America, and no doubt is a good one, irrespective of exaggerated claims made on its behalf.

Focal-Plane Shutters.

Focal-plane shutters are within the capacity of the shutter-tester. The downward passage of the narrowest slit takes place at right angles to a vertical slit placed in front, which may be divided into two or more equal gaps, to see what acceleration or retardation occurs. One incandescent burner set back, with ground glass interposed, has been found to give sufficient illumination for 5 x 4 plates. The camera is placed about six to eight feet from the shutter being tested.

A good deal of discussion has taken place as to the direction in which the slit should travel with regard to the plate. Messrs. Thornton-Pickard, who have a wide experience in focal-plane work, inform me, in their opinion, the best method is for the slide to travel independently, and the blind to travel down vertically across the plate. Exception to this might be taken on the ground that in certain subjects it would be more advantageous to reverse the direction and allow the slit to travel horizontally in the same direction as the moving object (viz., travelling in the opposite direction to the image on the plate) so as to counteract distortion in a slight degree. This is theoretically correct, but the duration of the exposure from first to last is so very rapid that any advantage which might be thus obtained is practically inappreciable, and perhaps not worthy of consideration. On the other hand, in actual work this almost imaginary advantage is more than counterbalanced by the fact that owing to the length of the blind no focal-plane shutter made will work as easily and smoothly in a horizontal direction as when working vertically, and, of course, when working horizontally, there is some tendency on the

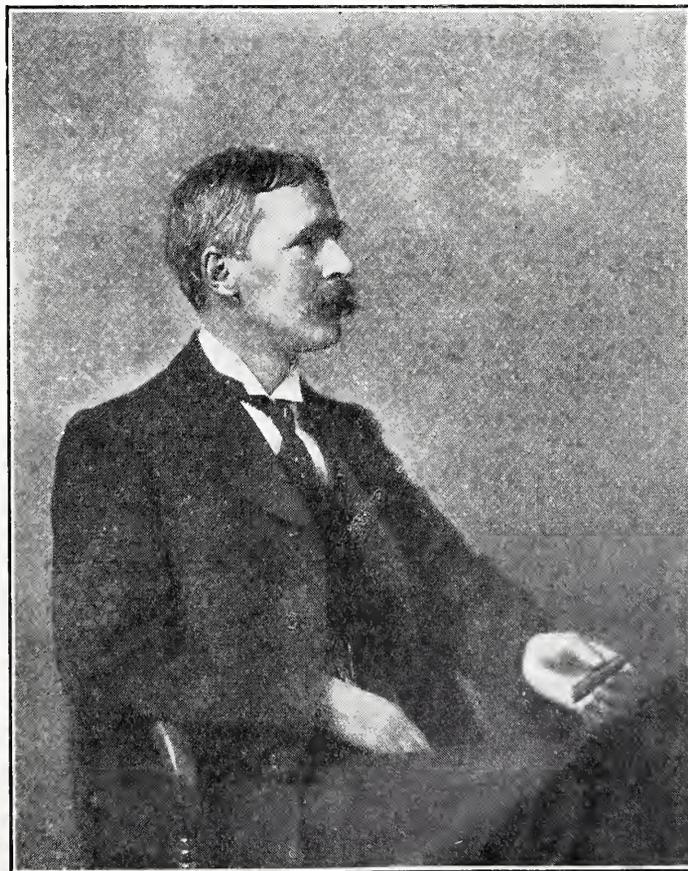
part of the blind to "drag" or catch on the sides of the shutter box, whereas, when travelling in a vertical direction, it is assisted in its course by gravitation, and greater uniformity of speed is thereby secured.

Another point which hardly seems to have received sufficient attention is the employment of very narrow slits, one-eighth of an inch, or even less. In the diagram a condition of affairs is shown which may actually occur in practice. B is a representation of the blind, and F the focal-plane. The lens is assumed to be working at f/4.5, a not uncommon aperture in these days; the width of the slit is that of an actual shutter—viz., 5-32in. The distance between the sensitised plate and the slit is 9-16th inch, the standard distance in the Thornton-Pickard cameras, the interposition of the reversing back necessitating a wider separation. Now it is evident that the lens is not acting with full aperture on all parts of the plate immediately behind the slit; points on the plate opposite the top and bottom of the slit only seeing a little more than half the diameter of the lens. One series of points only, representing an infinitely narrow band across the plate, receives the full cone of rays. Contrast this with the case where the diameter of the lens is the same as the width of the slit. It is then obvious that all portions of the plate behind the slit see the full aperture of the lens. In the former case, it appears to me, there must both be some loss of efficiency, and to all intents and purposes, a decrease in the duration of exposure. The subject in all its bearings is undoubtedly complex, and appears to be one which the mathematician might usefully direct his attention to. There are also other cogent reasons against the employment of very narrow slits, one-eighth inch or less, which time will not permit me to enter into.

E. A. SALT.

DEATH OF MR. HECTOR MACLEAN.

By the sudden death from heart failure on Sunday last of Hector Maclean there is removed from the photographic world a personality not readily replaced. Mr. Maclean was essentially a commentator on men and things. Gifted with a power of facile expression and



THE LATE HECTOR MACLEAN, F.R.P.S.

in a sense of ironic humour, he enlivened many a photographic passage at arms which, but for him, would have been dull. Without a very deep knowledge of the principles of photography he was, nevertheless, a very capable expositor of new processes and methods, and was the

* In the daily press and elsewhere these statements were quoted as originating with the writer, who is unable to vouch for their accuracy.

author of several text-books and the writer of many articles in the photographic press. His personal interest in the photographic societies with which he was connected, formerly the Croydon Camera Club, and latterly the Sutton Photographic Club, was very actively displayed. He took a very large share in the survey and record work in the county of Surrey, and, as our columns of last week duly testified, did a great deal by public addresses to encourage this important application of the camera. In the "Morning Post," to which he contributed weekly for some years past a column of photographic notes, he brought the current progress in photography very simply before his lay readers, and in other ways assisted to popularise the use of the camera. His death, at the age of 56, will come as a shock to the many who were intimately associated with him in photographic affairs. By the courtesy of Messrs. Houghtons Ltd. we are enabled to reproduce a portrait of Mr. Maclean, which was taken with the "Ideal" flash-lamp some year or two ago.

DEATH OF MR. R. H. BOW.

In the death of Mr. R. H. Bow, at Edinburgh, on February 17 last, another of the links connecting us with the earliest days of photography is severed. Mr. Bow had attained the great age of 82, and therefore had largely outlived the reputation of his optical and scientific investigations carried out about the middle of the last century. Indeed, many of Mr. Bow's papers and researches did not at the time receive the attention they deserved, and it was left to Dr. von Röhr in our pages some two years ago to remind the present photographic generation of the pioneer work in photographic optics. It was R. H. Bow who, with Thomas Sutton, pointed out the true orthoscopy of a symmetrical lens for one scale of reduction only. Bow also investigated the unevenness of illumination by photographic lenses due to the thinning of the glasses at the margins, and he sought to overcome this defect by tinging the substance of the crown glass. He investigated the conditions of anastigmatism in 1863, and first published a plan of registering the results of anastigmatic calculations.

Mr. Bow also anticipated much of the later work in his views of perspective, and constructed apparatus for the correct observation of views made with a short focus lens. His papers on these subjects, as well as his masterly treatment of stereoscopic photography, appeared in "The British Journal of Photography" and in "The British Journal Almanac." Mr. Bow was a member of the Edinburgh Photographic Society from the year of its foundation (1861) until the time of his death, and in the old days was one of its most active supporters.

Photo-Mechanical Notes.

Imperfect Register in Three-Colour Work.

With the spread of three-colour work one hears increasing complaints of want of register. Generally the first thing to be blamed is the lens, and yet, although the writer has tested a large number of lenses for their performance in this respect, he has only once found one at fault, and this was abroad, with a very expensive type of lens and one that is not often met with in England. A very simple test for the suitability of a lens for three-colour work (in effect exactly the same one as that devised by Sir Isaac Newton to test achromatism) consists in covering three strips of colour-filter gelatine, red, green, and blue, placed close together, with a hair or very fine wire. This is now photographed either as a transparency or laid on a sheet of white paper, with the hair behind the filter strips. Then if the lens is a suitable one there will be no displacement of the line, and it will be equally wide; if not, it will either be displaced across one of the strips or altered in size.

The next source of trouble is the filters, and they are certainly more often in fault than the lens. A simple way to test them is to photograph something having fine lines, such as a scale or any subject having register marks, through the three filters, and after the negatives are made make three contact transparencies from them, taking care there is good contact when exposing. Now each of the transparencies can be placed in contact with the negative from which it was not made: thus the red transparency will be placed in contact with the blue and green negatives. If there is the slightest failure in register it will be instantly detected,

and if there is none, then the filters are not to blame. Supposing error lies in the filters, it is often awkward to get them replaced soon as one would like; in this case one should use a liquid filter cell and use the same cell for all three negatives.

Another cause of want of register which may be unsuspected in the case where two screens are used, one the 45 deg. ruling and the other the 15 deg. by 75 deg., and they are not both the same thickness. The consequence is that the images will not be the same size at the focal plane, owing to the differing amount of refraction. This is often noticed when using a metzograph screen for one of the colours, as these screens are nearly always much thinner than the cross-line screens.

If the copy has been put up damp, sometimes it may change in size during the exposure from the heat of the lamps—the remedy for this is obvious. It is possible also that if the camera, stand, and board are made of wood, and the temperature of the studio is not kept equable, that these may alter in size and so occasion want of register. Another cause may reside in using more than one slide and the slides not registering with each other. It is also impossible that the operator, when placing the plate in the slide, not in all three exposures push the plate quite home to the face of the slide, or he may not push the dark slide quite home; it takes a very slight alteration in size to show a want of register.

Provided the same metal is used and good contact is made between the printing on metal, it is difficult to see how any cause can be found in the etching on the metal; but when we come to the printing-plate, of course, the sources of want of register in the sense that the three colours do not truly lie one on top of the other, are too numerous to detail; but there is only one cause of want of register of the kind under discussion—viz., the differing size of the component parts, and that is due to the stretching of the paper, owing to varying conditions of moisture and temperature of the printing-room while the job is being printed. This can be prevented by always keeping the paper at an even temperature day and night, and carefully covering up the paper, top and sides as well, after the printing of the first and second colours.

A. J.

ANSWERS TO CORRESPONDENTS.

PROCESS WORK.—(1) I should be pleased if you would kindly give me any information on half-tone process work. Is there a book published? If so, where can I get one? (2) I am after a process to squeegee on a copper or brass plate, leave the film on the plate and the paper to come off. Will you please advise me what to get?—A. G.

(1) The best book on the half-tone process is either "Jenkins' Photo-Engraving," revised by N. Amstutz (8s. 6d.), or the "Half-tone Process," by Verfassers (5s.) Both can be obtained from Penrose and Co. (2) There are numerous films which are called on paper, and which can be squeegeed on to glass and the paper pulled away afterwards. If an exposure is made, just ordinary carbon tissue would probably be the simplest. This can be obtained without pigment under the designation of photographic paper. If you would say exactly what work is required to be done in this matter we might be able to give you more definite advice.

Patent News.

Process patents—applications and specifications—are treated in "Photo Mechanical Notes."

The following applications for patents have been received between March 22 and March 27:—

DARK SLIDE.—No. 6,921. Improvements in and connected with a light loading and unloading camera dark slide. Alfred Mead, Field Lane, High Heath, Pelsall, Walsall.

PIGMENT PRINTS.—No. 7,000. Improvements in the production of pigment prints and the like. Wilhelm Triepel, 55, Chancery Lane, London.

CINEMATOGRAPHS.—No. 7,184. Improvements in safety devices to prevent the spread of fire when a cinematograph film is ignited. Leo Kamm, 27, Powell Street, Goswell Road, London.

CHARGING GAS CYLINDERS.—No. 7,185. Process of and means for charging cylinders or steel bottles with oxygen and other gases.

uch as carbonic acid gas. Leo Kamm, 27, Powell Street, Goswell Road, London.

TOGRAPHIC SURVEYING.—No. 7,201. Improvements relating to apparatus for photographic surveying. Arthur Cyril Webb Aldis, 8, Southampton Buildings, London.

NETTING APPARATUS.—No. 7,222. Apparatus for enabling photographs to be vignetted in the camera by artificial light. Alexander Hood, 72, Ranelagh Road, Ealing, London.

Y-MOUNTING.—No. 7,250. Improvements in metal folders for use in connection with the dry-mounting of photographic prints or the like. George Wilson Morgan, 121, West George Street, Glasgow.

VELOPMENT.—No. 7,361. Improvements in machines for developing, fixing, and washing photographic roll films. George Beattie Toole, 41, Reform Street, Dundee.

EMATOGRAPH-PHONOGRAPH.—No. 7,426. Means for synchronising the conjoint action of cinematographs and talking machines. Jules Greenbaum, 31, Bedford Street, Strand, London.

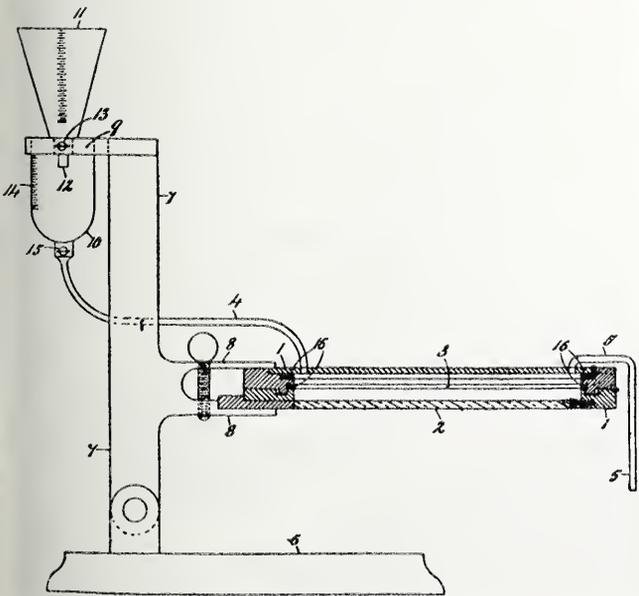
COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or broad, in the case of patents granted under the International Convention.

DARK SLIDE AND DEVELOPING DISH FOR COLOUR PHOTOGRAPHY.—No. 2,746. 1908 (August 7, 1908). A dark slide 1 is so constructed that when a plate—e.g., an Autochrome—is inserted there is provided at the back a water-tight space, 3, that is to say, on the side remote from the lens of the camera. Two tubes, 4, 5, communicate with this space 3, and are attached at opposite corners of the plate, one, 4, being provided with a branch connection.

The exposure having been made in the ordinary way, the dark slide is removed and attached to a special form of stand 6, having a pivoted arm 7 projecting upwards. To this pivoted arm 7 is attached, at a short distance above the pivotal point, a strong



lip 8 for holding the dark slide 1, and at the upper end of arm 7 is provided a suspension bracket 9 for the measuring funnel 10.

The liquids used for developing are poured into a funnel 11, temporarily connected to one of the tubes 4 leading to the hollow space 3 behind the plate 2, which now becomes the developing dish, the bottom whereof is constituted by the film side of the plate.

A measuring apparatus 10 is provided for ensuring the using of a definite quantity of the developer, according to the process employed. This apparatus consists of two vessels, 10, 11, suitably arranged one above the other, communication between the two consisting of a tube fitted, 12, with an adjustable cock or valve, 13, such as a glass tap.

The stand 6 for holding the dark slide 1 and measuring and timing

apparatus is so constructed that while the liquid is flowing through the hollow space and out of the variable outlet the dark slide 1 is in a horizontal position, so that the branch tube 5 is out of action. As soon as the measuring vessel is empty the dark slide 1 will, by gravity, be caused to take up an oblique position, and the liquid contained at the back of the slide be caused to flow away through the tube 5. Roger Barwick Hutton, Heselton Cottage, Pitsea, Essex.

DAYLIGHT DEVELOPMENT.—No. 14,757. 1908 (July 11, 1908). A light-tight tank is constructed sufficiently large to receive the plate or plates. When the tank is constructed to receive several plates it is divided by partitions into a number of separate compartments. Each compartment is provided with a draw-off tap. Each plate is mounted in a carrier or slide, which has an attachment by which it may be raised from its developing compartment.

The developing tank is covered at the top and sides with a cover made of light-tight material, with red panels at the sides, or it may be made entirely of red transparent celluloid or glass. This cover slides on to the outside of the tank and fits this latter light-tight. The cover has a number of funnels in its top, which are so constructed as to admit liquid (but not light) to the various compartments. This cover is so made and caused to slide into position on the tank so that it cannot be entirely withdrawn from the tank when pulled upwards.

The inspection chamber may slide laterally into position on the top of the tank, and may then be slid down over the outside of the tank, or it may be fixed on the tank, with capability of sliding up and down, and may have a top carrying the funnels. The tank may have a recessed piece pivoted to its bottom and approximately of the same shape as the recessed portion of the bottom, which may be rotated to project from the bottom and act in conjunction with the extreme ends of the bottom to retain the tank in a vertical position.

The plate or plates to be developed are each mounted in a slide or carrier and inserted into the tank. The inspection cover is placed in position. These operations are performed in the dark or in a dark room. The tank is then taken into the daylight and developer is poured through a funnel into the compartment or compartments containing the plate or plates.

After a short time the inspection cover is lifted, carrying with it one of the slides with a plate therein, which is examined by looking through the red panel or the sides of the inspection chamber. If necessary some of the liquid may be run off and more or other developer may be added. When the plate is sufficiently developed the developer is run off and water is allowed to run through the tank. Edmund Hodgson Smart, 8A, Clareville Grove, South Kensington, London.

CINEMATOGRAPH SHOWS IN LIGHTED HALLS.—No. 4,829. 1908 (March 25, 1907). This invention relates to improved means for displaying animated pictures, and its object is to increase the illusion of life obtained by means of cinematograph projections, and at the same time to permit of operating in a lighted hall or in daylight.

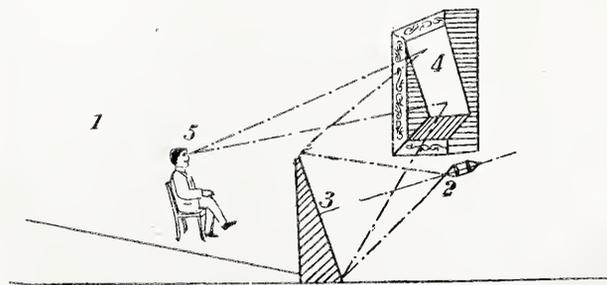


Fig. 1.

These results are obtained by painting dead black the background and sides of the stage on which the pictures are shown, and by dispensing with the ordinary visible white screen on which cinematograph pictures are usually projected. This screen is replaced by a combination of a screen out of view of the spectators, upon which the pictures are projected, and a simple glass-plate reflector mounted upon the stage, inclined more or less to the vertical and by which the pictures are reflected into the view of the audience. Owing to the ground and sides of the stage being painted dead black representations are obtained which are visible in artificial

light or in daylight. The screen may be either an opaque white surface or a translucent screen.

Fig. 1 shows the arrangement by reflection: 1 is the lighted space allotted to the spectators, 2 is the cinematograph or projection lantern, 3 is the opaque white screen, 4 is the non-silvered glass at the back of the stage, and 5 is a spectator.

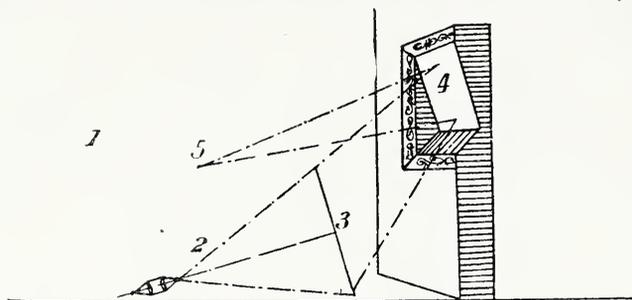


Fig. 2.

Fig. 2 represents the arrangement with a translucent screen: 1 is the lighted space allotted to the spectators, 2 is the cinematograph or projection lantern, 3 is the translucent screen, 4 is the non-silvered glass, and 5 is a spectator. Frederic De Mare, 122, Boulevard Leopold II., Brussels.

CINEMATOGRAPH MECHANISM.—No. 8,758. 1908 (April 22, 1908). The claim is for (in cinematograph projectors) the provision of means for (a) maintaining a film in engagement with a lower sprocket drum; (b) maintaining the film out of engagement with the drum; and (c) maintaining the film in engagement with the drum at a point further around the circumference of the drum, and in the direction of rotation. Vincent Edward Horsman, "Cratfield," Grove Road, Wallasey, Cheshire.

New Trade Dames.

(DEVICE).—No. 309,753. Photographic plates (sensitised) and films (sensitised). The Birmingham Photographic Company, Ltd., Criterion Works, Albert Road, Stechford, near Birmingham, manufacturers. January 22, 1909.

STAMPHOGRAPH.—No. 310,702. Photographic prints included in Class 39. Harry Reginald Ellis Coker, trading as the "Stamphograph" Portrait Company, 1, Hanover Street, Peckham, London, S.E., surveyor. February 20, 1909.

Analecta.

Extracts from our weekly and monthly contemporaries.

Photographing Jumping Greyhounds.

Mr. Philip Oyler, writing on the above subject in "The Amateur Photographer and Photographic News" for April 6, says: "I found early in my experiments that it was useless to hold the camera still in the act of releasing the shutter; a tail, or head, or nothing appeared on the plate. I had to follow the greyhound all the way, swinging the camera as one swings a gun in following a crossing bird. In this case, too, as with a gun, it was a failure if one stopped in the swing when releasing the shutter. I cannot say to within one or two how many plates it cost me, but it was something over eighty, and I do not advise anyone to experiment unless they have unbounded patience, patience being needed not only for the photographing, but also for the training of the greyhounds to jump exactly where one wants them. The photographs are taken at from $3\frac{1}{2}$ to $4\frac{1}{2}$ yards from the lens, with the greyhounds passing at right angles to it; the highest speed possible is always necessary."

PHOTOGRAPHIC CONVENTION OF THE UNITED KINGDOM.—An exhibition of photographic record work in connection with the paper on this subject will be on view during the Canterbury meeting. The exhibits will, as a rule, be restricted to (1) record work done during convention meetings, or (2) records of ancient buildings, etc., which have since disappeared or have been materially altered. Members of the convention who can contribute prints (mounted) of these kinds are invited to communicate with Mr. C. H. Bothamley, M.Sc., F.I.C., Weston-super-Mare.

New Books.

TWO NEW NATURE SERIALS.—Messrs. Cassell and Co., Ltd. of La Belle Sauvage, London, E.C., have recently made two additions to their popular works issued in serial form, dealing respectively with "Familiar Wild Flowers" and "Trees and their Life History." Both will be issued in fortnightly parts, the former at 6d. and the latter at 1s., and, judging from Part I., which is before us, should prove of considerable interest and value to the botanical student, both as regards the letterpress and illustrations.

"LEAVES FROM AN AMATEUR'S NOTE-BOOK."—No. 96 of our choice and always practical contemporary, the "Photo-Miniature," presents under this title much practical advice on the whole range of photographic topics by Mrs. Katharine S. Stanberry. This lady writes interestingly on her photographic outfit, on lenses, lighting, and development, on enlarging and retouching, on mounting, framing, and framers, and on platinum printing. The writer is not afraid to confess her failures with processes prescribed as "sure things," and this, no less than her bright recital of methods found reliable, makes this number of the "Miniature" a particularly interesting and useful one. Our little contemporary is sold in New York by Tennant and Ward, 122, East 25th Street, and in this country by Dawbarn and Ward, 6, Farringdon Avenue, London, E.C.

New Apparatus, &c.

Equipment for the Morgan Process of Dry Mounting, Plate Marking, and Die Stamping at One Operation. Sold by O. Sichel and Co., 52, Bunhill Row, London, England.

We have within the past few days witnessed a demonstration by the inventor, Mr. W. Morgan, of Aberdeen, of a new system by which the photographic print is secured to its mount, the paper impressed with a plate-mark, and also with the die impression of the photographer's name or address or other wording—all at one single operation. This is done, firstly, by the use of a new dry-mounting material or medium, which is applied to the backs of the prints as they come away from the last washing water, or may be applied to the raw paper used for any of the usual printing processes before



it is coated. Papers thus ready for dry-mounting are shortly placed on the market, but at the moment the only ready-made material for the process is a transfer paper for use in the carbon process, the tissue being transferred direct on to this, and the special coating on the back employed in fixing the carbon print to the mount. The plate-marking is done by laying in register upon the mount a suitable template, or cut-out sheet of metal, which is hinged to a second plate of similar size on which the mount with the print in position is laid, and the former pushed up against the stop upon the plate. The template being then laid over and the whole given hot pressure in a special form of press, the two operations of plate-marking and mounting are done together, whilst for the die-marking a suitable die is made to form part of the template. We were able to see the

in the way of embossing or plate-marking obtainable by this method, which, besides saving time, allows the photographer a very great latitude in the selection of his mounting materials, permits him to indulge his own tastes up to a large degree, and further reduces the manipulation to a degree of simplicity, such that it may be carried out by assistants of very little skill. The press, it should be understood, may be used equally well for these three purposes—namely—that is to say, it may be used by the photographer to damp his mounts, or to plate-mark or emboss his mounting materials.

The following are the directions for mounting photographs on any commercial mount, from which a good idea of the process may be obtained:—

Use this plain folder has to be used, that is, one that is not fitted for plate-marking, etc. Heat press to correct temperature, say to 200 deg. slowly, so as to get an even heat all over bottom. Light gas heater half an hour before commencing to mount



on sufficient gas to have temperature nearly correct in that this allows the iron plate to absorb heat equally throughout. Thoroughly heat the folder by putting into heated press for a few seconds along with a piece of the hard cartridge paper that goes with the folder, this is in order to make certain that there is no damp in the paper; remove from the press, turn the paper, and heat to heated press again for a few seconds, and mounting is then to be proceeded with.

Mount, open folder and remove paper. Lay the mount face up on the right hand leaf of open folder. Lay trimmed print upon the left hand leaf in its proper position. Put the sheets of dried paper on top of the right hand leaf with the right hand, keeping the print in position with the right hand thumb and fingers. With the fingers of the right hand press the dried paper down against the print, at the same time withdrawing the fingers of the left hand. Close the folder, turn it upside down and place into heated press under a good firm pressure for

eight seconds, then remove and repeat the operation with other prints *ad lib.*

To mount, plate-mark, and emboss all at one operation, heat press slowly to required temperature, 160 deg. to 200 deg. or thereby. Place patent folder in press for a few seconds to heat and thoroughly dry. Place trimmed print *face down* on ruled lines of plate-marking die, holding in position with the tips of thumb and fingers of the left hand. Lift the mount with right hand, and lay it face down against the gauge at the top of folder; gradually lower until it presses against the print, at the same time gradually withdrawing the fingers of the left hand, close the folder, and put into press *without reversing* for six or eight seconds with good firm pressure. Should print not adhere to the press is too cold, or the pressure has not been sufficient.

Should prints have a tendency to gloss, the press is too hot. An expert mounter can use the fingers of the left hand to hold print in position without any inconvenience from heat of plate, but a glove made of flannelette or cotton may be used for the left hand; experience has shown that it is an advantage at all times to wear cotton gloves to prevent moisture from the fingers touching the prints. It is of very great importance that the temperature of the press be carefully noted during mounting, as if mounting proceeds rapidly a deal of heat is extracted from the press, and the quicker the mounting proceeds the higher the gas must be raised to maintain an equal temperature. From 160 deg. to 200 deg. is correct, but the class of thermometers used for this purpose do not all read alike, and experience will soon show the correct heat for the particular press in use. It must also be noted that prints must be quite dry before attempting to mount. Patent folders can be made to give any desired depth of plate-mark, and they are so constructed that the mounts will not crack. All parts are in perfect alignment, scientifically made and tested.

The presence of atmospheric damp in the mount is an advantage, causing the fibres of the paper of which the mount is composed to open slightly and at once combine with the adhesive preparation.

In very dry weather or for hard and very dry mounts it may be an advantage to slightly damp the surface with a sponge previous to mounting, laying one on top of the other back to face. In a few minutes the mounts will have absorbed the moisture, and mounting can then be proceeded with. Photogravure printers always dampen the paper used, in order to make the engraving ink "bite" quickly and "lift" cleanly; whereas bone-dry paper would only lift partly, and the ink would, when quite dry, be readily chipped or rubbed off. Note.—The prints to be mounted must be bone-dry.

It must be noted that the temperature of the mounting press has to be slightly higher than that used for commercial tissue. For large prints, 12 and 10 or over, it is recommended that these get a liberal coating of adhesive mountant. On no account attempt mounting unless prints are absolutely dry.

The photograph shows the template opened with the mount in position, and the second illustration shows one or two of the effects obtainable by this very ingenious and time-saving method. A booklet describing the process and the materials supplied for working it has just been prepared, and may be obtained from Messrs. Sichel.

New Materials, &c.

"Dreadnought" Matt C.C. Paper. Sold by F. E. Jones and Co., 22, Gray's Inn Road, London, E.C.

In the variety of collodion paper which Messrs Jones have commenced to market under this name, we find a printing medium of a very fine quality, toning to fine warm blacks in the gold and platinum baths. The paper is sold in two substances (thick and thin) in sheets 24x20, and Messrs. Jones will be happy to send samples on receipt of trade card.

"Criterion" Slow Bromide Papers and Postcards. Made by the Birmingham Photographic Co., Stechford, near Birmingham.

In this new product the Criterion factory has provided its customers with a paper of speed intermediate between the well-known gaslight and bromide papers of the Criterion make. In speed the paper is about four or five times that of the gaslight emulsion, and like the latter, tones to an excellent sepia by the usual sulphide

process. The paper can be handled without a dark-room if treated with care, as exposure to direct light, and by its clear-working character and freedom from stress marks bears out the good reputation of the Criterion manufactures.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, APRIL 9.

Croydon Camera Club. Excursion.
United Stereoscopic Society. Excursion to Southampton and District.

MONDAY, APRIL 12.

Cripplegate Photographic Society. "Trimming, Mounting and Finishing Prints."
J. B. Bensley.

TUESDAY, APRIL 13.

Royal Photographic Society. No Meeting.
Southampton Camera Club. Affiliated Societies' Prize Slides.
Kinning Park Co-operative Camera Club (Govan). Club Meeting.
Hackney Photographic Society. Exhibition of Prints on Paget Bromide and Gravura Papers.
South London Photographic Society. Committee Meeting.

WEDNESDAY, APRIL 14.

South Suburban Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Cowes Camera Club. R.P.S. Affiliation Competition Slides.
Croydon Camera Club. "A Cruise in the Western Mediterranean," with Views of Tangier, Algiers, Gibraltar, &c. C. H. Dymond.

THURSDAY, APRIL 15.

Oldham Photographic Society. French Lantern Slides. A. E. Staley & Co.
Maidstone and Institute Camera Club. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Handsworth Photographic Society. Papers and Discussion on the Various Printing Processes, Bromide.
Midlothian Photographic Association. Members' Night. Hand Cameras, with Examples.
Southeast-on-Sea Photographic Society. "Autochrome Photography and its Applications." H. O. Klein.
Liverpool Amateur Photographic Association. "Stereoscopic Photography." Demonstrated by W. H. Tomkinson.
Rodley, Farsley, Calverley, and Bramley Photographic Society. Members' Night.
Blenheim Club. "Monte Rosa and Cloudland. Part II." Hy. Speyer.
Folkestone and District Camera Club. Demonstration on the Carbon Process.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.—At the meeting on April 1 Mr. Will. G. Barker lectured upon and demonstrated the "Synchronising of the Gramophone and Cinematograph by Photographic Means." He shortly explained the methods in use by which the two machines were synchronised, and said that when electrical methods were in use they necessitated a large amount of heavy apparatus, running up to as much as 16 cwt., and if by any chance anything went wrong it could not be put right without stopping the show for a short time at least. The means of doing the thing by the aid of photography was, he said, so very simple that it was with the greatest trouble that he was able to protect himself by patenting it. The extra cost for the needed fittings was, in comparison with other methods, a very small matter. What he did was to have an extra fitting to the gramophone or talking machine, which was connected with a disc dial marked in the four quarters with an illuminated spot. When the talking machine was started running a brilliantly illuminated hand or needle went round the dial clock fashion, and in making the recording negative film of the singer or dancer this clock face was put in such a position that it just came into one corner of the negative. The needle was, of course, running with the music, and the movement was registered upon the film. All then that was needed when showing the positive film upon the sheet was to so arrange the talking machine that the disc was near to the sheet corner, where the registering disc was on the film, and the operator was only needed to keep the two hands running together to get perfect synchronism. Should the operator get a little out he could very easily put matters right by the mere slowing or quickening of the speed of his handle.

CROYDON CAMERA CLUB.—The president, Mr. J. M. Sellors, gave a demonstration last week on "Enlarged Paper Negatives," a report of which is unavoidably held over.

WARNING.—A 4-plate Pamos camera, No. 3,213, with Series II. homocentric lens, No. 64,606, and one No. 1 Koilos shutter, were stolen from the exhibit of Messrs. Ross at the recent photographic exhibition at Cripplegate Institute, E.C.

Commercial & Legal Intelligence.

LEGAL NOTICES.—In the case of Joseph Sharples (trading as the Romanus Publishing Company), photographer and publisher, 54, Church Lane, Marple, Cheshire, and formerly of Hollinside, Lockport Road, Marple, a receiving order was made on March 27 of the debtor's petition, and he was adjudicated bankrupt the same day.

ALLEGED ADVERTISING FRAUD.—At the Marlborough Street Magistrate's Court, on April 2, William Thomas Regan, 22, a deaf mute, described as a photographer, living in Gray's Inn Road, was charged with obtaining by false pretences a camera and photographic apparatus belonging to Mr. N. L. Craig, a photographer, of Mar St. Stirling, N.B. The Rev. F. Gilbey interpreted the evidence. The prosecutor deposed that he advertised for sale the camera and photographic apparatus produced, which were worth about £20, in "The British Journal of Photography." On March 5 last he received a reply from the prisoner, and in consequence forwarded the articles to him in London. He never received any money in payment and subsequently learnt that the accused had sold the camera for £10.

Detective-Sergeant Durrant, D Division, said that the prisoner voluntarily surrendered himself at Tottenham Court Road Police Station, and made a confession, which was taken down in writing. He said he had sold the camera two days after he had received for £6, that he had an unfortunate mania for betting, and that he had lost £4 of the money backing horses. He added that he had done the same kind of thing before.

In reply to the magistrate, Sergeant Durrant said the accused had been previously convicted three times, having once been sentenced to nine months' hard labour for burglary.

Mr. Mead committed the prisoner for trial.

[We must draw the attention of those using our columns to the instance this case affords of the folly of sending goods to unknown persons unless payment for them is safeguarded by our "Deposit" system.—Eds. "B.J."]

News and Notes.

ART PHOTOGRAPHY, LTD.—This new title has been taken by the Stereoscopic Postcard Company, Ltd., Essex House, Leyton, in order to better indicate the growing business of the firm in the way of portraits, etc., in oils, and other forms.

A SPECIAL EXPORT ISSUE of our contemporary, "The British Colonial Printer," is a large and well-printed sheet, which shows a large variety of printing house equipment and tools which is produced by British manufacturers and vendors. And we see one of two articles and advertisements also of interest to the photographer. For example, there is an interesting note on the gelatinising and embossing department of Messrs. McCaw, Stevenson, and Orr, Ltd., who make a special line of this work for postcards, showcards, etc. Another note describes the Aerograph Company's stencilling table, which is much in the full issue of interest to those engaged in, or connected with, commercial printing.

PHOTOGRAPHS OF CONVICT LIFE.—In the House of Commons on March 31, Mr. Crooks asked the Home Secretary whether his attention had been called to the sale of copyright photographs of the work-shops and convicts of Portland Prison, and what steps he proposed to take to stop those who, against orders, allowed such photographs to be taken. Mr. Gladstone, in reply, said that the sale of these photographs was, in his opinion, most reprehensible, and involved a gross breach of faith, which, he hoped, had now been put to stop. He also said that steps would be taken to render, not only the sale, but the taking of such photographs impossible in future.

DR. CHARLES M. KURTZ, director of the Albright Galleries, Buffalo, N.Y., died on Sunday afternoon, March 21, at the Buffalo General Hospital, as the result of an operation. Dr. Kurtz was a most successful art director, who did valuable work for the Paris International Expositions of Louisville, Chicago, Saint Louis, and Paris (1900). Shortly before his death he was busily planning for a great international invitation exhibition of pictorial photography, and had gone so far as to consult certain British and European colleagues.

exhibition promised to be more widely representative than any has been held, but it is doubtful whether the plans were sufficiently mature to enable the directors to carry out the work without Kurtz' guiding hand.

R. E. A. SALT exhibited his shutter-testing appliance at the Institution's *conversazione* on Friday last, together with a series of diagrams recorded by it. A representative collection of camera shutters by Messrs. Busch, Beck, Goerz, Staley, and Thorn-Pickard added to the interest of the exhibit, which attracted much attention. A photograph shown, taken by Mr. H. Andrews, Albeck and Co., with the new "Multi-Speed" shutter, illustrated the capacity of this instrument for high-speed work. It depicted a motor-car travelling between 35 and 40 miles an hour, at right angles to the camera. The shutter dial was set to 1-500th sec., and little of movement was apparent.

NORTH MIDDLESEX PHOTOGRAPHIC SOCIETY.—The members of the North Middlesex Photographic Society and their friends assembled on Saturday last at the Holborn Restaurant to partake of their annual dinner. The society this year celebrates its twenty-first birthday, and to this fact possibly something is due to account for the eminently successful evening that was spent. The chair was occupied by Mr. W. Fincham, the president of the society, who replied to the toast proposed by Mr. Tilney, with his accustomed dry humour, to the effect "N.M.P.S." Mr. H. Stuart proposed "The Health of the Society at the Recent Exhibition," and Mr. A. H. Blake, M.A., responded on their behalf. In this reply the menu, which included a photographic reproduction of the society's winning picture of the year, came in for some praise, and Mr. Blake also made some very flattering and encouraging remarks about some of the members themselves.

The certificates, which are awarded by the society to the successful members, were distributed by Mr. J. C. S. Mummery, the president of the Royal Photographic Society.

A testimonial, in the shape of a lens, was presented to Mr. S. C. Ly upon his retirement from the office of secretary after five years' service.

The musical programme was under the direction of Mr. G. E. Adams, and the following ladies and gentlemen contributed to the entertainment during the evening:—Madame Ada Williams, Miss Florence Wainwright (at the piano), Mr. Chas. Winter, Mr. Harry Ward (who sang an original lyric upon the N.M.P.S., in which our good-natured personalities were indulged in), Mr. Fred. Rome, E. A. Morgan, and the entire company in a chorus of "Auld Synne."

During the evening it was mentioned that the society was endeavouring to arrange a pictorial photographic exhibition, to be held at the Clington Central Library some time during the summer months of this year.

Correspondence.

We do not undertake responsibility for the opinions expressed by our correspondents.

Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

SOUTH AFRICA AND PHOTOGRAPHIC ASSISTANTS.

To the Editors.

Gentlemen,—Allow me to protest against the exaggerations in your letter of F. Collett, Cape Town, contained in your issue of January 26. I cannot trace any "F. Collett" in connection with our society, and any reciprocal esteem would justify acceptance as an honorary member, but his experience of Cape Town, whence he writes, would be that of a recluse. Trade throughout South Africa has suffered through the lasting effects of the 1899-1902 advertisement, and it was a money-making place for many, with the result of substantial surplusage of artisan labour that has not yet diminished to the level of the country's actual needs. The "depression" exists in comparison with the war boom; in a sequence of normal times South Africa has progressed remarkably, discounting never before. The imports of photographic material were never so high as during the past twelve months—with the reservation of the material. The next ten years, spoken of by Mr. Collett as

prospectless, should show in the same proportion a trebling of present figures. These statistics of import, of which 80 per cent. are from England, are apart from a very large business in photographic papers of South African manufacture established within the past two years, and usurping a large portion of the field. As to £20 a month here being only equal to £8 in England, the comparison is absurd. There is no material difference, excepting rent, due to the fact that the white population cannot herd together as in an English town, herding being a privilege of the coloured people. Otherwise, household cost is practically the same, with many advantages in cheap and abundant fruit. As to the climate being trying, the Cape Peninsula has for centuries been a health resort from Europe and India. The statement regarding photographers closing their business in every direction is contradicted by an inspection of my trade lists, which monthly receive additions in new businesses. In the matter of agreements the equity of Roman-Dutch law leads to non-recognition of agreements made outside the colony, all arrangements made elsewhere having to be formulated into definite agreements made in the colony when the immigrant employee is able to realise his new conditions.

Finally, as to never coming in touch with any new processes, not forgetting colour photography, only by reading the articles in the "B.J." I may point out that Autochrome work was demonstrated in Cape Town in November, 1907, for the first time and repeatedly since in the colony, that carbograph was demonstrated in Cape Town before it had been shown to any English provincial society, a matter of date noted later, that demonstrations of Azol led to a rush for that product from August last, that new Velox, S.C.P., and lantern slides, and other novelties have been demonstrated as produced, and that two demonstrations of Ensyna have already been given.

I regret that a series of so completely erroneous statements should have been given publicity in your columns, and as I am as greatly interested in the welfare of photographic assistants as in that of the trade or employers, I trust this refutation may amend knowledge of South African conditions.—Yours sincerely,

MUDIE THOMSON.

Editor "South African Photographic Journal."

Camera House, Adderley Street, Cape Town.

SINGLE LENSES FOR PORTRAITURE.

To the Editors.

Gentlemen,—In reference to the matter of the use of a single lens for portraiture, I would like to mention to readers who happen to be dissatisfied with their present lens for portraiture that I have been using for some time the back double convex glass of an old Darlot lens (combination 10 x 8 landscape and portrait) with perfect results for cabinet head or full-length work. But I find upon experiment that this lens gave me no satisfactory result until I built on to the front of lens case (whatever the technical term for the brass casing holding the glasses may be) a cardboard tube and inserted my stop right in the front of same, making it about 7 inches from the lens itself. Have any of your readers tried this? If not, it is worth while. I claim to be getting as good a result as when I used a lens of good standard present make at £25. Enclosed is a sample of result.—Faithfully yours,

ADRIAN HARDING.

38A, High Street, Godalming.

[It is well known that when using the back lens of a doublet alone the stops are generally too close to the lens to give good results, and our correspondent's idea of lengthening the lens mount is not exactly new. It is, however, a very useful thing to remember. The example submitted shows very sharp definition, quite as sharp as is desirable in a portrait. The chief objection to using the single lens is, of course, loss of rapidity, and Mr. Harding does not state what exposure he found to be necessary.—Eds. "B.J.]

DEATH OF AN ABERDEEN PHOTOGRAPHER.—Mr. John S. Greenacre, a well-known photographer in the Rosemount district of Aberdeen, passed away at his residence there on March 25, aged forty years. Having gained a knowledge of photography in Yarmouth and with Messrs. Wilson, Aberdeen, Mr. Greenacre acquired the Rosemount studio about ten years ago. He was also secretary to the local branch of the P.P.A. during its existence. Mr. Greenacre is survived by a widow and three children. Among the large number who attended his funeral were his brother professionals, Messrs. Jas. Ewing, E. M. Middleton, D. Milne, H. J. Rennie, Jas. Sharp, and Hardie.

Answers to Correspondents.

- * All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- * Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- * Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
- * For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

- A. F. G. L. Gower, 31, Gloucester Place, London, W. *Photograph of the Dean of Salisbury, Dr. Page Roberts.*
- H. E. Appleton Roseville, Forest Moor, Knaresborough, Yorks. *Two Photographs of Knaresborough Dropping Well in Winter.*
- A. E. Roxburgh, The Studio, High Street, Cowdenbeath, Fife. *Combination Photograph of the Cowdenbeath Public Brass Band and Instructor.*
- J. D. LAWSON.—Apparently the paper you are using requires an alum bath after fixing, or you could use 10 per cent. solution of formalin instead. Very likely a change in the weather from cold to mild is the cause of the prints sticking. The quicker prints are dried the better they strip.
- J. B. STUBBS.—It is contrary to our custom to give the addresses of contributors and others. If you care to send stamped addressed envelopes with the names only written on we will forward, or you could obtain all the addresses by purchasing a list of the members of the Royal Photographic Society.
- WHITE INK.—Would you be good enough to give me a method for making white ink? Using oxide of zinc is common, I believe, and would gum arabic be best to add to the zinc to ensure its drying with a little gloss if possible and not easily rubbing off, at the same time not to interfere with its flowing freely from a pen to paper.—C. WILLIAMS.

The materials you name are those generally used. A solution of gum arabic (1 oz.) in water (4 oz.) and enough zinc white added to make a smooth sufficiently fluid ink.

COPYRIGHT.—In connection with the "Daily Mirror" Fair of Fashions to be held at the Horticultural Hall on June 26, there is a photographic competition, competitors to select their subjects from history, literature, or representations of famous pictures by great artists. Can you inform me if it would be an infringement of copyright to reproduce, by the aid of living models, a picture in which there is a copyrighted reproduction from original painting in existence?—GILDER.

In the series of lawsuits which resulted from the "Living Pictures" at the Empire, it was held that the actual living picture is not an infringement, but that a photograph or sketch of the living picture is an infringement.

COPYRIGHT.—1. I have several prints which I wish to copyright. Can you tell me whether it is necessary to register the copyright of each one separately, or whether one may fasten them together, in a kind of leaflet, say, and register that? In this case would the rights over each be registered? 2. What are "Charbonel" prints? Are they printer's ink prints, or a real photographic process? 3. Can you recommend me one or two reliable agencies who place amateurs' photographs in current periodicals on commission, similarly to the way in which the London Literary Agency do literary work?—H. H. B.

1. Each picture must be registered separately in order to secure the copyright. 2. We do not know the name. 3. Illustrations Bureau, 12, Whitefriars Street, E.C.

RETURN OF DEPOSIT.—"H. H. H." agreed, about two and a half years ago, to purchase a camera outfit from a well-known firm, and paid 20s. on account. After this agreement, which was only by letter, "H. H. H." was not wishful to complete the purchase. The firm refuse to refund the 20s. or its value, and say that unless the purchase money (which I believe was about £4 4s.) is paid in a month from date that the 20s. will be forfeited. Will you kindly let me

know, through your column in "B.J.P.," if I can do anything in the matter or if I shall be obliged to forfeit the 20s.?—H. H.

As the firm have held the outfit for you for two and a half years we are not surprised that they refuse to return the deposit money. We doubt if you can recover it after so long a time, if you take proceedings against the firm.

APPRENTICE.—There was a leading article on the subject of apprentices and assistants in our issue of last week. We cannot call to mind any decided case on the point you mention. However, as you have already consulted your solicitor on the matter (and he has seen the indentures) he is better able to advise you than we are, and we have not seen them.

PERPLEXED WORKER.—The proposed alteration will certainly give you more side light, particularly if you have the wall of the adjoining premises whitewashed, so that it reflects light into the studio. You would then be able to work both ends of the studio. For so short a studio, for standing figures cabinet size, you require a lens of about 10½ inches focus.

TOE THE LINE.—(1) It would have been better if the assistant had given you notice on Saturday, but as you were away then he gave it early on Monday, and that, under the circumstances, might be considered a week's notice. (2) If he gives you a week's salary he can leave, as he wishes to do.

PHOTOPHIL.—Apply to Messrs. Fuerst Bros., 17, Philpot Lane, London, E.C., or to Messrs. Mawson and Swan, Mosley Street, Newcastle-on-Tyne.

SULPHIDE TONING.—Kindly inform me whether a bromide enlargement, intensified by the chromium intensifier, can be toned satisfactorily in the sulphide bath.—IX DOUBT.

Certainly. It should tone very well indeed.

AUTOCHROME SCREEN.—(1) Kindly state what allowances are to be made in using the Autochrome screen inside the tube of a portrait lens next the diaphragm. (2) Also in using it in hood of lens in the front. Of course, I understand in using it behind the lens no allowance need be made, but I should like to use it at the diaphragm, as a smaller screen would do.—AUTOCHROME.

(1) Quite impossible to answer this definitely; a good deal depends on the front lens. The only practical method is to put the screen in position and focus on the reversed ground glass. (2) If in fact of lens no special adjustment is required for distant objects, or near ones it is necessary to test focus on screen. It is not practical to rely on calculated adjustments.

THE 1909 WHITE CITY EXHIBITION.—In connection with the photographic section of the Imperial International Exhibition, 1909, at the White City, Shepherd's Bush, a competition of the photographic clubs of the United Kingdom will be held. A special award will be made for the best collection of framed pictures, not exceeding fifty, sent by a photographic club. There is no entrance fee or charge for space. Amateur photographers are also invited to send for particulars respecting individual exhibits. The photographic section will occupy a portion of the Fine Arts Palace, the side walks of which are set apart for draped alcoves, in which will be shown the work of professional photographers. The centre of the sections will be devoted to the display of the most recent inventions and improvements in apparatus, materials, and accessories. Inquiries should be addressed to the organiser, Mr. J. F. Peasgood.

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SUMMARY.

A recent paper before the Croydon Camera Club, Mr. J. M. S. had much practical advice to give on the making of enlarged negatives, a practice which he recommended not as equalling results with plates, but for the greater facility of "control" when giving at a pictorial result. (P. 300.)

A method of modifying the developer to deal with errors of exposure on fogged paper is recommended by Mr. T. H. Greenall in the article "Photo. Notes." (P. 307.)

An American worker, who gives the preference to the electrical method of igniting flash powder, has described the apparatus employed for the purpose. (P. 308.)

The concluding portion of the paper on the Bromoil process by Harold Baker appears on page 302.

"Photo-Mechanical Notes" deal with the marking of lenses for test work and with American claims for machine-printed photographs. (P. 309.)

"Sulphide Toning," "The Efficiency of the Focal-Plane Shutter," "Charges for Unreturned Proofs," appear under "Correspondence." (P. 314.)

Points out the present opportunities for revising or completing of view negatives. (P. 298.)

Would draw attention to the caution on page 298 as to dealings with enlarging firms.

Pirie Macdonald has given a vivid and truthful impression of the wireless Herr Dührkoop. (P. 306.)

L. Lumière have recorded the results of their experiments in the use of the diamidophenol developer for the tentative method recently recommended by them in conjunction with pyro for the development of bromide plates. They conclude that the rapidity of appearance of the image is a drawback to the use of diamidophenol, but that by the use or addition of potassium bromide improvement in errors of exposure may be made. (P. 305.)

EX CATHEDRA.

Long or Short Exposure in Portraiture.

The claims put forward with all the materials offered to the portrait photographer, make it evident that in the eyes of the manufacturers, minimum of exposure is the desideratum in portrait photography, and so, of course, it is in the case of women or children, yet the portraitist should not ignore the fact that when the character of the sitter permits of it a very much longer exposure will give a better result as regards the all-important "likeness." The expression which is caught in an instant as being "happy," is very frequently unusual, and, as a rule, the portrait which gives lasting satisfaction is one which is without any very marked or distinct expression, and for this reason an exposure of five or ten seconds, which forces the sitter to assume an attitude of composure, is frequently more satisfying to himself and his friends than the more rapid result obtained by the popular conjunction of a rapid shutter exposure, and a remark thought by the operator to be felicitous.

* * *

Parabolic Mirrors.

Professor R. W. Wood, in the "Astrophysical Journal," describes an ingenious way of producing a parabolic mirror that may lead to further developments. He placed some mercury in a suitable vessel and then rotated it, with the result that the centrifugal force caused the mercury to assume a paraboloid surface of excellent optical qualities. He hopes to succeed in making a cast of this paraboloid surface in some material, such as fusible metal, in which case the production of cast parabolic mirrors for use in telescopes will be a relatively simple operation. The production of permanent accurate moulds would, of course, greatly facilitate the manufacture of such mirrors for any purpose, and they are so often required, and have so many uses, that it is to be hoped Professor Wood's experiments will be successful.

* * *

Some Methods of Control.

A short time ago we pointed out how the well-known system of producing warm tone lantern slides by long exposure and restrained development could be utilised to save a badly over-exposed plate. Mr. Hubert Mills, in the "Photographic Monthly," points out another application of the method in using up fogged gaslight paper. He found that paper which was quite useless for ordinary purposes yielded excellent results when given four times normal exposure and developed with a highly restrained developer. We may assume that in this case the extra bromide kept the fog in check while the extra exposure counteracted the effect of the bromide so far as the image was concerned. A little time ago we found yet another

use for the process. In this case we had to deal with a badly over-developed negative that would give no detail whatever in the high-lights when printed for ordinary times. We, however, tried increasing the exposure to about 100 times that required with an ordinary negative, and developing with a well-restrained developer containing ammonium carbonate. The result was unfortunately over-developed and too dense, but the high-light detail was brought fully out, and no trace of fog was visible. Evidently the method could be successfully applied in such a case just as well as with Mr. Mill's stale paper.

* * *

The Moon by Earth-Shine.

The effect of earth shine upon the moon is a familiar one to many people, though probably few of them know the cause of the effect. When the moon is in its first quarter the dark portion of it is often faintly visible. The bright quarter is, of course, illuminated by direct sunlight, but the remainder is only seen by virtue of the faint light reflected from the earth. This faintly illuminated portion has been successfully photographed by M. Quénisset at the Kuvisy Observatory, and it appears likely that the results will present many points of interest to astronomers. The light received from the earth naturally falls at a different angle from that at which light is received from the sun, therefore it is reasonable to expect a slightly different effect of light and shade on the irregularities of the moon's surface.

* * *

Special Local Views.

As we have before pointed out, now is the time to secure many of those views which cannot so satisfactorily be taken at other seasons of the year. During the winter, when the trees are absolutely bare, there is often a chilling effect produced which is undesirable. In the height of summer the density of the foliage destroys many of those "peeps" which give interest, frequently *selling* interest, to a view. But during the next few weeks the happy mean is available, the trees are just bursting into bud in many of the more favoured spots, and even in the somewhat bleaker north another month will bring about this state of things. Photographers, therefore, who do anything in the local view way should look around and secure those views which require these special conditions. It sometimes happens that a church or other building of interest may be photographed peeping through a partial screen of trees, so that some of the possibly hideously ugly modern surroundings are obscured. In many cases negatives of stock views are already in existence, but perhaps some trifling change has taken place or a slightly different position is now obtainable, and, if so, the view may well be taken over again. A new negative often means increased sale for a view. In cases where the view is an important one it is quite worth while to expose a plate on it each week during the spring, afterwards selecting the particular exposure which gives the most pleasing effect—that is, of course, in this case, that negative in which the screening effect of the budding foliage is just what is wanted.

* * *

Special View Series.

The country photographer—and, indeed, for the matter of that, his town brother also—who does nothing in the way of producing special series of local views is often neglecting his opportunities. There are few, if any, districts which do not provide material for such series. Of course, a little personal initiative is necessary, and it may be an advantage to get into touch with some local society, such as an antiquarian or archæological society. The subjects for such series of views are almost unlimited. For examples

we may suggest the following: Parish churches built prior to the nineteenth century, a series which might branch in various directions forming sub-series of fonts, carved woodwork such as screens, poppy-heads, misereres, etc. Then there are Norman doorways either in use or disused, porches, lych-gates, spires or towers, devil's doors, and so on. Such series might include all the specimens in the county, or a division of the county, and should be as complete as possible. Or in another direction we might suggest a series of views of the principal places of interest in a fishing neighbourhood or a hunting country—views of these instances which would find ready acceptance, if well produced, with one of the sporting publications. Photographs of all the available sections of rock strata, quarries, railway cuttings, and so on, giving a fairly complete idea of the geology of a district, might form a series, each print carefully marked with the exact spot and the direction of the cutting. Work such as we have suggested might not bring in the guineas the moment the prints were mounted, but it would provide pleasant occupation for occasional half-days, would cost little beyond the cost of a bicycle and a few plates, would bring the worker in touch with educated, well-informed people, and would undoubtedly bring a cash return in the long run from the sale of prints for reproduction, and the supply of lantern slides for lecture purposes.

* * *

Enlargers—A Caution.

It is occasionally our painful duty to interfere in circumstances where an enlarger, by taking advantage of the publicity obtainable in our advertisement pages, has entered into contracts which, either from negligence or fraudulent intentions, has failed to carry out. Such instances, we are glad to say, are of comparatively rare occurrence, and are invariably found to be the fault of the enlarger. But when repeated complaints prove to us that the enlarging firm is either very unbusiness-like in its methods, or is carrying on a bogus business, we naturally take steps to refuse further use of our advertisement pages. As these people will then resort to the general press and to other means of getting in touch with photographers, we would utter a strong general caution to those dealing with an enlarging firm, of the bona fides of which they are not convinced, on no account to send negatives or originals until they have obtained a satisfactory reference from a reputable photographer, preferably in the country or at a distance from the address of the enlarging firm. Many such firms exist by moving the scene of their operations every few months or so—a method which has the advantage in the eyes of enabling them to evade payment for rent, paper, and other necessities of their business. One instance of such a method of trading—if trading it can be called—which has come before us within the last few days leads us to caution photographers in the strongest terms at our command.

* * *

Flashlight Powders.

We are frequently asked for formulæ for the preparation of a flash powder which will not give any smoke, and our invariable reply is that while we know of many formulæ for flash powders we know of none which will give a non-smokeless flash, nor do we know of any commercial powder which is quite free from smoke or fume. More important, however, is it to note that the preparation of a flash powder, apart from its requiring considerable care in order to secure a quick-burning powder, is a matter of no little danger, due chiefly to the fact that both the materials of the powder must be in the finest division, and if by mischance a portion of one is contained in the other while the latter is being powdered, the most likely result is a sharp

xplosion. Flash powders being required usually at not very frequent intervals, the photographer cannot be better advised than to purchase the ready-made powder in small quantities. In so doing he gets a more efficient product than he could possibly make for himself, and he avoids the really considerable risks of manufacture.

* * *

Local-Plane versus Diaphragm Shutters. Perhaps no piece of photographic mechanism has been so improved within the last few years as the focal-plane shutter. This has been particularly evident to the user from the reduction of the movements necessary to adjust the shutter to various speeds, the greater rapidity of setting, and the locking of the slit aperture during use so that the exposure remains constant for a given setting. Notwithstanding these many respects in which progress has been made, it may be doubted whether the focal-plane shutter is destined to survive in general use for a period as long as that which has passed since its evolution to its present state of perfection. The improvement in diaphragm shutters has been almost as marked, and though the majority of diaphragm shutters cannot give the great range of high speeds afforded by the focal-plane, the compactness and lightness of this type of shutter will surely induce inventors to obtain also the required higher speeds. The "Multi-speed" shutter, which was reviewed in our issue of March 26, is, in fact, such an instrument, capable of giving, as we have since had an opportunity of discovering for ourselves, an extraordinarily rapid exposure. The "Multi-speed," it will be remembered, differs from the ordinary type of diaphragm shutter in having its plates pivoted, the actuation of each plate by the spring of the shutter causing the plate to undergo a half revolution. This method, which obviates any checked return action, obviously allows of very high speeds being produced, and while we know of no other shutter which is designed on these lines, it cannot be supposed that other manufacturers will not follow suit in designing a between-lens shutter capable of giving the very shortest exposures. And the user will certainly welcome a shutter which is of less bulk than the focal-plane and dispenses with the dust-raising blind.

* * *

The Daylight Development of Plates. One of those fallacies which never cease to put money into the coffers of the Patent Office is the idea that there must be a demand for an apparatus sufficiently portable to be carried with the camera and allowing of the plates being developed in full daylight. The records of the Patent Office show that from the very earliest days of photography no piece of apparatus has been so frequently the subject of claim for Royal Letters Patent as this. Fox Talbot took out a patent for an apparatus of this kind, and, if our memory serves us correctly, he was by no means the first. Inventors of these ingenious pieces of apparatus overlook the fact that it is frequently impossible to obtain the necessary supply of water for carrying out the photographic operations, and, even supposing this obstacle overcome, the safe transportation home of such a delicate thing as a wet gelatine negative is by no means an easy or certain matter. At the best these pieces of apparatus are makeshifts, since the examination of the progress of development cannot usually be satisfactorily done, whilst the variations in temperature at which they must necessarily be used deprive them of the virtues of regularity which the tank method of development at home possesses. We have read many descriptions of apparatus of this kind, but we have yet to hear of an apparatus which has come into general use.

ALBUMEN PRINTS ANCIENT AND MODERN.

THE fashion in the colour of photographs has, from time to time, undergone many changes. At one period nothing but a rich purple-black was considered a good tone. At another it was only rich reddish-browns that met with favour. Then we had deeper browns and sepias, and now we have a great variety of tints, which are obtained by the various modern development processes with subsequent toning. However, what we wish to refer to now is the tones that are to be obtained with print-out papers. Our older readers will well remember the excellent warm black colours which used to be obtained on what was once known as plain salted paper, and how permanent many of them have proved; also the deep purple-black once obtained on albumen paper at the time when this latter and the one just mentioned were the only papers in vogue. When one turns up an old family album one usually finds some of these old prints, and although they may be forty or more years old, many of them are almost as good as when they were first made, yet they were produced under conditions which, according to present ideas, would not be considered conducive to permanency. For instance, they were toned in a combined toning and fixing bath, though it must be admitted that it was under conditions that do not obtain in the modern combined bath. The bath of those days contained only hyposulphite of soda, gold, and water—nothing more.

Several times of late we have been asked for formulæ for toning baths that would yield deep purple-blacks such as were got by the old photographers. These tones, we may at once say, are not readily obtained unless we go back to the old methods, for it is next to impossible to obtain them on glossy gelatine P.O.P. with the type of negative now in vogue, and this brings us to the point that the tone of the prints depends as much, or more, on the character of the negative from which it is made than upon the composition of the toning bath. That seems to be a fact which is not fully recognised by many.

Let us for the moment hark back to the early days of the art—to the time when the negatives were by the wet collodion process. They were made very strong as compared with gelatine negatives, the deepest shadows being represented by quite bare glass, while the highest lights were very dense. Hence there was a very long range of tones from the highest lights to the deepest shadows, whereas with the present type of negative there is no such great scale. As regards the paper then used, it was either the plain salted or, mostly, the albumenised. But the albumen paper of that time was very different from that of the present; it was what would now be classed almost as a matt paper, since the albumen was considerably diluted with water before it was applied to the paper. It also contained a larger proportion of chloride than does the modern albumen paper. Furthermore, it was sensitised on a much stronger silver solution than is now employed. Hence it will readily be seen that when this paper was printed from negatives, such as those just referred to, that the image was of quite a different nature from that obtaining when the present gelatine P.O.P.s are printed from gelatine negatives of a more or less delicate and feeble type. In the former case the light penetrated deeply into the paper, sometimes even showed on the back, the shadows became deeply bronzed, and as a consequence a large amount of silver was reduced in the image. Under these conditions a good amount of gold was deposited in the toning, and that gave the deep purple-blacks then so much admired.

It has just been said that the paper used in the olden times was only lightly albumenised, but with the highly albumenised paper of the present day deep blacks are not

easily got. The more glossy the paper the less black will be the tones obtainable. It is generally found that the ready sensitised albumen paper will not, as a rule, yield such deep purple tones as that which is sensitised at home. If two pieces, the one of home sensitising (on a plain solution of nitrate sensitised, such as used to be employed) and the other ready sensitised, be printed from the same negatives, they will each be found to take a different colour in the printing. The latter will be much redder than the former, by reason of the citric acid introduced as a preservative, and if either be printed from a feeble negative it will be impossible to obtain a rich purple-black, whatever toning bath be employed. If with this class of negative we are content with warm tones, excellent results may be obtained, but if the toning be carried beyond that stage, the prints will become more or less mealy and of an unpleasant grey colour, as well as lacking in brilliancy.

One of the most used toning baths for albumen paper is the "acetate bath." It is as under:—

Water	8 ounces.
Chloride of gold	1 grain.
Acetate of soda	30 grains.

The bath should be made at least twenty-four hours before it is required for use, otherwise it is prone to yield mealy prints. If it is required for use in less time than that, it should be made with nearly boiling water and allowed to get cold. This bath is very suitable for rich, deep, warm brown, but with very vigorous negatives the toning may be carried to the purple stage without mealiness. The phosphate bath yields, with vigorous negatives, a more or less cold black, and so does the lime (chloride) bath.

The following is a formula for a modified lime bath that has been given to us by an old portrait photographer who used it exclusively in his business for many years, and his

prints were noted for their deep purple-black tones. The formula stands thus:—

Chloride of gold (a tube)	15 grains.
Distilled water	15 ounces.
Lime water	q.s.
Chloride of calcium (pure)	2 drams.

The solution is prepared as follows: The gold is dissolved in two or three ounces of water. A piece of blue litmus paper is then put in, which will be reduced by the acid of the gold. Lime water is then added, a little at a time, until the blue colour of the paper is just restored. The chloride of calcium is then added and the bulk made up with water to fifteen ounces. This is a stock solution which will keep well if stored in the dark. For use, one ounce, which contains one grain of gold, is added to eight ounces of water. This bath may be used over and over again, more stock solution being added as the gold becomes exhausted. With this bath, unlike the chloride of lime bath, very little over-printing is necessary.

In the foregoing what has been said is more particularly with reference to albumenised paper, but it applies equally well to other printing-out papers—collodion, chloride, and gelatine. Unless the negative is of a vigorous character—not necessarily dense—it is next to impossible to obtain brilliant prints of a rich purple or black tone whatever toning bath be employed. It should not be assumed that if vigorous negatives are used the tones must necessarily be purple or black, for if the prints are removed from the bath at an early stage they may be obtained of a warm brown; indeed, of any tone from red-brown to purple-black with almost any bath. The object of this article is to impress on those who write for formulae for toning baths for different colours that more really depends upon the negative than the formula by which the toning solution is compounded.

ENLARGED PAPER NEGATIVES.

(Abstract of paper by Mr. J. M. Sellors, and discussion at the Croydon Camera Club, on the 7th inst.)

THE President, Mr. J. M. Sellors, opened his remarks by pointing out the advantages possessed by enlarged paper negatives over direct enlargements on bromide papers. The former permitted a selection of printing processes, the introduction of figures and clouds, and the like, and a wide amount of control generally, by manipulation of the original transparency and enlarged negative; in addition, they were cheaper and could be worked with ease and comfort. On the other hand, paper negatives took longer to print, showed more or less grain, and were probably incapable of giving such a perfect scale of gradation as a good dry-plate.

Procedure.

The procedure was very simple, and should present no difficulty to those accustomed to direct enlarging on bromide paper. A suitable transparency having been made, it was placed in the lantern, and a trial slip of bromide paper pinned on to the enlarging easel. It was advisable to have the slip of reasonable size, as, when viewed by transmitted light, the eye was apt to be misled in judging gradation and contrast by the unobstructed light at the edges of the slip. For a 15 x 12 negative, for instance, a sheet should be cut in three pieces. The paper should be adjusted so as to include a portion of the two extreme ends of the scale. The whole strip should be given one exposure (not exposed in sections), and then developed; the density judged by transmitted light and the time of development noted. If, after

fixing, the trial slip appeared correct both as to time and exposure and period of development, it only remained to expose and develop the full sheet of paper for the same time with a developer of identical composition. If incorrect exposure or development were indicated, anyone accustomed to enlarging would find no difficulty in making the necessary corrections; but, in doubt, further tests should be made until a satisfactory result was attained. The paper required much fuller exposure than for positive work, and the image in consequence flashed up quickly. The best way was to utilise a dish an inch or so longer than the paper, and pour the developer into the unoccupied end of the tilted dish, and to send it, by depressing the dish, in an even wave over the paper. Should the developer be poured or carelessly, the part which received the first impact frequently showed greater density than the surrounding portions, which might obstinately refuse to "catch up." A somewhat weaker developer, and plenty of it, met requirements better than solutions of normal strength. Almost all developers were suitable. I had years ago employed pyro-ammonia with satisfactory results for developing Morgan and Kidd's old negative paper. Pyrosoda with sufficient sulphite was quite stainless, but he now used either amidol (3 grains to the ounce) or rodinal (15 minims to the ounce). He had recently been surprised to read in a paper in "Camera Craft" that Mr. D'Arvy Power found it necessary to superimpose an ozobrome image on paper negatives to obtain

ficient contrast. In his, the lecturer's, opinion, unless care is exercised, one was apt to get a negative too strong even for a carbon.

The Selection of Papers.

In selecting a paper there were four things to consider: the character of the emulsion, the thickness of the paper, its grain, and the surface of the paper. Among other papers which he had experience of were Kodak *old rapid A*, the present Kodak "Slow permanent," Paget "Platino-matt," Illingworth "Smooth," Wellington "Thin Enammo," and, a recent introduction, Special Smooth." The first-mentioned was excellent for small work, but was apt to tear in large sizes; it was very thin and free from grain. The emulsion, however, would hardly bear the ordeal of waxing, and was best treated with an alternative compound. The paper was not listed, but might still be obtained in order. The Paget paper had a tough emulsion, which would stand anything, but there was a faint diagonal grain, which could be distinguished on close examination of the print. Enammo papers were hardly adapted for the purpose, as the process rendered working-up difficult, and pumice produced scratches which printed. The "Platino-matt" were good. For general work the Wellington Special Smooth was particularly to be recommended; its surface was perfection for working on, the paper was tough and homogeneous, and took wax readily.

The Transparency

Transparencies should be made to suit the speed of the negative paper, and the proposed degree of magnification. A quick paper, or a low magnification, did not require so soft a transparency as a slow paper, or a high magnification. It was difficult to give a satisfactory description of an average transparency suitable for enlarged negative work; it should possess no clear spaces, and the deepest shadows should show an opacity sufficiently low to enable good printed matter placed in contact with the film to be read through the glass. A very slow plate was always the best; for a hard negative a quick plate was to be preferred, but of as fine a grain as possible. Considerable modifications could be made in the transparency by retouching on the front, or by rubbing down with Baskett's reducer. The glass side should also be treated with retouching medium, and worked upon with pencil or stump. Personally, he always placed a piece of etched patent plate behind the negative in the enlarging apparatus, and further broad effects could be introduced by working on the etched surface with pencil and stump, or certain parts might be lightened by the local application of an oily rag. Very delicate effects, such as clouds, could be put in with different shades of soft grey pastel, applied with a camel-hair brush. The glass could be washed and used over and over again, but the etched surface required treating with care, as it was easily damaged.

Translucency of the Negative

An important point which many demonstrators shirked was that of rendering the paper negative translucent. Some met this difficulty by printing from the paper in its natural state. The reason for treating the paper with wax or other medium was to render printing quicker and to minimise grain. He considered the first the more important of the two, as in some cases the medium used, instead of decreasing grain, actually increased it. A certain amount of the right kind of grain in a large negative was not only negligible, but might sometimes be a positive advantage. He had experimented with hard white beeswax, paraffin, Japanese, and vegetable waxes, also spermaceti and ceresine, with little difference in results; the last two, however, were unsuitable, owing to their brittleness. There were three methods of applying the wax: (1) by rubbing a hot iron over the paper with a lump of wax in contact with it; (2) by placing the negative film side down on a hot plate, and rubbing a lump

of wax over it; and (3) by employing a shallow tin tray containing a thin layer of melted wax, kept fluid by placing the tray in a dish of boiling water, the negative being floated on to the wax, film up. In every case superfluous wax had to be removed by placing the negative between blotting-paper, and ironing with a hot iron. This was not so simple as it appeared, for if the paper were not bone-dry the emulsion might run in places; and the right temperature, which should not exceed that of boiling water, should be maintained, an excess of heat frequently giving a badly mottled texture, completely ruining the negative. The first method in the lecturer's hands had been found unsuitable, the paper absorbing the wax unevenly, and resulting in streaks and lines. The second method was better, but with some papers lines were apt to form. The third method had been found satisfactory; if any wax inadvertently came into contact with the emulsion side, the subsequent ironing would remove it. An alternative and good way of treating the paper was to rub in a mixture of equal parts of salad oil and terebene, applied thickly with a brush or rag. The negative was then put on one side in a warm place free from dust, until the paper had soaked up as much of the mixture as it would hold. Several hours were required for this, and a second application might be desirable; should the paper in course of time dry in patches, it could be re-oiled. The only drawback to this system was that the negative was slightly greasy. Another satisfactory method consisted of saturating the paper with paraffin or petroleum lamp oil, surplus being removed with a rag: the oil evaporated in a few months, necessitating a repetition of the process.

Finishing Touches.

To finish the negative, its surface should be lightly rubbed over with fine pumice powder on a pad of cotton-wool, surplus powder being dusted off; any small black specks should next be removed, and shadows deepened, if necessary, with a sharp knife, which naturally worked more evenly on a smooth surface than on a grained one. Broad rubbing down with pumice-powder might next be resorted to, followed by retouching with lead pencils, which are not required so hard or finely pointed as for ordinary negative work. Modelling with stump or cotton-wool and blacklead completed matters; any excess of lead could be removed with pumice and cotton-wool. A final observation by the lecturer, "that it was quite a pleasure to work up paper negatives," made some of the already severely tried photographic purists present look positively ill.

For a solid half-hour prints in carbon, platinotype, bromide, and gum-bichromate, together with enlarged negatives, and direct prints on P.O.P. from the original small negatives, then proceeded from the presidential table with a profusion and liberality that was most satisfying. These started in sets, but got slightly mixed in transit, which was unfortunate, for a presumed set showing a carbon print of sheep, with a companion negative of a rustic style, and a P.O.P. representation of an open landscape, might well have misled a beginner as to the potentialities of "control." Speaking generally, the enlarged prints were of first-rate pictorial quality, and, apart from a certain amount of grain, and limited range of gradation, of good technique.

Discussion

Mr. W. H. Smith pointed out that enlarged negatives, if made on paper, should be on paper expressly prepared for negative work. It was almost impossible to combine the qualities respectively required in negative and positive processes in any one paper. For positive prints the paper must necessarily be opaque, and that involved the addition of certain loading materials. No manufacturer could produce a thick paper reasonably transparent and free from grain. To test for clots of fibre—which would take up more wax than adjacent parts, and give the mottled appearance complained of—a little alcohol should be poured on, and the structure of the paper noted by transmitted light. He

doubted whether in any case waxing decreased grain, though it certainly added to speed in printing, with Mr. Sellors' negatives about 50 per cent. Most waxes were semi-opaque; yellow beeswax was one of the most translucent, though its colour might slightly prolong printing. In this connection a little treatise "On the Treatment of Paper for Special Purposes" gave a recipe for making lantern-slide pictures on paper, which were stated to be equal to those on glass. With this object thin paper (bank post, for example) is placed in a bath of creosote oil, or brushed over with that liquid, and left in contact therewith until any fibrous structure can no longer be detected. The superfluous oil is removed with blotting paper, and the paper transferred to a solution of colophony, or similar substance in alcohol. When dry, the paper is coated with a thin film of gelatine (this merely to take printers' ink), and finally coated with thin spirit varnish.

Mr. Smith then passed round a platinotype print eighteen years old, made from a calotype paper negative taken fifty-five years ago, the exposure on a brightly lit open scene being thirty minutes. Little signs of grain were visible, and in point of general technical quality it left nothing to be desired.

Dr. Mees said that if a substance were used for making the paper transparent, it should have approximately the same refractive index as cellulose; probably creosote oil was satisfactory for this reason. Mr. Smith had shown that the paper support was generally unsuitable for the purpose in view; in his opinion, the other factor, viz., the skim-milk emulsion, was equally ill-adapted. Bromide papers were designed to give gradation when looked at, not when looked through. To use them as negatives meant an entire collapse of gradation and absence of tone values. The striking difference in quality shown in the print from the

calotype negative, resulted from the fact that silver was a constituent of the developer, and built the image up.

Mr. A. E. Salt thought that the autotype and platinotype prints passed round hardly seemed at their happiest. Evidently a more responsive printing medium was required. He suggested that cocoon matting sensitised with a bromide emulsion would supply this want!

Mr. S. H. Written said that many of the pictures passed round were excellent; paper negatives, no doubt, had disadvantages, and, on the other hand, advantages, not the least being cheapness of production.

Mr. Terry said that a convenient way of limiting the temperature of a flat-iron for waxing purposes was to heat it in boiling water; this tip might be useful to those who worked the venerable process. He tendered his best thanks to the President for having so ably demonstrated the immense superiority of dry-plates.

Mr. Sellors, in replying to the appreciative criticisms which had been made, said that he held no special brief for paper negatives, and quite admitted there was a loss of gradation and delicacy, and increase of grain; still, the resulting prints were suitable for such low-grade work as exhibition pictures, which might incidentally be medalled. Personally, they satisfied his artistic aspirations, and, he defiantly added, he should continue using them. He desired to gratefully acknowledge the kind assistance of the Autotype Company and Platinotype Company for making prints at very short notice, and under unfavourable climatic conditions; he was also indebted to Messrs. Wellington and Widdowson for a very complete exposition of the subject.

BROMOIL PRINTING.

II.

A Hint—Filter the Ink.

At one time I was very much troubled with hairs in my ink, but just then I was in the habit of mixing some inks to obtain the colour I wanted, and when I had pigmented several prints I put what was left of the ink into a tin, and some time after used this mixture of a dozen different batches. I certainly secured beautiful colours, and the consistency of the ink was perfect, but when skies or delicate passages were in question the hairs and dust were appalling. A friend who tried my method improved on it by thinning the colour with petrol and filtering through fine muslin; the petrol rapidly evaporated, leaving the pigment in splendid condition for work; and he told me that he never could secure such good colours, especially browns, by careful mixing. Now I adopt another plan. I mix up colours until I get one I like, and then carefully put it away in a small tin box with a close-fitting lid (such as boot-polish tins), and take out a small quantity for use, and throw away any that may be left. I take fresh ink for each print, and clean my brushes with petrol before starting a fresh one. The petrol in the brushes should be allowed time to evaporate before they are used again, but rapid drying is dangerous, for a friend of mine, anxious to dry his brushes in a hurry, placed them in the fender in front of a good fire; the vapour of the petrol caught fire, and his brushes were cremated. They should be wiped dry on a clean fluffless cloth. Whenever a brush is picked up it should be rubbed on the back of the hand to remove any dust or hairs adhering to it, before applying it to a print. But, in spite of all precautions, hairs and dust will find their way on to the print. If they are small ones they may be left alone until the print is dry; they will then come off with a little rubbing, or, if obstinate, they must be picked off with a surgeon's small scalpel. Large hairs on the lighter parts are better removed

while the print is being inked, and this can be done with a softening-brush, preferably dry, but it is often necessary to moisten the brush; this will leave a white mark, which, however, disappears with a few touches of the inking brush.

While we are considering the question of brushes, I may say that a great variety of shapes and sizes is useful, but it is not necessary that they should all be of the expensive fitch kind. Many of the smaller brushes sold by dealers in artists' materials will be useful, especially some of the cheaper kind, said to be made of cow-hair. These, as sold, are rather too long in the hair, and need cutting down to about a quarter of an inch long with a sharp knife. This will produce a slight raggedness at the end of the bristles; but it is of little consequence, as the brushes will be needed only for picking out lights and clouds, etc. If a smooth brush is wanted, it may be obtained by dipping the cut-down brush in hot glue and allowing it to become quite hard by keeping it in a warm place until next day, and then grinding the end smooth on a dry grindstone, or a door-step, which is usually of a fine grit stone. These little extras are best obtained after some practice has been shown what kind are needed. When the work is finished for the day all the brushes used must be cleaned with petrol and wiped dry on clean rag; the bevelled ones should then be slipped into the paper cone in which they are sent out by the dealers. This preserves the shape, which is apt to suffer from frequent use.

Inks and Mixtures of Inks.

One of the most important tools of the Bromoil worker is the ink. I have never succeeded with the special inks sold for the purpose, but with the best ordinary printing ink made for letterpress or litho' work. The kind made for litho' work dries

too stiff. For black prints I have found nothing so good as good quality half-tone ink, and, mixed in various proportions with burnt umber, a series of the most beautiful blacks and tints can be made. These inks are usually sold in tins, and cost from 2s. to 3s. a pound, but a pound tin would last a very long time, and the ink skins over, and some waste is caused; I have persuaded Messrs. Frank Horsell and Co., of Leeds, to put up their ink in smaller tins at 1s. each, and, as the "gentleman" in "Punch" said of soap, "since then I have used no other." I may perhaps add that I do not get a percentage on the sales, I only recommend them from my usual philanthropic motives. Of the black ink, I prefer one called "Congo Black": it is cold enough for suitable rendering of snow or frost, and, when mixed with burnt umber, gives a very fine sepia. A piece of opal glass or a white tile is useful for mixing colours upon, as the result of the mixture can be seen. When a mixture is made the colours must be thoroughly blended together by spreading out with the palette-knife, scraping up to a heap, and spreading out again repeatedly. It is very annoying to find when a print is finished that one part is quite a different colour from another. Some discretion is necessary in choice of colour. I have seen big oil prints in which a great deal of trouble had been taken to reproduce the too dreadful colour of a P.O.P. print fixed without toning. For my own part, I prefer a sepia colour with a suggestion of green; this is easily obtained by mixing a cold blue-black with burnt umber, or raw umber, and sometimes a small addition of blue will produce a beautiful greenish-brown, which gives on the "ivory" paper a pleasant suggestion of old parchment or ivory, a resemblance aided by the surface. Some patience is needed before the newly pigmented print is ready to handle, as the ink dries slowly, owing to the fact that it cannot sink into the paper, but lies on the gelatine surface, and there is no drying by absorption into the paper. In fact, there is no "drying" in the ordinary sense of the word, by evaporation, but rather a "setting" by absorption of oxygen from the air, and I have found a cupboard arranged for drying carbon-tissue very convenient for Bromoils, they are exposed to a good current of air, but protected from dust: a lighted spirit-lamp placed in the cupboard hastens the drying, as it supplies heat and increases the air current.

Finishing Off the Bromoil.

Some inks dry very quickly, especially reds and browns; black is rather slow and some mixtures are very slow. At the end of a week the ink should be so dry that the print may be handled with care, but even when quite dry the image is very easily damaged by scratching or rubbing, and some further protection is necessary. Siccative or specially prepared shellac varnish can be used, but I have found celluloid varnish a very great deal better; the surface is pleasanter, it is more easily applied, and the prints can be mounted by the dry method, which would quite spoil those coated with shellac. As much of the necessary spotting, or working up, as is possible should be done before varnishing, all picking off of hairs, dust, etc., and also the brightening of high-lights (if necessary), with a fine ink-eraser, or indiarubber, should be carried out at this stage. The ink may be still not quite dry when this work is done; it may even be slightly "tacky," so that the hand should not touch the surface when working up. The celluloid varnish should not be too dilute, or the ink may be washed off. The consistency of that sold for varnishing negatives is just right. It must on no account be put on with a brush, or the ink will be removed; it should be applied as in varnishing a negative. If a pool is poured into the middle of the print, and the bottle set down, both hands may be used to bend the print so that the varnish flows over the whole surface. I find this method better than pinning the print on a piece of card-board. The surplus is drained off at one corner, and the

print pinned up to dry in a warm place, keeping, of course, the corner at which the surplus was poured off at the bottom. In an hour or less the surface is quite dry, and will bear any amount of handling, and it can be mounted either wet or dry. The celluloid does not make the surface so shiny as shellac, and any varnish that may find its way on to the back of the print will not show when dry.

When the print is mounted the more delicate spotting can be done, but as much as possible should be done before varnishing. For spotting I always use water-colours, mixed with oxgall to make them take on the greasy surface. Some prefer to put some of the pigment used in inking the print on the edges and to mix up with medium or turpentine for spotting. This ensures an exact match in colour, but I find it difficult to use myself. Some workers advise inking the shadows first with a very stiff ink, and then the half-tones with some slightly thinner. I have not found any advantage in this; it seems to produce coarseness and granularity. I have obtained the best results by inking with one consistency of ink from start to finish. It may be found that a print will not take the ink in the lighter parts, and only coarsely in the shadows; the ink must then be thinned, and either Roberson's medium or Horsell's special thinning medium may be used, but only a very minute quantity should be added. Copal varnish as used by artists will answer the same purpose.

To the busy professional photographer Bromoil should come as a "boon and blessing." I suppose, like myself, they become a little bit tired of going on producing the "usual thing," and they would like sometimes to make a "pictorial photograph," but they have not the time to do the necessary dodging, etc., to secure the effect desired. With Bromoil they need only give the favourite negative to an assistant to make the enlargement or print, have it bleached, and put away until they have a little spare time. It can be prepared for inking in a quarter of an hour, and then they can put into the inking all control they desire. The print before bleaching need only be just a "good straight print." I have found nothing more fascinating myself than inking prints of my architectural negatives, nearly all taken as an antiquarian hobby, and of which in many cases I had no print, because I had not the time to do any prints I cared to keep. For architecture and landscape the process is ideal. Portraiture is much more difficult, especially in those of ladies and children, for the one shortcoming of the process, in my hands, has been the difficulty of rendering large masses of very delicate tone. Heads of old men are much easier, as the tender half-tones are broken up with wrinkles and lines.

The "Mortimer" tray is excellent for keeping the paper moist while it is being pigmented; the device for covering the blotting-paper with fine muslin is very effective in keeping scraps of blotting-paper off the print. A thickness of at least half an inch of blotting-paper is necessary, and it should be "sopping" wet. If the pigmenting of a print is interrupted, it may be left on the pad and covered with the metal cover, and put in a cool place, and the work continued next day. Mr. Mortimer advises the addition of a few drops of formalin to the water with which the pad is moistened, to prevent mouldiness. A small quantity only must be used, or the gelatine of the print will be hardened by the formalin. Probably carbolic acid, or some other antiseptic soluble in water, would prevent the growth of mould in the blotting-paper without the risk of an excess of formalin.

I am afraid that, as in all branches of knowledge, there is no royal road to oil printing, and the experience necessary to success must be bought by taking pains; but to those of artistic taste, who are dissatisfied with ordinary photographs, and yet have no time to devote to the difficult task of dodging negatives, oil printing will appeal strongly. And it so often happens that the necessary modification of a light patch here and a dark place there is so slight and subtle that it is well-nigh impos-

sible to do it in printing, or on the negative; yet those slight modifications may make all the difference between a mere photograph and a picture. If a "straight" print is desired, it can be produced in Bromoil with all the detail of the negative, but without the knife-edge sharpness that most printing methods will give.

It is well to make two prints of each subject that is to be attempted in Bromoil, and bleach one, and work up the other

with chalk or water-colour to the effect desired, and then carry out the modifications while inking. I say it is well to do this but I must admit that I never do it myself; I prefer to let the print grow under the brush, and the desired effect seems to appear without effort. At least, it does so sometimes, but sometimes it doesn't. I shall not be satisfied until I can produce satisfactory portraits; but at present they are very difficult.

HAROLD BAKER.

PHOTOGRAPHY AND OUR ANCIENT CHURCHES.

ECCLESIOLOGY, as a department of antiquarian research, has been defined as the study which concerns itself with those of our old buildings which have been erected for distinctively religious or ecclesiastical purposes, with the view to determining from their architectural and art features their special archaeological character.

Since, however, in carrying out his object, the attention of the practical ecclesiologist is, as a rule, not confined to the study of the buildings alone, but is also bestowed on the examination of their contents and immediate surroundings, it will be seen that the ordinary definition requires to be considerably enlarged if we would express in precise terms the nature of his investigations. It is, however, a matter of but little moment whether we accept the definition in its restricted or in its extended form. In either case, the point, or rather the two points, that are of real importance are those which it is my present object to bring prominently under the notice of readers of the "Journal," namely, the facts, firstly, that ecclesiology offers a most fascinating and instructive field for the employment of the camera; and, secondly, that as this field, though still an extensive one, is gradually but surely being reduced through the force of circumstances over which we have no control, there is, therefore, urgent necessity for steps being taken to preserve an authoritative record by photographic means of the appearance of these sacred memorials of the past, seeing that it is impossible in all cases to avert their destruction. It will, I think, be more convenient if at this stage I deal briefly and summarily with the latter of these two points first, before proceeding to a consideration of the former, that being one on which, for technical reasons, and because of its probably greater interest for photographers as a class, it will, in order adequately to describe the subject in its details, be necessary for me to dwell at some length.

A Compromise between Utilitarians and Archæologists.

It seems hardly needful for me here to do more than allude to the magnitude of the losses which ecclesiology, both in England and Scotland, has sustained of late years through the selfish prejudices and uncompromising attitude of utilitarians on the one hand and the sentimental wrong-headedness of the supporters of the so-called restoration movement on the other, since evidence of the harm which has been done is, unhappily, only too abundant. The protests of local antiquarian associations, the Society for the Protection of Ancient Monuments, leading archæologists at home and abroad, and of many private individuals, to all of whom much credit is due, have, it is true, been effectual in preserving from destruction or disfigurement not a few of our ancient sacred buildings. In many cases, however, mere protests and entreaties, as it is not surprising to learn, have unfortunately failed to avert the impending evil. As Mr. Thomas Hardy, in an article on "Church Restoration" which appeared in one of our leading periodicals recently, very justly points out, the exigencies of the situation are, and from the very nature of things always will be,

such as to necessitate compromise on the questions at issue between the archæologist and his utilitarian opponents. Mr. Hardy's remarks do not of course apply, save in one or two cases, to our abbeys and monastic churches, most of which remain in the ruinous condition in which they were left at the Reformation, nor yet to the numerous churches and chapels of ancient date, likewise ruinous, that are to be met with in our rural districts, but only to such of our old religious edifices as are nowadays actually used for purposes of public worship. These latter, however, it must not be forgotten, constitute the bulk of the sacred edifices of Great Britain, including, as they do, our cathedrals, our parish and our collegiate churches, the chapels pertaining to the universities and to the various ancient charitable institutions, together with a few of the larger churches which in former days belonged to the monastic orders. Without attempting to recapitulate Mr. Hardy's arguments, I may be permitted to express my agreement with his general conclusion, namely, that under the peculiar circumstances in which we are placed, some form of compromise to meet the views of both parties must be regarded as inevitable. What, however, Mr. Hardy omits to mention is, that in cases of this kind we usually find that the so-called compromise, when such has been arrived at, is in reality, whatever it may be in name, a victory for the aggressive party. It is certainly difficult to account for the circumstance, no less unfortunate than remarkable, that the well-founded protests of the archæologist should be thus disregarded and that the comforting verbal assurances so frequently bestowed upon him at the outset of the proceedings by those in authority should, like those made to the Thane of Cawdor on the blasted heath, be "broken to his hope" in the subsequent course of events.

The points here at issue, it will, however, probably be seen, only indirectly concern the photographer. This may be admitted; but at the same time it is undeniable that to all who are interested—as not a few nowadays are—in the preservation of such historical memorials from demolition or ill-treatment at the hands of ignorance and incompetence, they are of a very real degree of importance, and may therefore justifiably be cited as arguments which are calculated to appeal with force to the artistic instincts of the educated photographer. When all is said, the position of the latter is an extremely simple one on the part which he is called upon to play being obviously of a practical nature. Calling to his aid the many resources of modern photography, he will approach the subject of ecclesiology primarily with the definite technical object of producing those means a series of trustworthy pictorial representations of the buildings and monuments which serve to furnish the student with materials for the study of that branch of archæological research.

After what has already been said in regard to the iconoclastic tendencies of the present generation, it will readily be granted that work of this description is very urgently required. Such a photographic survey, not only of our ancient churches, but also of the other existing monuments of antiquity in the country, has indeed become a matter of national necessity.

of the circumstances that in this way only, in most cases, it can be found practicable to preserve for the benefit of posterity a permanent record of the appearance of many precious and unique objects which are in hourly danger of being swept away or destroyed beyond recognition to meet the requirements, real or ideal, of their present-day custodians.

Profitable Subjects for Photographic Record

I shall now proceed to give the promised sketch of the architectural and monumental materials of ecclesiology to which attention was made in the introductory paragraphs of this article. In doing so I shall, however, keep in view the fact that various classes of objects which are included under the wide category just referred to are not all equally well adapted as subjects for the purposes of photographic reproduction. Calling to my aid, therefore, the aid of the principle of selection, I shall attempt rather to direct the photographer's attention to what he will find profitable subjects for the exercise of his art than to invite him to bestow it upon objects which, however interesting in themselves, are nevertheless incapable of being satisfactorily depicted by the means at his disposal.

It would certainly seem advisable, and prove advantageous in the direction of facilitating his subsequent progress, that the beginner should at the outset make himself acquainted with the general principles of ecclesiology as these are laid down by the various architectural authorities.

Among useful works of reference on the subject may be mentioned Rickman's "Architectural Styles," the admirable series of text-books on English church architecture published by Messrs. Parker and Co., of Oxford, and Murray's well-known text-books to the counties of England. For the ecclesiology of Scotland, works of a cheap and popular character are far more numerous. Enquirers, however, may consult with advantage Mr. T. S. Muir's "Ancient Parochial and Collegiate Churches of Scotland," the same author's "Characteristics of Old Scotch Architecture," and "The Ecclesiastical Architecture of Scotland," of Messrs. MacGibbon and Ross, whilst among books of a more expensive kind the late Mr. R. W. Billings' "Baronial and Ecclesiastical Antiquities of Scotland" will be found a repository of valuable information.

Periods of English Architecture.

Architecture in England, so far, at least, as it concerns the ecclesiologist, may be divided into six chronological periods. The first is the Saxon period, which extends, roughly speaking, from about the middle of the seventh century of our era to the year 1065. The limits of the second, or Norman period, known also as the Romanesque, may be fixed as lying between the year 1065 and the last decade of the twelfth century. The third period is that known on account of the prevalent architectural style as the First Pointed or Early English. It includes the century immediately succeeding the Norman period, or approximately the years between 1190 and 1290. During the next or fourth period, which lasted from 1290 to about 1390, the Decorated or Middle Pointed style of architecture came into existence. This in its turn was succeeded by the Perpendicular or Later Pointed style, which prevailed in this country from the end of the fourteenth century to the era of the Reformation. The closing of this fifth period may be regarded as the last chapter in the history of Gothic architecture as a living art in England, for though efforts have been made from time to time by those of subsequent generations to emulate the achievements of the mediæval builders, the glories and distinctive artistic qualities of the earlier styles have never been successfully revived. The sixth and last period assigned to the architecture of this country, i.e., that extending from the middle of the sixteenth century to our own times, may therefore without impropriety be termed the Decadent era. It is, however, sometimes known as the Renaissance period, on account of the extensive use of debased classical forms of the church architecture of England and Scotland during the seventeenth and eighteenth centuries.

Space does not, unfortunately, here permit me to give a description of the architectural features that are distinctive of the different styles pertaining to the several periods of British ecclesiological history. This information, however, my readers may easily obtain for themselves from the works above referred to, as well as from numerous others of a similar kind.

MATTHEW WILSON.

(To be continued.)

THE DIAMIDOPHENOL DEVELOPER IN THE CORRECTION OF OVER- AND UNDER-EXPOSURE.

I have recently pointed out a method of using the pyro developer in which the composition of the working solution was modified during the progress of development according to the degree of exposure in such a manner as to correct, within certain limits, errors in the exposure. This method having given good results with the pyro developer, we have sought to apply it to other developing bodies, and first of all to diamidophenol. In order to fix upon a formula we have examined a number of plans of improving, in the developer, the results of over- and under-exposure. In consulting many sources of information on this subject we have come across a very great disparity of opinion. Some experimenters declare that the addition of sulphite to the developer, whilst accelerating development, favours the production of detail in the shadows, and tends to give grey negatives, such as those obtained by addition of alkali to developers which require to be used with alkalies. It is for this reason that we recommend the addition of excess of sulphite when dealing with under-exposed negatives. Other writers, however, dispute this effect of the sulphite, and maintain that the best means of obtaining negatives of the necessary softness consists simply in the dilution of the normal developer. Writers on the subject are equally at variance as regards

the method to be adopted in improving contrasts and dealing with over-exposure, but they are in agreement as to the very slight effect of bromide when used with diamidophenol, and they express the view that this retarder cannot be used in order to correct over-exposure. Since acid diamidophenol has come into use as a developer, it has been generally thought that sodium bisulphite forms a much more effective restrainer than bromide. In order to throw some light on these different points, and to ascertain the best average conditions for reducing or increasing the contrasts in the negative, the following experiments were made:—

Plates were exposed under identical conditions in the Chapman Jones sensitometer for a time not so long as to give rise to solarization. These plates were developed with a normal diamidophenol developer of the following composition:—

Diamidophenol hydrochloride	5 gms.
Sodium sulphite, anhydrous	30 gms.
Water	1,000 ccs.

Also with a series of developers prepared as described below, so as to give a greater or less variation of the above normal formula:—

- (1) By addition of sodium sulphite up to a saturated solution.

(2) By dilution with increasing quantities of water.

(3) By dilution with sodium sulphite solution of greater or less strength.

(4) By addition of potassium bromide.

(5) By addition of sodium bisulphite.

(6) By addition of both bromide and bisulphite.

After all these additions development was taken up to the point when a given number of the sensitometer appeared of certain equal density: the other densities and the contrasts obtained between the different numbers were then made a useful basis of comparison. The following were the results obtained:—

Correction of Under-Exposure.

The experiments showed that in the case of under-exposure the tendency of hardness in the negatives, when developed in the normal solution, was best corrected by the following methods:—

(a) Dilution of the developer with three to four times its volume of water.

(b) Addition of a strong solution of sodium sulphite.

(c) Dilution of the developer with three times its volume of 5 per cent. sodium sulphite.¹

Of the three methods the last appears to give negatives of the least degree of contrast, but with a tendency to fog. In those negatives obtained by simply diluting the bath, or by the addition of sulphite, no fog was apparent. In cases where it is desired to obtain greatly lessened contrast with, at the same time, the maximum of detail in the shadows, it is desirable to add one volume of developer to three volumes of 5 per cent. sodium sulphite solution, which comes to the same thing as using a developer of the following formula:—

Diamidophenol	1.25 gm.
Sodium sulphite, anhydrous	45 gms.
Water	1,000 ccs.

Despite the smaller proportion of diamidophenol in this developer, the time of development is not appreciably increased owing to the larger proportion of sulphite.

Correction of Over-Exposure.

According to our experiments, the contrast of plates which have received excessive exposure may be improved, but only within comparatively small limits, by adding to the developer one or other of the three following restrainers.

A.—Potassium bromide.

¹ The rise of temperature of the developer, which in the case of certain developing substances gives a distinct reduction in contrast, has no appreciable action in the case of diamidophenol. The only effect produced by warmer developer is a reduction in the time of development, whilst at the same time a certain amount of fog is produced.

AN IMPRESSION OF DUHRKOOP.—Mr. Pirie Macdonald, in "Abel's Photographic Weekly," records his impression of a visit to Hamburg to Herr Dührkoop's unique place of business in the Jungfernstieg, overlooking the beautiful Alster See. Of Dührkoop he writes:—

Short, wiry, compact, fair sandy hair and beard, blue eyes that everlastingly twinkle, for he has a keen appreciation of the humorous and takes more joy in living than any man I know—an alert and tireless worker, a quick thinker with endless perseverance, versatile, sentimental, strongly appreciative of the good in other men, a most generous friend, and I would venture my last "sou" that he could be a mighty unpleasant man to have on one's list of enemies!

His professional activity is simply enormous—the amount of work that he gets through is almost beyond belief—for beside his strictly business affairs he is always up to his eyes in photographers' societies, conferences, exhibitions, and all manner of affairs that take labour and energy; he is constantly preparing exhibits of his work to be sent to all parts of the world—and through the collections he has gathered the world has come to know the German work of to-day.

His is the energy which has brought about the sending of the American professional exhibit to Dresden, and the interested activity

B.—Sodium bisulphite.

C.—Diamidophenol hydrochloride.

By addition of potassium bromide to the extent of 5 gr per litre of normal developer we obtained the most marked increase of contrast. Beyond this point contrasts do not further increase, but the time of development becomes a good deal longer.

The action of the sodium bisulphite, in contradiction of the views which have been expressed hitherto, is distinctly less effective than that of potassium bromide. The bisulphite increases the time of development, but it improves the contrast only to a very small extent. Diamidophenol gives approximately the same result.

It was necessary to make the experiments above described in order to discover if it was possible to lay down a ready method of development with diamidophenol, using two solutions the relative proportions of which could be modified during the progress of development in accordance with the degree of over-exposure. With this object our work was done on plates which had been exposed for very different times—that is to say normally, 2, 4, and 8 times normal, on the one hand, and $\frac{1}{2}$ and $\frac{1}{4}$ normal on the other. We have found that the times of appearance of the image for varying degrees of exposure are very similar, even when working with very much diluted solutions. It is, therefore, not very practical to obtain in this way an indication of the degree of over-exposure, nor to employ a control method for correcting, with certainty, such errors.

In short, while the experiments showed the impossibility of applying to diamidophenol the method of development which we have worked out in the case of pyrogallie acid, yet the results allowed of the following points being established in reference to the improvement of errors in exposure.

(1) In the case of development with diamidophenol the contrasts may be reduced, and under-exposed negatives thus improved, either by diluting the developer with three times its volume of water, or by increasing the quantity of sodium sulphite in the developer, or by diluting the developer with a solution of sulphite in place of the ordinary water. This last means is the most effective, a useful formula being to mix the developer with three times its volume of 5 per cent. sodium sulphite.

(2) The best means of increasing the contrasts and thus improving the result of over-exposure consists, not, as has been usually done hitherto, in adding bisulphite, but by adding to the developer with .5 gm. per 100ccs. of potassium bromide. Nevertheless, the corrections which are thus made are notably less in extent than those which can be secured by using the pyrogallie acid formula previously given.

A. AND L. LUMIERE.
A. SEYEWETZ.

with which he has handled the matter is most surprising when one considers the extent of his business, which in the Hamburg studio alone requires twenty-one people on the permanent staff.

Nor is the work turned out in a routine, commonplace way. All through the establishment you feel Dührkoop! Dührkoop! in everything. He is the arch enemy of the stereotyped. The pose, the order of print, the mount, will often be of half-dozen varieties in a dozen order. Then, too, he finds the studio irksome at times, and goes to make portraits of his people in their homes, in their gardens, their business places, anywhere to break away from the rule and to get them when they are close to themselves—and then to describe them in mere catalogue of facts, for, with Coleridge he believes that a picture is "a middle quality between a thought and a thing."

Of course, before now you have scented the mystery, the woman in the case, and of course the tale would not be complete unless it gives the answer.

The answer is that there is a daughter—a great, strong Rubene blonde—womanly to the utmost degree, but with executive capacity unusual even in a man—sympathetic, enthusiastic, and an accomplished photographer, who will some day make the name even more famous than it now is!

A REFLEX CAMERA FOR PHOTO-MICRO-GRAPHIC WORK.

II.

OR instantaneous exposures of objects which are sensitive to light an accessory piece of apparatus is employed in conjunction with the whole installation described in these pages for March 12 last. Fig. 2 is a diagram of this accessory. The arrangement consists of a plate which is movable in the directions S and A. At 1 and 2 this latter shows square openings, and at 3 it is complete. The arrangement is brought into the path of the illuminating rays at a point where the intersection of the bundle of rays is at a minimum. This means in practice that the accessory must be placed as near as possible in

in the position D E¹ electrical means are put in operation to work the release of the shutter-plate, and the spring then draws the shutter-plate in the direction A. At 2 the shutter-plate has an opening, which gives the exposure, whilst at 3 it again obstructs the light. It follows that the dampening of the light at 1 must be so adjusted that the light-sensitive body is in no way affected. For such exposures the shutter must be taken out at V. The speed of working the shutter may be adjusted by means of a brake, also by winding a spring. Herr Volk mentions, in "Mitteilungen über die biologische Elbe-Untersuchung Ver-

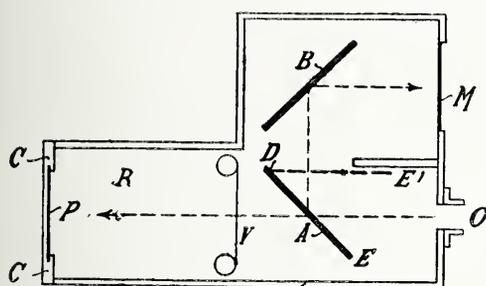


Fig. 1.

front of the microscope condenser. The plate moves in grooves in the direction of A there is a spring. When making an exposure the plate is drawn in the direction of the arrow S against the spring. It thus snaps into a catch as soon as the opening transmits exactly the illuminating beam of rays. Light-filters of any desired kind may be inserted in 1, and whilst in this position the light reaching the object may be reduced or dampened, as desired. Focussing is done with things adjusted as described by means of a weak lens. The ground glass M (Fig. 1) can be replaced by a clear piece of glass. After exact focussing, the lever H is depressed, and as soon as the mirror is

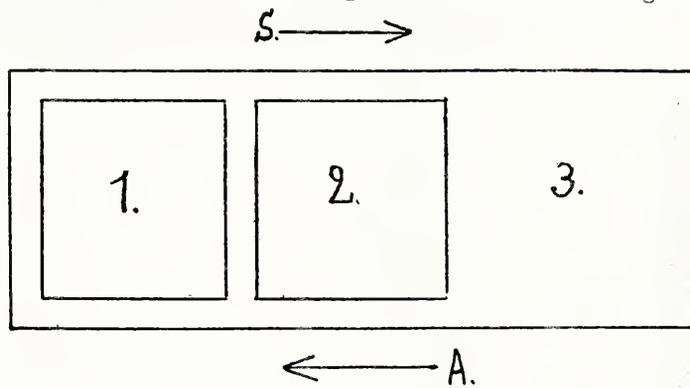


Fig. 2.

handlungen des naturwissenschaftlichen Vereins in Hamburg, 1907, Folge XV.." an arrangement serving a similar purpose. My notice was drawn to his description after I had worked out the arrangement here described in the Carl Zeiss factory, and after I had used it some time with good results. In the prospectus of "Heating Microscopes," issued by Carl Zeiss, there is a description of an arrangement for the instantaneous photo-micrography of heated objects. This arrangement is constructed specially for the purposes mentioned in the prospectus.

DR. W. SCHEFFER.

CONTROL IN THE DEVELOPMENT OF BROMIDE PAPER.

[In the current "Photo-Notes" of the Rotary Photographic Company, Mr. T. H. Greenall further extends the method of tentative development worked out by him for gaslight paper to bromide paper, and gives the following directions and formulæ.—Eps. "B.J."]

Now in working bromide paper, I did not think it possible to deal with such varied exposures as in the case of gaslight paper, but made exposures of the same negative on Rotograph bromide paper, varying as five seconds is to thirty seconds. This is a very considerable difference, and in ordinary development one or other of the prints would be lost. Assuming that five seconds is the shortest possible exposure for the negative, and using a fresh unrestrained developer of maximum vigour, then thirty seconds will give a very foggy and overdeveloped print. On the other hand, if we use a highly restrained developer, the five seconds' exposure will give a hard and chalky result. With the solutions given below, however, which I have found the best for the purpose, the two exposures of five seconds and thirty seconds respectively give prints which are equally bright and of almost equally good gradation, and this without knowing which exposure is which beforehand. It is true that the longer exposure gives a print of a very slightly brown-black, but not objectionably so, and all intermediate exposures will, of course, be quite satisfactory if properly treated during development.

The solutions used are as follows:—

No. 1.	
Pyrocatechin	12 grs.
Sulphite of soda	24 grs.
Potass metabisulphite	6 grs.
Potass bromide	4 grs.
Potass carbonate	60 grs.
Water	4 ozs.

This solution may be used repeatedly.

No. 2.	
Eikonogen	16 grs.
Soda sulphite	64 grs.
Water	4 ozs.

This solution contains no alkali. It will keep, in a full bottle, and may be used repeatedly if the prints are rinsed back and front before immersion. In practice the prints are placed in No. 1 solution, the dish covered and rocked occasionally, and the prints kept properly covered with solution. At the end of six to nine minutes, according

to temperature, they are examined, and those which show little or no image are taken out, rinsed back and front, and transferred to the No. 2 solution, in which they will develop quite satisfactorily unless, of course, the exposure has been hopelessly short. They are then put to fix, and the prints remaining in the No. 1 solution are again examined. Some of these will appear nearly finished, excepting that detail is lacking in the high-lights. These are taken out, rinsed, and given a shorter time in the No. 2 solution, which will bring out the detail in the high-lights if it is at all printable, whilst others of the prints, and these are the maximum exposures, will require none of the No. 2 solution, which, indeed, would veil them, but will yield good prints in the No. 1 solution alone, in a total of twelve to twenty minutes, according to temperature and other conditions, and provided the exposure has not been greater than six times the minimum.

Needless to say, the worker who adopts this method must have abundance of yellow light in his dark-room. I use two sheets of

yellow tissue paper behind which is an incandescent gas jet. This would fog some of the very rapid bromide papers unless used with caution. Then he must know beforehand what his negative can be expected to give—i.e., he must fix on the high-lights which are printable, and for which he intends to develop. In dealing with various negatives he will give a flat one a short or medium exposure and long development in the No. 1 solution, whilst he will give a contrast negative a full exposure, followed by short development in No. 2 solution, and relatively more in the No. 2. Also he must bear in mind that other bromide papers may require some modification of the No. 1 solution, or in the time of development, and that the very rapid ones will be likely to show least latitude, and most liable to fog. The carbonate of potash recommended is of "B.P." quality which is good and cheap. It does not keep well in powder, but makes a permanent 50 per cent. solution. An acid fixing bath must be used. Finally, the prints may be sulphide toned if desired.

T. H. GREENALL.

AN ELECTRIC DEVICE FOR FIRING A FLASHLIGHT.

[The ability to fire a flashlight with certainty in an instant and from a distance being an essential in commercial flashlight work for stage groups, etc., a description of such an electrical device which is given by Mr. F. E. Keller in the "Photo Era" is worthy of notice. The author gives the palm to the electrical method of ignition for certainty of action.—Eds., "B. J."]

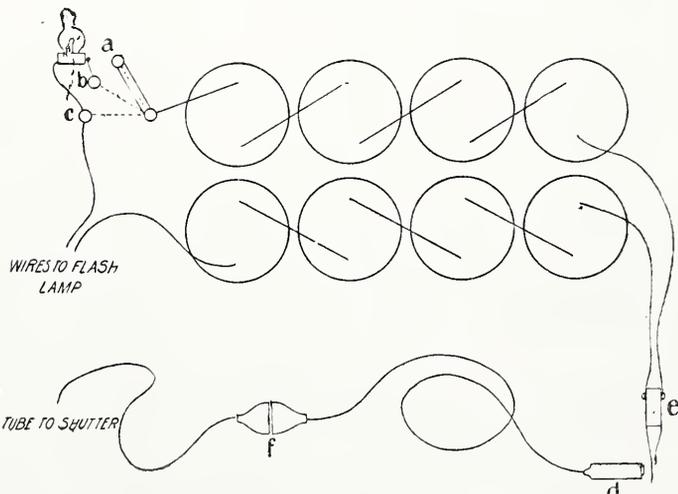
AFTER years of experimenting I have come to the conclusion that the most up-to-date and practical way to fire a charge of flashlight powder is to use electricity. There is no burning alcohol lamp, no inflammable substance to be carried about. Should some one by accident get entangled with the conducting-wire and upset the lamp, all that happens is that a little powder is spilled, which is easily swept up, and surely less injurious to a good carpet than burning alcohol.

My knowledge of electricity is not expert, but I will endeavour to the best of my ability to describe the device I constructed. The battery consists of eight dry cells (Columbia, 1 3/4 x 4 1/2 in.) connected in series. At the one terminal a three-point switch is interposed so as to enable the operator to cut off the battery entirely when the switch is at *a*; at *b* a small incandescent lamp is brought into the

shutter is thrown open, and closed again, of course, the moment the bulb is released.

If a camera with a square bellows is used the lens-board opening will be found plenty large enough to permit the fastening of the shutter on the lens-board, and the contact-fork can be placed on the plunger of the shutter and the contact made with the opening movement of the instrument.

The electric flash-lamp is very simple in construction. Fig. 1 shows



General Plan of Battery.

circuit, which cuts down the current low enough so that the fuse will carry the current safely. This is advantageous, as the operator can test the entire system with the flash-lamp charged with powder ready for firing. When the switch is moved to *c* the incandescent lamp is cut out and the fuse will receive the full current the moment the circuit is closed, which burns the fuse, and, at the same instant, ignites the powder. On the opposite end of the battery-system is a contact arrangement operated with a plunger *d*. At *e* the two terminal points are connected with a fork made of flat German-silver springs fastened to a non-conducting base. The bulb *f* is connected by rubber tubing with the plunger *d*, the other tubing being connected with the shutter (I am using Packard or similar shutters). When pressing the bulb, the plunger will force the two points of the fork together, closing the electric circuit; at the same instant the

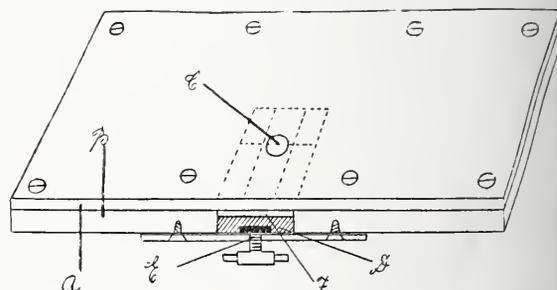


Fig. 1.

the top, and the front sectional view. The top of the lamp *A* consists of 1/8 in. of slate screwed on a wooden base *B*. At *C* the fuse is provided with an opening about 3-16 of an inch in diameter, across which the fuse-wire is placed, making it the firing-point of the lamp. *D* represents a loose wooden clamping-block operated by a clamping screw *E*. At *F* the opening for inserting the fuse is shown. The approximate position of the fuse under the slate top is indicated by dotted lines.

Fig. 2 shows the base of lamp *A* with slate top removed.

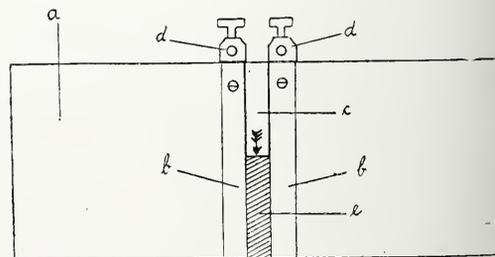


Fig. 2.

German silver contact-springs *bb* are countersunk in grooves their width, and connected with the binding-posts *dd*. The springs are bent so that the clamping block *e* is forced downward, enabling the operator to insert the fuse as far as the shoulder *c*, which acts as a stop.

The fuses are made of thin sheet mica. Fig. 3 is to show the perforation, and method of stretching, the fuse-wire over it.

shows the German-silver contact-shoulders. These thin metal extend on both sides as far as the edge of the perforation. It is readily understood that when the fuse is inserted at the opening C, Fig. 1, the perforation of the fuse will be brought into register with the opening C.

The German-silver shoulders of the fuse rest on top of the con-springs, *bb* in Fig. 2, and when tightening the clamp-screw both and springs are forced against the slate top by the clamping-D.

The advantage of the perforated fuse is that it may be inserted side up, as the powder will reach the fuse as long as the latter is inserted proper end first, so that the perforation will register with the ring-aperture. Another advantage of this lamp is that the con-



Fig. 3.

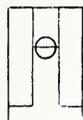


Fig. 4.

springs are not soiled by the explosion of the powder, since they are protected by the mica fuse.

Another very effective method of working a flashlight ignited by electricity is to use a reflex camera. The curtain is opened to its full width, and the spring-tension wound to fairly high speed. The mirror is wound up in the same manner as if a time exposure was made by lifting the mirror and sending down the curtain by additional pressure of the release. A contact-device is so arranged that the flash will explode just when the mirror has cleared the lens, the curtain covering the plate the next instant. This device is of great value in photographing children, as the operator does not have to focus until he sees the desired pose, and then quickly press the release, making the exposure. The curtain covers the plate so quickly that a double image is impossible.

When photographing against the light, this device is invaluable, as it enables one to obtain the most charming effects by combining day-light and flashlight at the same instant. Patents for the use of electrically controlled flashlight devices in conjunction with reflecting mirrors are pending.

F. E. KELLER.

Photo-Mechanical Notes.

The Marking of Lenses for Process Work.

The marking of the F numbers on lenses intended for copying is of much service, as if the work is to be done according to calculation, especially in screen negative making, what is required to be done is the particular diameter of the stop opening and the possibility of making this the actual diameter required for the camera lens then in use. Therefore, instead of, or in addition to, the F numbers, there might be engraved on the mount a series of marks corresponding to millimetres or 1-32nd of inches of stop opening where the indicator pointed to, so that the operator, if accustomed to working with an aperture of, say, one-ninetieth of the normal extension, could, as soon as he knew the latter, instantly set his stop to give him the required aperture. A convenient automatic indicator of the camera extension is in use at the L.C.C. School of Photo-Engraving, and is provided by a spring tape fixed at the side of the camera. This indicates automatically, even though the camera is focussed either from back or front. If such a spring tape were applied with the lens it might be marked for that lens with the indication of the more common enlargements and reductions, and this is another suggestion that might be worth consideration by the makers of lenses for process workers.

A. J. N.

French Method of Preparing Zinc Blocks.

Ch. Gravier, at a recent meeting of the French Photographic Society, gave a description of what he called a simple process employed by the printer, M. Paul Roustan, in order to obtain in a short time a photographic block from a photograph of which a screen-negative had been made. This process was described as being generally used in M.

Roustan's establishment, and the blocks obtained by it printed in his journal, "L'Independant Roannais." A sheet of gelatine paper of the ordinary double transfer kind, such as used in the carbon process, is sensitised in a 3 per cent. solution of potass bichromate, dried in the dark, and exposed for a few minutes under the screen-negative. The print is fixed, by means of pins, to a board, and inked up with a roller and ink of about the thickness of honey. It is allowed to stand for about a minute, then put into cold water for about a quarter of an hour. On removal from the water the ink is taken off with a tuft of cotton wool, and the image is then visible in black on a white ground. The print is then allowed to dry completely. It then only remains to soften it between two sheets of wet unsized paper, and to transfer it to zinc in a press, afterwards etching with acid, in order to obtain the zinco. The advantage of the process is that it dispenses with reversed negatives and with the preparation of the whirled albumenised or enamelline-coated zinc.

This process is a reversion to the very earliest method of making photo-mechanical blocks, namely, "Gillotage." So far from it being more simple than the method generally in use, it is actually being discarded by photo-lithographers themselves, who prefer to print direct on to metal rather than put up with the tediousness and uncertainties of transfer paper. It is true that a reversed negative is not needed, but with a prism or mirror fitted to the camera, a reversed negative is as easy to make as a direct negative; the coating and whirling of a zinc plate is surely no more trouble than the sensitising by bathing of the transfer paper, and does not take anything like the same time. Apart from the ludicrousness of describing this process as simple when compared to the ordinary method, the results as far as quality is concerned must be far inferior, for it is impossible by transfer methods to get the same sharpness as by printing direct.

An American "Mezzochrome" Process.

According to the "British and Colonial Printer and Stationer" of April 1 the Americans were actually the first to publish photogravure in colours printed from rollers by the same method as the well-known Rembrandt prints, as it is stated they were shown prior to May, 1908. Whether this is so or not, there can be no dispute that the Rembrandt Intaglio Photogravure Company were the first to produce black-and-white photogravures machine-printed from rollers, and the coloured photogravures which they produce under the name of "mezzochromes" are simply an extension of the same process. Their long experience of the process is likely to serve them in good stead, and we do not in the least fear the American competition, though to judge by this article there is going to be a strenuous attempt to secure English business. The American process has been worked out by Mr. C. W. Saalburg, a cartoonist of the "New York World," whom photo-engravers will remember as being over here a few years ago selling, as a secret process, inverted photogravure, which many firms bought but none now work. We believe he discovered a former employee of the Rembrandt Company, and engaged him to go back to America with him and help him to invent his "Van Dyck" photogravures. The only example we have seen of the process, so far, is a portrait in the December "Inland Printer." As this, however, could not be put forward as in any way comparing with the results shown here by the Burlington Fine Arts Company, we shall await the further specimens that are promised with interest.

UNITED STEREOGRAPHIC SOCIETY.—The results of the competitions for the session 1908-9 are as follows:—

Annual.—Silver plaque.—Best Collection, S. W. Shore. Bronze plaques—Class A (landscape), "Heaped Hills by the Sea," S. W. Shore; Class B (architecture), "Lucerne Cathedral," A. T. Mole; Class C (portraiture), "I'm a-looking at you," A. Lester; Class D (miscellaneous), "Young Cuckoo," J. E. Ellam. Honours certificate—Class B (still life), "White Currants," S. W. Shore. Certificates—Class A (marine), "To Their Daily Task," A. T. Mole; Class B (still life), "Roses," P. Snow; Class C (architecture), "Nave, Brussels Cathedral," F. Low; Class D (portraiture), "Raising Steam," A. Lester; Class E (miscellaneous), "Denizens of the Lake," A. T. Mole.

Outings Competition.—Value, half a guinea (offered by F. Low), A. T. Mole.

Monthly Competitions.—Prize, Wynne's exposure meter, F. Low.

Patent News.

Process patents—applications and specifications—are treated in "Photo Mechanical Notes."

The following applications for patents have been received between March 29 and April 3:—

- CINEMATOGRAPH.**—No. 7,463. Cinematograph producing and reproducing machine for home use, containing the idea of a living-picture newspaper. Lawson Billinton and Thomas Sapt, 11, Fairlawn Mansions, New Cross Gate, London.
- PRINTING.**—No. 7,480. Improvements in photographic printing apparatus. Philip Middleton Justice, 55, Chancery Lane, London, for John A. Dick, United States.
- PRINTS.**—No. 7,518. Treating photographic prints. Edward Albert Cunningham, 19, Holborn Viaduct, London.
- ANIMATED PICTURES.**—No. 7,702. Improvements in means connected with the exhibition of animated pictures. Jules Paul Martin, 321, High Holborn, London.
- PROJECTION APPARATUS.**—No. 7,910. Improvements in and relating to photographic and projection apparatus. Archer Lloyd Lawrence, 53, Chancery Lane, London.
- POWDER PROCESS.**—No. 7,932. Photographic powder process. Josef Rieder, 323, High Holborn, London.
- TRIPOD DEVICE.**—No. 8,054. Improved device for fixing optical instruments to tripods and other stands. Optische Anstalt C. P. Goerz A.-G., 31, Bedford Street, Strand, London.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

OPAQUE SENSITIVE FILM.—No. 5,641. 1908 (March 13, 1908). The invention relates to photographic sensitive surfaces of the kind in which the sensitive gelatino-bromide emulsion is applied to an opaque base or support, and has for its object the employment of the negatives obtained on the flexible sensitive surfaces, after exposure in the camera and development in the ordinary manner, in any of the known hydrotype methods of contact printing—printing or obtaining positives without the action of light—as, for example, the method described in Patent No. 13,874, 1907. The flexible opaque material, which is rolled on spools in the manner usually adopted with "roll-films," may be black paper, dark mackintosh, or waterproof cloth, or opaque pigmented celluloid. It is furnished with a sensitive coating as above described, is rolled on a spool, and exposed in an ordinary camera. After exposure the film is removed from the camera and developed. The negative being upon an opaque base or support, is not capable of yielding positives or prints by the usual methods in which light passes through the negative, but is especially suitable for obtaining prints or positives by any of the contact printing methods in which light is not a factor. When an opaque band of light-tight material is coated with emulsion or sensitised as here described, a daylight film spool is obtained by merely rolling the material on a plain reel or spool without any further addition, such as black paper.

The use of the opaque base ensures safer handling of the film in relation to light, as it is absolutely anti-halative and offers complete protection against light acting from behind. Edmund Seal Donisthorpe, 5, Southampton Street, Strand, London.

CINEMATOGRAPH SHUTTERS.—No. 16,420. 1908 (August 4, 1908). The object of the invention is to provide effective means (controlled by the passage of the film through the machine) for automatically closing the shutter in the event of a breakage of the film in machines of the type which have a safety shutter operated by centrifugal mechanism, whereby the shutter is opened when the machine has attained a certain speed, and is closed when the machine is stopped or driven at a lower speed.

The shaft carrying the centrifugal mechanism controlling the

shutter with the main shaft of the machine is connected through a clutch which is controlled by the passage of the film through the machine, in such a manner that immediately the film is broken the clutch is thrown out of action and consequently the shutter is closed owing to the stopping of the shaft carrying the centrifugal mechanism. Albert Arthur Lippold, 172, Lambeth Road, London.

CINEMATOGRAPH-PHONOGRAPH.—No. 8,496. 1908 (April 16, 1908). The invention relates to the connection of a talking machine with a cinematograph, to provide means for synchronously operating the two. The novel features consist in the provision of a disc with contact rings and a contact pointer running in front of the disc, which, with the contact rings, are actuated by the cinematograph and the pointer by the talking machine. The different electric contacts move all in the same direction, and are operated by the machines to be controlled, whereby the contacts when the cinematograph and talking machines are running synchronously are out of circuit, while they, on the other hand, when the machines are not synchronised, close the circuit and thereby put in operation signals which are arranged in the circuit. Alfred Duskes, 17, Friedrichstrasse, Berlin.

New Trade Names.

ROY OAK BRAND (DEVICE).—No. 305,835. Chemical substances used in manufactures, photography, or philosophical research, and anti-corrosives. Ragsosine and Co., Ltd., Albion Wharf, Bow, London, E., oil, paint, colour, and varnish manufacturers and merchants. August 28, 1908.

(DEVICE).—No. 310,987. Cinematograph films bearing taken photographs. The Charles Urban Trading Company, Ltd., Urbana House, 89-91, Wardour Street, London, manufacturers and dealers in animated picture specialties. March 3, 1909.

ACMETINT.—No. 310,375. Metal process blocks. The Acme Engraving Company, Ltd., Callow Land Studios, Acme Road, Hatfield, Herts, photo-engravers. February 10, 1909.

Analecta.

Extracts from our weekly and monthly contemporaries.

Titling Negatives.

A writer in the "Bulletin of Photography" for March 31 gives the following method for writing titles on gelatine plates:—"Practically all that one has to do is to write on the film. Use a needle-pointed steel, or a point of any metal, or even bone. There is no chemical action whatever upon the plate. The result is due wholly to pressure. The writing appears fine black on development. A number of scientific experiments have recently been made of the effect of stress on plates. Of course this plan cannot be used on a finished negative, as the action is a developable one, but it may be used for numbering exposures or for writing titles, etc., which is often desirable. The facility and rapidity by which the work may be done are sufficient inducements for naming before development, and not deferring the operation."

FORTHCOMING EXHIBITIONS.

- April 10 to 17.—Midlothian Photographic Association. Sec. B. Sherratt, 8, Castle Terrace, Edinburgh.
- April 27 to May 1.—Maidstone and Institute Camera Club. Sec. J. Harris, 23, Knight-riding Street, Maidstone.
- April 29 to May 17.—Photo Club de Paris. Secretary General, Photo Club, 44, Rue des Mathurins, Paris.
- May 20 to 27.—Malvern Camera Club. Entries close May 10. Sec. J. B. Nickolls, The Exchange, Malvern.
- July 7 and 8.—Canterbury Camera Club. Entries close June 23. Sec., B. J. Fisk-Moore, St. George's Gate, Canterbury.

New Books.

Photography of Coloured Objects. By C. E. Kenneth Mees, D.Sc. Croydon: Wratten and Wainwright, Ltd. 1s. nett.

The theory of the use of the colour-sensitive plate and filters is the subject of this text-book, but the theory is so frequently and copiously instanced by reference to practical work that even those whose cry is all for "practice" will not be disappointed. The person who will be disappointed should such readers skip the parts of the book dealing with general principles will be the author, whose evident aim throughout is to lead the photographer to reason out for himself why such and such a subject requires such and such a conjunction of plate and filter. But we are glad to hope that our author is not destined to feel these pangs of unspiced labour. Certainly, in this instance, he does not deserve them for he has provided in the three opening chapters of the book a most lucid and readable account of the nature of colour, the manner of absorption of light by colour filters and the means to be used to bring the colour-sensitive plate by means of light-filters into correspondence with a required condition. We have no doubt that our author considers these three chapters the section of the book most to be studied, and so it is for an understanding of the use of plates and filters. If the reader presses on to the later chapters it will be because they deal with specific applications of commercial and artistic importance. While these serve the purpose of illustrating the principles of colour-sensitiveness and light absorption they are none the worse for giving a good deal of very useful information. This remark applies particularly to the section "Colour Contrast for Special Purposes," in which the advantages of a properly selective filter in the photography of furniture are most effectively shown.

In Chapter V. on "Portraiture," the author makes a very good case for the use of panchromatic plates and a suitable filter in portraiture. As he admits, the retoucher is a factor to be reckoned with in this case, perhaps to a greater degree than our author concedes, since he would seem to disregard the extensive use made of the knife by retouchers in the passage (page 35): "Even if the retoucher were able satisfactorily to lighten those parts of the print which the ordinary plate has failed to render with sufficient density he would still be unable to darken those parts where the excess of sensitiveness to blue and violet has produced too heavy a deposit in the negative." Apart from the question of the prolonged exposure necessitated by a screened panchromatic plate, the photographer has to balance the lessened cost of retouching against the increased cost of the plates, and thus the merits of the ordinary plate, highly retouched, versus the panchromatic plate, with a minimum of retouching, fall to be decided on other than purely technical grounds. Dr. Mees deals very clearly indeed with the retoucher's system; the pair of portrait examples by Barraud is very striking, and this chapter in particular should be studied most carefully by the portrait photographer. Dr. Mees, it will be understood, aims to dispense with retouchers only as regards tonal values, texture of skin and hair, etc.; even he cannot make a plate which will omit part of a nose or err in kindness as to a lady's waist.

The later portions of the book deal with the photography of coloured objects from the process-worker's standpoint (this chapter by Mr. A. J. Newton) with colour-sensitive plates in landscape work, and with three-colour photography. In all the 70 pages there is not a redundant paragraph, and the volume, in everyday language, is a clear treatise of the important branch of photography which is its subject.

CAMERA WORK, Nos. XXV. and XXVI., New York.—We usually find more entertainment in the letterpress of this magazine than in the pictures, fine though the latter always are, considered as photographic plates. But the articles are, as a rule, more ingenious, more the outpourings of fevered spirits, who take themselves seriously. Some are distinctly clever, some are ostensibly humorous, and others, the most delicious of all, are unconsciously so. Here, for example, is a gem culled from an article upon last year's London Exhibition, by J. T. Keiley:—

Had the jury been heartlessly faithful to the high standard set them, the exhibition would have gained materially in strength;

but there were evidently moments in which the Committee of Selection permitted kindness to influence discretion."

We hope all the outraged "links" will not forget that.

An excellent article, by C. H. Caffin, upon the work of the painter Matisse enlivens No. 25, in which number the usual trumpet-blowing for the "Little Galleries" falls to Paul B. Haviland, and Fredk. H. Evans gives a modest blow for his own concerns in "Personality in Photography."

As to the plates, for those by Annie W. Brigman, much belauded by somebody else on another page, we do not confess to much enthusiasm. Her "Blasted Pines" and "Dying Cedars," which are much mixed up with writhing nudités, appear too far-fetched in idea, and when one thinks of the preliminary machinery necessary for these daring "exposures," one has a feeling that the pictures are vamped up, and lack that easy spontaneity of which a true work of art should bear the impress. Miss Brigman cannot keep us from seeing behind the scenes. She gives us a nude ankle-deep in water, upon the surface of which she floats what appears to be an air-ball. The title is "The Bubble," and we know, by its conformation, that this single shining thing in water, otherwise black in its stillness, is nothing of the kind. The phenomenon is apparently in a cavern, because of certain stalactites above the figure, and the low-lighting from one side. But there is also a willow growing in the cave, which is not the way of willows. Hence the jar to artistic proprieties. There is about all her five plates a certain quality of tone, very agreeable in itself, but entirely foreign to the conditions demanded by the facts depicted. It is a specious sort of artistic effect, Miss Brigman's one and only, by which she does the trick every time. Frauk Eugene's hard and eerie profile of Mr. Stieglitz, with his eye like a black boot-button, we have never liked; but his "Lady of Charlotte"—a title that sounds like a wilful miswriting of the Lady of Shalott—has a beauty of form and modelling.

Those who are interested in the American development of the King's English will be pleased to note the following inventions:—Climatic, expertry, crafter (for craftsman).

In No. 26 there is not so much to read, but two articles should not be missed. They are one upon "Caricature," by B. de Casseres, and one upon "Modern Chiaroscuro Deficiencies," by "A. Chameleon." These are both learned and excellently expressed. Among the pictures, another lady, Miss Alice Boughton, supplies the chief attractions. Like Miss Brigman, she revels in nudes, O Shades of the Pilgrim Fathers! But the one of her six that is not a nude is quite the nicest, called "A Danish Girl." This is a fine piece of lighting and effect. The others are unconvincing allegories in the Brigman manner, but without her feeling for composition and pattern. The group of wormy-looking girls all undressed is positively ugly, and hasn't even the saving grace of an attempted allegory, being simply called "Nude." Despite all of which Mr. Stieglitz, in his sumptuous quarterly (which he produces, edits, and publishes from 1,111, Madison Avenue, New York), challenges the attention of those interested in pictorial photography. One may scoff at, but one cannot afford to ignore, "Camera Work," every page of which has the impress of an enthusiastic tireless personality.

"FIRST STEPS IN PHOTOGRAPHY."—A fourth edition of this very excellent manual, by Mr. J. C. H. Wallgrove, has just been issued by Messrs. Percy Lund, Humphries, and Co. It has been improved by freshly drawn illustrations of apparatus, the lettering of the parts of which make for ready comprehension by the beginner. The book supplies a very reliable guide to negative-making, printing, enlarging, and the preparation of lantern slides, and at the price of 6d. should command a ready sale. Dealers certainly have no cause to complain of the cover, which, in the fourth edition, is a most attractive one.

"T.Q.," No. 5.—It would seem that if you want to develop the Mark Tapley temperament, the best thing is to edit a quarterly photographic periodical. Presumably Captain Owen Wheeler is able to say of his "Telephoto Quarterly," "the work is light and, I may add, it's most remunerative." At any rate, the first part of a new volume of our quarterly contemporary is discovered to be on good terms with itself and the world in general, and so it deserves to be for its very personal and readable contents and its prompt announcements of what is new in telephoto methods. The current issue contains an article by Mr. Harvey Collingridge on "Telephotography Applied to Civil Engineering," and a number of editorial contributions of the eminently helpful description we expect from

Captain Wheeler. We are glad to watch the continued progress of "T.Q.," the yearly post free subscription to which is only 2s., from Captain Wheeler, "Strathmore," Princes Road, Weybridge; or in the U.S.A. from Tennant and Ward, 122, East 25th Street, New York, at a price obtainable on application to them.

New Materials. &c.

LINGRAIN CHAMOIS BROMOIL PAPER.—Messrs. John J. Griffin and Sons, Ltd., Kingsway, London, W.C., have added to the rough and smooth grades of the paper made by them for the bromoil process a new grade, the "Lingrain Chamois." It has a linen-like surface and cream tint, and therefore is very suitable for pigmenting in sepia, whilst giving prints of pleasing surface texture.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, APRIL 16.

Clapham Carlton Camera Club. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.

SATURDAY, APRIL 17.

United Stereoscopic Society. Outing to Wanstead Park.
Kinning Park Co-operative Camera Club (Govan). Outing to Glasgow Harbour.

MONDAY, APRIL 19.

Stafford Photographic Society. Competitions.
Canterbury Camera Club. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Kidderminster and District Photographic Society. Rodinal Demonstration. The President.

South London Photographic Society. "Ancient Abbeys and Churches of South Essex." C. Forbes.
Catford and Forest Hill Photographic Society. A Night for Grumblers. Opened by a Grumble from the Secretary.

Redhill and District Camera Club. Criticism of Members' Prints.
Bradford Photographic Society. "Carbon Process." Hubert Henry.

TUESDAY, APRIL 20.

Royal Photographic Society. "Racial Types in South Africa, and the Flora of the Country." Mrs. Minna Keene.
Worthing Camera Club. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.

Hackney Photographic Society. Selection of Lantern Slides for the R.P.S. Affiliation Competition.

Leeds Photographic Society. "The Production of Oil Prints." J. J. Griffin & Sons, Ltd.

WEDNESDAY, APRIL 21.

Croydon Camera Club. "Bromoil." F. J. Mortimer.
Leeds Camera Club. "Printing Papers." John Lax.
Eastbourne Natural History Society (Photo Section). "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Nottingham Camera Club. "The Glorious West-Country: Devon and Cornwall for a Holiday." Charles R. Rowe.

THURSDAY, APRIL 22.

Handsworth Photographic Society. "The Carbon Printing Process." R. J. Pummell.

Dover Institute Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Blenheim Club. "San Marino: The Pigny Republic." Rev. T. T. Norgate.

Leeds Photographic Society. Auction Sale.
Wimbledon and District Camera Club. "Humble Beauties of the Flower World." E. Seymour.

North-West London Photographic Society. "A Negative from a Negative." H. S. Date.

ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held Tuesday, April 6, Mr. George E. Brown in the chair. A paper by Dr. C. E. K. Mees and Mr. S. H. Wratten on "Some Interesting Absorption Spectra" was read by Dr. Mees. The authors had measured the absorption spectra of a large number of dyes such as would be most suitable for the making of light-filters for orthochromatic photography and three-colour work. Many of the dyes of which measurements were given were of comparatively recent manufacture and data relating to them had not previously been published. The authors described the photographic methods which they had used for recording the absorptions, the most rapid and convenient method being by means of a wedge-shaped cell containing the dye solution illuminated by a small powerful source of light, such as a Nernst lamp. The photographs of the absorption spectra were projected on the screen, and the whole series of measurements, to be published in the full text of the paper, will evidently provide a most useful source of reference to those engaged in the making of light-filters.

Commercial & Legal Intelligence.

LEGAL NOTICES.—A first and final dividend of 6d. in the £ will be paid on the 19th inst., by the Official Receiver, 23, King Edward Street, Macclesfield, on behalf of Alfred Fletcher, photographer, The Studio, Town End, Chapel-en-le-Frith, Derbyshire, and residing at Town End in the same district.

Notice of intended dividend has been given in the case of Walter George Lewis, photographer, 1, Seymour Street, Bath. Papers must be sent to the Official Receiver, Mr. F. L. Clark, 26, Baldwin Street, Bristol, by the 23rd inst.

A first meeting of creditors in the case of Joseph Sharples (trading as the Romanus Publishing Company), photographer, etc., 4, Church Lane, Marple, and formerly of Hollinside, Stockport, Manchester, has been called for the 22nd inst. at the Official Receiver's office, Castle Chambers, 6, Vernon Street, Stockport. The public examination will be held at the Court House, Stockport, on the 30th inst.

An adjudication order, dated April 2, has been made in the case of Florence Pattie Brown, widow (trading as Mrs. F. V. Brown), Liphook, Hants, photographic chemist, etc. The first meeting of creditors will be held at the Official Receiver's office, Portsmouth, on April 19. The receiving order was made on the debtor's petition.

NEW COMPANIES.

W. T. COLE AND SON, LTD.—Capital, £1,000, in £20 shares. Objects: To take over the business of a chemist and druggist, optician, and dealer in photographic materials, carried on by W. B. Cole, at 7, St. Mary Street, Weymouth, and at Melcombe Regis, Dorset, as W. T. Cole and Son. Private company. Registered office, 17, St. Mary Street, Weymouth.

AMERICAN BOUDOIR STUDIOS.—116-117, Chancery Lane, W.C. £1,000 (£1). To take over the business of art photographers carried on by H. O. Dean and C. Clark, at 119, Upper Tooting Road, S.W., as the American Boudoir Studios. Private. 119, Upper Tooting Road, S.W. (101,937.)

News and Notes.

GRANT FOR X-RAYS VICTIMS.—In the House of Commons, last week, Mr. Hobhouse (Secretary to the Treasury), on behalf of the Prime Minister, informed Mr. Bowerman that a grant had been made from the Royal Bounty Fund to Mr. H. W. Cox, who recently sustained serious and permanent injuries in connection with X-rays research work.

DISSOLUTION OF PARTNERSHIP.—The partnership between Arthur Francis Clark and Arthur Victor Mann, carrying on business as commercial photographers, at 1, Adelaide Street, Strand, W.C., under the style or firm of Clark and Mann, has been dissolved by mutual consent as and from the 31st day of March, 1909. All debts due to and owing by the late firm will be received and paid by Arthur Francis Clark.

ROYAL INSTITUTION.—A general meeting of the members of the Royal Institution was held on Monday afternoon (the 5th inst.) at the Duke of Northumberland, K.G., President, in the chair. Mr. L. J. Baker, Mrs. S. G. Brown, and Miss Carvill were elected members. The special thanks of the members were returned to Dr. Hugo Müller for a donation of £100 to the Fund for the Promotion of Experimental Research at Low Temperatures.

WEST SURREY PHOTOGRAPHIC SOCIETY'S EXHIBITION.—At the twenty-first annual exhibition of the West Surrey Photographic Society, held at the Railway Hotel, Battersea Rise, London, from March 31 to April 3 inclusive, the following awards were made by Mr. A. H. Blake, M.A.:—Silver plaque for best picture in exhibition, "In the New Forest," W. H. Goy. Bronze plaques: "Thaw," C. A. Clear; "The Moon Rose o'er the City," A. Lockett; "Wier's Garb," G. E. W. Herbert; "Our Rockbound Shore," R. H. Bassett; "On a Tidal River," V. Nichols. Honourable mention: W. E. Dickford, G. E. W. Herbert, V. Serin, C. A. Clear, B. Gilbert, V. Nichols.

Collins, R. H. Baskett. Lantern slides.—Bronze plaque, Nichols. Honourable mention: V. Nichols, C. A. Clear, and Lovegrove.

LIVERPOOL AMATEUR PHOTOGRAPHIC ASSOCIATION.—It is proposed to hold a series of exhibitions during the summer months in the rooms of the above society, at 9, Eberle Street, Liverpool. The "A Series of Impressions Rendered by Photography," by John Arbuthnot, will be on view from April 19 to May 10, daily 10 to 7 (Saturdays, 10 to 4). Admission will be free.

THE PHOTO-SECESSION GALLERIES, 291, Fifth Avenue, New York, section of sketches in oil by Alfred Maurer, and also of water-colours by John Marin, both of Paris and New York, have recently been on view, and would appear to have attracted a considerable amount of attention by their original and distinctive schemes of colour. The next exhibition, which is announced to open on April 19, is devoted to a series of photographs of Rodin's "Balzac," by Edward J. Steichen, also of Paris and New York.

BEAUTY AND FASHION PHOTOGRAPHS.—In connection with the "Series of Fashions" to be held at the Horticultural Hall from April 23 to July 3, there will be a competition in which prizes to the value of £150 are offered for photographs illustrating periods of fashions of dress, portraying celebrated women of history, or presenting pictures by great artists. A committee of society members and several artists will select the photographs to be placed before the judges, who are John H. Bacon, A.R.A., W. Hatherell, and R. Child Bayley. Entries are to be delivered to 12, Friars Street, E.C., on or before May 15.

THE THORNTON-PICKARD COMPETITION.—The Thornton-Pickard Company have just issued particulars of the prizes to the total value of £100 which they offer to users of their cameras and shutters. Their competition remains open during the present season, the competing photographs requiring to be sent in on or before October 1 next. The classes into which the competition is divided are:—
Photographs taken with T.-P. cameras, fitted with any T.-P. shutter other than focal-plane.
Photographs taken with any T.-P. focal-plane shutter.
Photographs taken with any T.-P. shutter other than the focal-

Architectural subjects taken with any T.-P. camera.
For beginners (using a T.-P. camera) who have not taken a photograph in any competition.
For stereoscopic photographs taken with a T.-P. camera, or other camera fitted with stereoscopic shutter.
Enlargements from negatives taken with T.-P. cameras or other cameras, or from other negatives enlarged in T.-P. enlargers.
Full prospectus and new rules of the competition are obtainable from the Thornton-Pickard Company, Altrincham, and our dealer in particular should see that they have a supply for their cameras.

AWARDS FOR SCIENTIFIC AND APPLIED PHOTOGRAPHY.—In the hope of creating increased interest in photography in general, and in the annual exhibition of the Birmingham Photographic Society in particular, Dr. Hall-Edwards has formulated a scheme for offering awards for scientific and applied branches of the art. With this end in view he had already secured promises of four subscriptions of one guinea each, and he hoped to get sufficient promises to enable him to offer the Birmingham Photographic Society a complete scheme, which, in the event of the society's acceptance, would cost them nothing. Seven Birmingham firms have already promised to contribute to the fund for providing medals and certificates. The following is a suggested list of classes in which it is proposed to offer awards:—
Scientific.—(1) Prints or lantern slides illustrating the life history of a bird, animal, fish, or insect; (2) photographs or lantern slides illustrating the life history of a plant; (3) prints illustrating the natural history of a back garden; (4) telephotographs; (5) photographs; (6) radiographs (X-rays, radium, and other radio-active substances); (7) geological photographs; (8) prints illustrating the principles of various processes; (9) various scientific applications of photography.

Applied Photography.—(1) Set of photographs illustrating camp and military manœuvres, etc., to be used for recruiting purposes; (2) photographs illustrating the various processes a manufactured

article passes through in its making; (3) best set of photographs of a factory, workshop, bakehouse, dairy, brewery, electric light station, fire station, tramway depot, gasworks, sewage farm, etc., etc.; (4) best photograph suitable for advertising purposes; (5) prints suitable for illustrating a trade catalogue or price list; (6) best set of lantern slides illustrating life in our streets.

THE TYRO IN JOURNALISM.—A most curious departure is observable in the current number of the "B.P.S. Journal," the little organ of the Birmingham Photographic Society, which has hitherto run an orthodox, if undistinguished, career. It has now a London letter—not, of course, a remarkable or improper feature of a provincial periodical, but in this instance attracting comment from the fact that the London correspondent takes the somewhat unusual course of informing his (Birmingham) readers what they of the B.P.S. are doing. We read:—

"Rumours are rife as to important changes in B.P.S. management and procedure during the present year. Some new blood has been elected on the council, and the pace is to be 'hot' for a time.

"Your fellow townsman, Walter I. Morgan, R.B.A., has made quite a hit with his lecture on 'Composition and illustrated criticisms of the recent affiliation print competitions.' His sketches, along with the selected prints, now form the House Exhibition at the B.P.S., and are much appreciated.

"It is much to be regretted that your society is not represented by a single print. Who is to blame for this? Now that the B.P.S. medal has been abolished, the beautiful plaque awarded by the affiliation judges is considered by many pictorialists to be the 'blue ribbon' of photographic competitions, and I cannot help thinking your members have a ground of complaint if they were not properly advised of the competition."

All this no doubt would be interesting enough to Birmingham if it were a fact, whereas the truth, of course, is that Mr. Morgan's sketches are being shown at the Royal Photographic Society, Russell Square, London, and the Birmingham Society, far from abolishing medals, scattered them in profusion at its last exhibition. Inconceivable, of course, that both correspondent and editor have passed "B.P.S." for "R.P.S." Yet perhaps here we may get some explanation for the pseudonym of "Haggard" which the gifted correspondent assumes. Most distressing how printers positively will not make those corrections!

CINEMATOGRAPH REGULATIONS.—The Theatres and Music Halls Committee of the London County Council have drawn up revised regulations for the use of cinematograph lanterns, etc., in premises licensed by the Council. In this they have been partly guided by the views of the Cinematograph Manufacturers' Association of Great Britain and of the National Association of Cinematograph Operators. The proposed new regulations have also been submitted to the Theatres Alliance and Entertainments Protection Association, and no alterations have been suggested by these associations. The revised rules provide that where cinematograph displays do not form a regular feature of the entertainment notice of any intended exhibition must be given to the Clerk of the Council three days before the exhibition takes place. Opportunity is also to be given for the Council's Inspector to examine the apparatus at least four hours before the public exhibition takes place in order to allow time for any alterations to be carried out. In no circumstances is a cinematograph chamber to be placed so as to interfere with the free use of an exit-way, and any temporary alteration in the regular line of a gangway must be amply compensated for by the rearrangement or removal of seats. This is an entirely new rule. The old rules as to the cinematograph room and the lantern have been deleted and entirely new regulations drawn up. These provide that where cinematograph displays form a regular feature of the entertainment the apparatus is to be placed in a permanent enclosure of sufficient dimensions to allow the operator to work freely. This enclosure is to be constructed of solid incombustible materials not less than three inches thick, and be provided with a proper ventilating trunk carried from the highest point of the interior of the enclosure to the outside air. The entrance to the enclosure is to be fitted with a self-closing, fire-resisting, smoke-proof door, placed at the rear of or on the operating side of the apparatus, and opening outwards. Where the cinematograph displays are only occasional the enclosure is not insisted upon, but the lantern must be contained in a smoke-proof box constructed of sheet iron. It is also

laid down that all lanterns shall be placed on firm supports of fire-resisting construction, and provided with a metal shutter which can be readily inserted between the source of light and the film gate. This film gate is to be of massive construction and with ample heat radiating surface, and the passage for the film is to be sufficiently narrow to prevent flame travelling upwards or downwards from the light opening. As before, where possible, electric arc light is to be used as the illuminant, but the new rules provide that circuits where there is a pressure exceeding 250 volts between the poles, or from either pole to earth, shall not be allowed. Where the apparatus is used in a portable box a permanently installed circuit shall be carried to a convenient point. If limelight is to be used in the lantern special attention is to be given to the tubing, which must be of sufficient strength to resist pressure from without. All cinematograph projectors are to be fitted with two metal film boxes of substantial construction and not more than 12 inches in diameter. Such boxes must be made to close in a manner which will prevent the ingress of fire, and must be fitted with a film slot capable of preventing the passage of flame to the interior film box. All films, when not in the machine and still in the operating enclosure, are to be contained in such closed metal boxes. Finally, the following general regulations are laid down: (a) Smoking within the enclosure forbidden at all times; (b) no storage of any description within the enclosure; (c) adequate small fire appliances, including a bucket of sand available outside the enclosure in charge of a special attendant; (d) general lighting of the hall and exits not to be controlled solely from within the operating enclosure; (e) a suitable barrier to be placed round the temporary box to prevent the audience coming into contact with same.

Correspondence.

** We do not undertake responsibility for the opinions expressed by our correspondents.

** Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

SULPHIDE TONING.

To the Editors.

Gentlemen,—Mr. Brown's difficulty, as described in his letter in the "B.J." of March 19 last, is really very easy of explanation. He found that when he added eight grains of "hypo" to a ferricyanide-bromide bleacher he got an image apparently the same as when no "hypo" was used, but which would not tone. The image given by bleaching with the ferricyanide-bromide bleacher consists of a lake of silver and silver bromide, and the visibility of this is due to the silver. The "hypo" dissolved away the silver bromide and left the metallic silver. Hence, although the image looked the same as a plainly bleached image, it was in reality very different, and, of course, would not tone.

As pointed out in the "B.J.," there is not the slightest doubt whatever as to stale sodium sulphide solutions containing "hypo" or a mixture of "hypo" and the sodium salts of some of the thionic and other sulphur acids. It is also absolutely certain that the majority of bad tones obtained from good silver images are due to stale sulphide. I have assured myself by experiments that even the most careless photographer could hardly leave enough hypo in a print through insufficient washing to affect the toning process. There is, of course, not the slightest need to use stale sulphide solutions. If pure crystalline sodium sulphide is bought in the first instance and kept in a properly corked bottle in the form of a 25 per cent. solution, it will certainly remain good for well over two years. The dilute (1 per cent. or so) solution used for toning should always be thrown away after use.

There is one other possible cause of a poor tone being produced from a good silver image. Mr. Edwards, the originator of the ferricyanide-bromide bleacher, has stated that with repeated use the solution becomes contaminated with potassium cyanide. I have never been able to confirm this, but, if it be so, the effect would

be apparent in the yellowing of the sulphide image. A grows in the ferricyanide-bromide bleacher if it be kept long time, but I have not noticed that any injurious effect results. My experience is that if one gets too yellow a tone either through using bad sodium sulphide or owing to the silver image not being the right kind, then the best chance of improvement is given by each- bleaching the sulphide image in a bichromate-bromide bleacher, and then after washing, again sulphuretting in a pure sodium sulphide solution. The bleacher should be made up as follows:—

I. Conct. sulphuric acid	160 minim.
Water	5 oz.
II. Potassium bromide	150 grains.
Potassium bichromate	90 grains.
Water	5 oz.

For use take equal parts of I. and II. The mixed bleach does not keep well, as it generates free bromine. Free bromine, besides being objectionable on account of its irritating vapour, apparently will often so affect the gelatine film as to render the print more unsatisfactory in tone than it was originally.

In my opinion, neither the ferricyanide-bromide bleacher or the bichromate-chloride one is suitable for bleaching a sulphide image, as the action of both is too slow and feeble.

If any still doubt the effect of "hypo" in the sodium sulphide solution, I would, in conclusion, suggest to them the following experiments:—

(1) Tone a bromide-bleached print with	
Sodium sulphide	0.25 part
"Hypo"	1 part
Water	100 part

The experimenter will get a similar result to that described on the "B.J." a few weeks back, *i.e.* a filmy deposit of silver sulphide on the print showing a metallic sheen. Here the concentration of the sulphide is not sufficient to prevent solution taking place, but it is sufficient to prevent any silver sulphide getting outside the film.

(2) Tone a bromide-bleached print with	
Sodium sulphide	0.1 part
"Hypo"	1 part
Water	100 part

Here a very faint image and a general stain will be produced on the paper, and a precipitate of silver sulphide in the solution. The concentration of the sodium sulphide is not sufficient to precipitate all the silver in the film, but some is dissolved out by the "hypo" and then precipitated outside.

(3) Tone a bromide-bleached print with	
Sodium sulphide	0.03 part
"Hypo"	0.2 part
Water	100 part

Here a faint image is produced, which on treating the print with a normal sulphuretting solution tones in a normal manner. The result is similar to the light images described in "Photo Notes." The image no doubt consists for the most part of unaltered silver bromide (or rather the unaltered lake). As pointed out by myself more than a year ago, and lately by the "B.J.," many have not made sufficient allowance for the fact that the oxidation of the sodium sulphide in stale solutions has not only produced "hypo" or "hypo" and other foreign substances, but has, of course, of necessity decreased the amount of sodium sulphide.—You etc.

31, St. John's Road, Putney, S.W. R. S. BLAKE

THE EFFICIENCY OF THE FOCAL-PLANE SHUTTER.

To the Editors.

Gentlemen,—It was quite refreshing to read your remarks on the efficiency of the so-called focal-plane shutter. You very generously give the usual working distance of the blind in the plate as half an inch; I have very often found the distance as much as three-quarters; and this is sufficient under very ordinary working conditions to reduce the efficiency from 100 per cent. to something under 40. This question of shutter efficiency is most important, and I believe is not properly understood by the majority of photographers, and consequently the poor shutter-maker who aims at high efficiency has to give way and follow the lead of

whose ideal is high shine. Hence the value of your remarks from Mr. Salt's lecture; by bringing the attention of photographers to this subject they will tend to increase the demand for scientific instruments; and depend upon it, if there is a demand there will supply.

The exasperating thing is, that when we want efficiency most it is least. If I were going to photograph a house and give 1 second with a small stop I should not much care whether the efficiency of my shutter were 20 or 80 per cent.; but, if on the other hand I had to show the working mechanism of a soaring balloon, at what an unnecessary disadvantage I should be. I have to give the quickest exposure I possibly could. My shutter works at 1-1000th of a second with a slit of 1-10th of an inch, and my lens works at $f/4$, and under these conditions my plate will be nearly three times more under-exposed than was necessary just because the blind of my shutter works three-quarters of an inch from its proper place.

I can only refer to current literature and conversation on the subject to see how loose prevalent ideas are. Even Mr. Salt is a bit doubtful, and makes an appeal to mathematicians. In my example, fig. 20, the efficiency is obviously 50 per cent., and if the distance is doubled, not decreased as he seems to assume. By the way, as I pointed out once upon a time before, no matter what distance the blind may be from the plate, the duration multiplied by the efficiency is a constant quantity, and equals the effective exposure, which is the same as if the blind worked in the focal plane. The calculation for efficiency is very simple.

If we take w =width of slit; d =the distance of the blind from the focal-plane; and a =relative aperture, then

$$\text{Efficiency} = \frac{a w}{a w + d}$$

With a lens working at $f/4$, the width of slit 1-10th of an inch and the distance of blind from plate three-quarters of an inch.

$$\text{Efficiency} = \frac{4 \times \frac{1}{10}}{4 \times \frac{1}{10} + \frac{3}{4}} = \frac{40}{115} = \frac{34.78}{100}$$

This formula is not quite true, because it takes no account of the "coming down" of a beam of light as it passes through the lens; still, it is near enough to be very useful.

I have heard so many absurd claims made for shutters that work nearer the plate than to the lens, and I repeat it was quite interesting to read the remarks in the "B.J.," and I trust they will be ventilated.—Yours faithfully,

Winchester Road, Twickenham. CHARLES J. STOKES.

PROOFS TO BE RETURNED.

To the Editors.

Gentlemen,—Apropos of the paragraph on troubles over proofs to unscrupulous people, who take them to some cheap photographer to be copied, or more frequently (as I have found) copy themselves, I have on my list (enclosed herewith) single copy marked, and, as I always issue proofs finished, in the event of their being given, each proof is charged single copy price, which, as you can see, is sufficiently good to cover the cost of making negative, retouching, and printing.—Yours faithfully,

J. DOUGLAS RITCHIE.

MALVERN CAMERA CLUB.—The annual exhibition will be held in the lecture hall of the Public Library, Malvern, from May 20 to 28 inclusive. The open classes include one for colour photographs (prints or transparencies) and one for stereoscopic work. The best plaques and certificates, with the addition of a silver medal in the champion class, will be placed at the disposal of the club. Mr. Arthur Marshall, for award in both the open and ladies' classes, whilst in the latter a special award in the form of a silver plaque is offered by Mr. J. H. Clive for the best picture. Entries close May 10, on or before which date entry must be accompanied by the necessary fees, much reach the Hon. Secretary, Mr. J. B. Nickolls, The Exchange, Malvern, from whom also further particulars may be obtained. Pictures exhibited in Malvern will be conveyed to Malvern free of cost if so desired.

Answers to Correspondents.

- All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
- For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED :—

F. W. Payne, 12, Shop Street, Drogheda, Ireland. Photograph of a View of Bettystown and Strand. Photograph of Lawrence Street, Drogheda, showing Old Gate and Whitworth Hall. Photograph of Bathers at Laytown.

PAPER.—Can you tell me where I can procure a paper that does not stretch or that stretches equally in both directions?—F.

It is not possible to procure such a paper. Even the best hand-made paper will stretch slightly more in one direction than another under moisture. Thus at the Ordnance Survey they find the paper used for maps stretches as 1 to 1.2. Machine-made papers stretch much more. Some tests made for the L.C.C. School of Photo-Engraving showed that some papers stretched 13 times more in one direction than another when thoroughly moistened, and the best machine-made papers stretch at least five times more in the "cross" section than in the "machine" section.

LENS QUERY.—I have a lens, No. 4,119, by Lerebours et Secretan, Paris (without flange), and would feel obliged if you can tell me use of same. If for portraits, what size? Also, if of any value? Where can I get a flange to suit?—TOM CONWAY.

It is obviously impossible to answer a question such as this. Even the form of the lens, its size, or focal length are not mentioned. We see by the heading of your letter that you are a professional photographer, and therefore should know whether the instrument is a portrait or a landscape lens. If it is the former, its use is, of course, for portraits; if the latter, for landscapes. Why not fix it temporarily on a camera and see what size it will cover? Any lens maker will make a flange to suit the mount.

TADROUS HANNA (Asseout, Egypt).—1. No, there is nothing better than the fine pencil work. 2. It is not readily employed on the negative; we should advise you to make a good enlargement, work that up with the air brush and then make a fresh negative. 3. Nothing but practice.

ANXIOUS.—(1) No registration is necessary. If the establishment comes under the Factory Act the proprietor will be required to comply with the regulations thereby enforced. (2) Any use whatever may be made of the formulæ.

REDUCER FOR CINEMATOGRAPH FILMS.—1. I have just returned from abroad, having been running a cinematograph entertainment by limelight. It has been a practice of mine to reduce dark and overprinted film by the hypo-ferricyanide process. This I found troublesome owing to the difficulties of obtaining water for after-washing. The process also has the tendency to reduce the whites more rapidly than the black, thereby spoiling all the detail of the picture. Can you advise me any other cheap, clean working reducer which would answer my purpose better? 2. Some films now on the market printed in blue, brown, red, etc., will not reduce by this process; the tinting seems to be done in printing of the film itself, no surface colouring being laid on. Can you give me any reducer to act on this kind of printing?—OLD PHOTOGRAPHER.

1. A better form of the hypo-ferricyanide reducer is the following: A. Potass ferricyanide, 1 oz.; ammonium bromide, 1 oz.; water, 10 ozs. B. Hypo, 1 oz.; water, 20 ozs. Use one part of A to eight of B. This will not eat out the detail in the light parts to the same extent as the ordinary reducer. It

is the best cheap solution we know. 2. These films are stained up with dye solutions; the only means of reducing the depth is to pass them through water, the effect of which will be enhanced by addition of, say, 1 per cent. of acetic acid.

M. EMBETE.—(1) The Goerz-Anschutz more than the reflex, on account of the greater convenience of holding at the eye level. (2) Probably 5 by 4 is the most common size. It is very common to enlarge, and in this case a smaller camera is greatly preferable. Some of the very small cameras, such as the Richard Verascope and Goerz Tenax, have come into use of late, since a large aperture lens can be used with scarcely any focussing. (3) The lamp works well. (4) "Retouching," by Arthur Whiting (Dawbarn and Ward, 1s.). (5) See "B.J.," March 26, p. 233, paragraph headed "Sulphide Toning." This will work equally well with the thiomolybdate.

T. G. SNOWDEN.—As you have electric supply, we certainly advise you to use the arc light, on account of its greater economy and lesser heat. One arc will be ample for single portraits, or, at a pinch, for a small group. There are several makes of lamps. You should write for particulars to the firms. See our advertisement pages.

T. R.—Greenberg and Son, Water Lane, Ludgate Hill, London, E.C.

ENLARGING LENS.—(1) What is the difference between a portrait lens and a lens specially constructed as an enlarging objective, both lenses being of the Petzval type? (2) Will the enlarging objective answer equally as well for portraits as the portrait lens?—OPTIC.

(1) The lens often supplied as a "special enlarging objective" is the usual Petzval portrait lens. If of sufficient covering power it is a very suitable lens for the purpose, but the smaller anastigmats of $f/6$ and $f/4.5$ aperture have largely supplanted it for enlarging. (2) Yes.

STAINED FILMS.—I find that the gelatine backing to films takes up stain from developer and fogs prints more or less. Please tell me the remedy.—ENTHU.

Anything which will remove the stain from a negative will also remove it from the gelatine backing, say acid solution of alum; but we should prefer to avoid the stain by use of a suitable developer.

H. AGI'S (Malta).—You will find the announcements of a number of such firms in our advertisement pages.

VARIOUS.—1. I want a show case in which to show my photographs. Can you tell me where I could get one, and if you can suggest any arrangement that would protect it from the sun, when hung out of doors? 2. Also I should like something for my studio that would look like a balcony, and that would be inexpensive. I have written for a catalogue from — and Co., but there seems nothing but rather expensive furniture. 3. Would it be legal when advertising to advertise oneself as retoucher for a certain length of time at a studio in same town?—A NEW READER.

1. Messrs. Marion and Co., Soho Square, stock photographers' show cases. We should advise you to get their price list. The only way of protecting it from sun when hung out of doors is to have a small sun blind over it—one that can be removed when the sun is not on it. 2. The large dealers such as Fallowfield, Houghtons Ltd., and F. E. Jones and Co., will supply such an accessory. But you must not expect to get really good things at a low price. 3. Yes, quite legal, provided you do not make your late employer's name more prominent than your own, or use it in such a way as to lead people to believe that he is connected with your business in any way.

LENS FOR STUDIO.—1. What would be the best half-plate portrait lens for a studio 19ft. long? 2. Is it possible to take whole lengths in such a studio? 3. Is the — Co. a reliable one? as it seems very moderate in the prices, and that is a consideration to us.—STUDIO.

1. The most useful lens would be a short focus cabinet one of from 9 to 9½ in. focus. Such a lens will require about 14ft. between sitter and camera for a full length cabinet portrait, and that your studio will just permit. 2. Yes. 3. Yes, we should say so.

H. D.—1. Quinine sulphate will do if you use a filter on the lens of para-nitroso-dimethyl-aniline. 2 and 3. It is a rather nice

matter of adjusting the ink and the filter. If you write the General Electric Co., of Queen Victoria Street, London, E.C. they would send you an advertisement they issue of the Osram lamp in which a grey imprint is quite invisible until viewed through the red filter.

POSTCARDS ON SALE OR RETURN.—Last summer I supplied a number of postcards of local views to two fancy shops here. They were to be on sale or return. At Christmas I asked for a settlement. They then returned a number of unsold ones, which, through exposure in the window, had faded (gone very yellow), and were useless for sale. These I, of course, refused to take back or allow for, and they then refused to pay the account unless I did. The two shops belong to brothers, and I expect they are acting together. What would you advise me to do in the circumstances?—COUNT PHOTO.

One cannot be at all surprised that the people refuse to pay the accounts unless you take back and allow for the faded pictures. You cannot expect them to be responsible for your bad work. You should not have supplied them with prints so carelessly produced that they would not stand exposure in the windows. You, of course, must allow for the faded pictures.

SEPTIMUS.—We cannot say where you can get carbon tissue of the exact tint of the piece of paper sent. We do not think such a tint is on the market; certainly we have not seen anything like it. One or other of the carbon tissue makers would possibly make you such a colour to order if a sufficient quantity were ordered to make it worth their while.

SUFFERER.—We should say, without doubt, that the state of your fingers has been brought about by the use of the metol. The appearances and irritation described are quite in accord with metol poisoning of the skin. The only real cure for it is to abandon the developer or in future work with indiarubber gloves or finger stalls. If the use of the metol be entirely discontinued the disease usually cures itself in a very short time.

APPRENTICESHIP.—My son was apprenticed to a photographer, Mr. —, of —, for four years. I paid a premium of £25 with him, and was told that at the end of the term my lad would be a proficient portrait photographer. He is now out of his time and left, and is nearly twenty-one. It appears that during the term he was engaged in mounting, spotting, retouching, printing on P.O.P., and occasionally platinum. During the last two years of the term he did all the work of this kind done in the place, but had no experience in the studio. Now Mr. — recommends him to obtain a situation as printer, where he can learn studio work. What I wish your opinion on is this. Is not studio work what he should have been taught by Mr. —, otherwise how can the lad be a proficient portrait photographer, as promised he would be?—FATHER.

Certainly, your son should have been thoroughly instructed in studio work, as that is the most important part in portrait photography. You have good cause of action for the return of the premium you paid, and also for damage for the young fellow's loss of time. Too many photographers take apprentices, more with a view of getting their work done for a nominal wage than teaching the young people their business. Still, the law will meet these cases.

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SUMMARY.

stereo camera front. We give a description and drawings of a
era front allowing of very convenient adjustment of the
ration between the lenses. By means of a flexible corrugated
section between the two lens panels the separation may be varied
1 2 to 3 1/2 inches. (P. 319.)
An American professional photographer has recorded his methods
making the view postcard a source of profit in his business, and
turning it out in a way which will make it a travelling recom-
mendation of his studio portraiture. (P. 328.)
The advantages of backed plates in portrait photography are
frequently overlooked. (P. 318.)
A description of the methods and facilities of the self-adhesive
printing papers and mounting presses devised by Mr. G. W. Morgan
appears on page 325.
A note on the regulations with which a photographer in Berlin
must comply before he is allowed to take a flashlight photograph
appears on page 318.
The method by which the photographer may prepare for himself a
printing surface from which the mount maker may impress the
photographer's exclusive design is given on page 321.
Mr. F. W. Speaight's scheme for the improvement of the Horse
Guards' Parade is not approved by the present First Commissioner
of Works. (P. 326.)
"Assistants and Apprentices" and "A Caution to Intending Pur-
chasers of Businesses" are two business topics dealt with under
"Correspondence." Other readers address us on the efficiency of
the focal-plane shutter, sulphide toning, and the history of photo-
graphy. (P. 332.)
The annual report of the Eastman Kodak Company records a year's
earnings of one and one-third million pounds. (P. 327.)
Under "Photo-Mechanical Notes" we deal with a suggested photo-
mechanical process, and a method for the facsimile reproduction of coloured
objects, which may frequently be of service. (P. 328.)
Some matters of calculation and practice in telephoto work are dis-
cussed in an article by Professor Edmund J. Mills, F.R.S. (P. 322.)
The method employed in making the Lumière non-flammable
matograph film is given under "Patent News." (P. 328.)
We utter a word of caution as to the use of the iodine reducer.
(P. 318.)
A new method of testing the speeds of instantaneous shutters, which
enables us to be able to measure speeds up to 1-2,000th of a second, has
been worked out at the National Physical Laboratory. (P. 318.)
It is hoped that a revised system of making lens tests at the
National Physical Laboratory will lead to greater use being made of
the N.P.L. certificate. (P. 319.)

EX CATHEDRA.

Photography at the Forthcoming Imperial Exhibition.

According to official information, the photographic section at the International Imperial Exhibition, to be held in the Shepherd's Bush Grounds this year, is to be housed in the fine gallery of the large Fine Arts Palace of last year. We hear that a large representation of the work of leading professional photographers is already arranged for, one gallery being broken up into alcoves, each of which is to contain a one-man or one-firm show. There are also a few trade exhibits. As regards the work of amateur photographers, the organisers of the section have chosen a method which is not likely to result in a collection of distinctive merit. Without the advice, or possibly against the advice, of an honorary committee, which includes Sir H. Trueman Wood, the editors of the "British Journal" and of the "Amateur Photographer" and several Federation secretaries, they have selected two methods of bringing together collections of examples of pictorial photography:—(1) Free admission of collective exhibits from photographic societies, each prepared by the society itself; and (2) Admission of single prints by individual amateur photographers at so much a print. Neither of these methods, we fear, can be commended as a means of securing a choice selection of the enormous numbers of photographs made by amateur photographers, and the second in particular is pretty certain to offend the best exhibitors. Owing to the postponement of the opening of the Exhibition, the last date for securing entries in the photographic section, so, we are informed by the organising manager, Mr. J. F. Peasgood, is May 8.

* * *

The "Free Sitting."

A reader of the "British Journal of Photography," who for many years past has resided in the West End of London, sends us the circular of a firm of photographers offering him free a sitting and one platinotype print if he will accept their invitation, which they extend on the ground of our reader's membership of a well-known learned society. It may therefore be of interest if we quote from a letter addressed to us by the recipient of this invitation:—

Some years ago I used to be pestered by this sort of application (if I recollect rightly, I have had as many as five in a short time), which, of course, are simply a form of touting. In this case I am quite sure that neither the Society nor myself have any desire for these photographs, which, you will understand, are offered in the hope that I or my friends may be induced to order a number of copies at a high price. Messrs. — once had a sitting from me, and their success seemed to start the whole class of touts. I brought the matter to the notice of the "B.J.," and the Editor's remarks led, I hoped, to the practice being stopped. Now either the thing is revived or it is hoped that time has weakened my memory or my intellect, and that my vanity can be worked on.

Our correspondent, in his diagnosis of the photographer's motives, should also have included the acquirement of the

sole copyrights in portraits made in such circumstances; in many cases the only reason for thus "pestering" people to come and be photographed or to let the photographer come to them. We have on previous occasions expressed our belief that such methods are undignified, and in the end most harmful to the business of portrait photography. It may not be particularly dignified for a firm of standing to tout for orders through the post, but this is a commercial age, and we all try to get all the business we can. The reprehensible feature of the "free sitting" system lies in the fact that many persons are ignorant of the result of accepting the invitation, and that the invitation says not a word of the property which the photographer is thereby acquiring in the shape of the sole right to "copy, multiply, or reproduce" his sitter's photograph when and where he chooses. The sitter who discovers this fact for himself later may legitimately describe the "free sitting" system as something worse than a "pest." It is the act of getting, in a not perfectly open way, the right to deal in a person's face which exposes a photographer working the "free sitting" system to the contempt of the public.

* * *

Styles in Christmas Cards.

The letter of "Not Self-Satisfied," which appears on another page, is prompted, it should be explained, by a protest contributed by the Editor of the "British Journal of Photography" to the current issue of the "British Printer." It is there maintained that publishers of Christmas cards have of late years shown so little disposition to depart from a stereotyped style of card that there are opportunities for printers of taste and imagination to produce some of less elaborate but more artistic character. In the great majority of the cards on the market no evidence is afforded of any recognition on the part of the makers of differences in age or sex among senders of Christmas missives, but it would seem from our correspondent's letter, which expresses the views of one very intimately associated with the trade, that the trade houses will meet criticism of their present output with the rejoinder that they supply what the public requires. Changes, however, must inevitably come, and those firms are fortunate who foresee them. Since the photographic illustration may very probably figure in the composition of future varieties of Christmas card, it may be well to watch any tendencies of the more receptive makers to move in this direction.

* * *

Testing Shutters.

The chief difficulty in the way of testing shutter speeds is that of devising some uniform movement representing time. In the method described by Mr. Salt in his paper, published in our issue of April 9, a clock is used to rotate the plate at a uniform speed, and the time is measured by the angular measure of the trail described upon the plate. To render such a contrivance serviceable for shutters of all kinds it is necessary to be able to control the speed of rotation very accurately, and also to be able to modify it to a considerable extent. Thus a speed of one revolution a second is too fast to record an exposure of over a second, and too slow to record one that only equals a few thousandths of a second. The first difficulty can be got over by giving either the lens or the plate a second movement in a straight line so as to produce a spiral instead of a circular trace, but the second difficulty is not so easily surmounted. Shutters that claim to give speeds of 1-2,000 second or less will require at least twenty revolutions a second to enable such small periods to be measured, and it is not so easy to arrange for such a speed. At the National Physical Laboratory a different method is adopted that renders it possible to accurately

measure speeds far higher than any shutter has yet reached. In this method a rotating movement is dispensed with, and a vibrating reflecting galvanometer is used instead. The period of the vibrations is under perfect control, and can be adjusted to suit the shutter under test. A light is thrown on to the mirror, and focussed in a camera, of which the shutter is attached. When the mirror vibrates the image on the plate lengthens out into a short horizontal line, and if the plate is allowed to fall down or is forced rapidly down in a vertical plane, this short line changes to a wavy one, or to a "sine curve." As the plate falls the shutter is automatically operated, and the sine curve recorded on the plate then forms an accurate record of the duration of the exposure. Such an arrangement, of course, involves special apparatus, but it is all very simple, excepting only the vibrating galvanometer and its electric control. No regular motion at a fixed speed is required, and it would not be a difficult matter to devise a similar apparatus with a tuning fork and mirror in place of the galvanometer. For speeds of a second, or over, a pendulum with a little mirror on the bob can be used, but no pendulum contrivance is of any use for high speeds. Tuning forks are somewhat expensive, but it should be possible to devise some cheap substitute that would be equally serviceable for the production of a sine curve on a falling plate.

* * *

Flashlight Work in Germany.

An instance of the thoroughness with which the police authorities in Germany seek to protect the public from all kinds of danger is evidenced by a new circular of regulations issued by the Berlin police office in regard to the photographing of groups and interiors by flashlight. We learn from "Photographische Industrie" that when such exposures are to be made twenty-four hours' notice must be given to the police department, exposures must not be made during any performance, and spectators must be present only in small numbers. As regards the flashlight to be employed, only perfectly dry finely powdered flash powder may be used, and it must be ignited by methods approved by the police, among which is the electric method; but other systems are not permitted.

* * *

A Risky Reducer.

Several times lately we have seen the use of iodine recommended for reduction purposes, the process being the immersion of the image first in an iodine solution and second in a hypo bath. A fairly strong solution (1/2 per cent.) is sometimes advocated, while very seldom is the reader warned of the danger of the operation. Any reduction method that involves a preliminary partial bleaching followed by fixing is of necessity risky; and, after all, the result is only equivalent to that produced by the familiar and safer Farm's reducer, the action of which can be watched. The trouble with all the bleaching methods is that the effect produced is not clearly apparent until after the hypo has been applied. With iodine especially, the amount of effect produced on a bromide print is very much a matter of speculation, since the blue stain imparted to the print obscures the action of the iodine.

* * *

Halation.

We are often surprised to see in professional portraiture very pronounced halation, and the number of workers who regularly employ backed plates in the studio must be comparatively small. Yet the advantages of such plates are manifold, and the cost small, whether the plates are bought backed or are backed as wanted in the dark-room. In all cases where there are

great contrasts, such as white lace against black velvet, the backed plate is practically a necessity if a passable result is desired. It should not be forgotten, however, that though less noticeable in other cases, the halation is nevertheless present. The spreading light slightly fogs the clear shadow tones, and this fog is very apparent, but the same spreading of light also degrades the delicacy in the lighter tones of the picture, destroying that sparkle in the high-lights which is so much admired by the majority of customers. The trouble of backing is after all very slight, for if a saucer is kept in the dark-room, into which a little backing is squeezed each morning from the collapsible tube and thinned with water to which a little glycerine has been added, backing of a suitable consistency will be at hand for the day's work. An old half-plate negative laid over the saucer will prevent much evaporation. The mixture may best be applied with a stiff hog-hair brush, similar to a paste brush, and should be thick enough not to run. In ordinary cases it may be used sparingly, and no trouble will be found from storing the plates for development later on in the day if they are placed in pairs, film to film, while between the two contiguous backed surfaces a small square of brown paper may be placed to prevent the backing from drying and sticking the two plates together.

* * *

Lens Tests at the National Physical Laboratory.

In the report of the National Physical Laboratory for 1908 it appears that very few photographic lenses were submitted for testing during the year, only seventeen, as against twenty-nine for the previous year. This does not suggest a very satisfactory state of things. It is assumed that the fees charged for complete tests serve as a deterrent, so for the future it is proposed to adopt a different procedure in the case of makers who wish to send lenses regularly for test. One lens of a given type must be deposited at the laboratory as a standard. This will be submitted to careful examination to make sure that it is a satisfactory standard, and further lenses of the same type will then be simply examined to see if they come up to the standard. Under this arrangement it is stated that the trouble of examination will be much diminished, and consequently the fees will be very much reduced.

* * *

Loss of Brilliance in Negatives.

It is one of the most difficult matters to decide, on looking at a defective negative, whether its flatness and foginess is due to over-exposure, dark-room fog, fog in the camera, or chemical fog or defective emulsion, and, in fact, it is often only by a system of tests and elimination that the various possibilities may be disposed of one by one, until, as Sherlock Holmes said, "what is left is the fact, however improbable it may at first sight appear." Clean margins where the plate edges have been protected by the rebates of the dark-slide always indicate, however, that any fogging is not produced in the dark-room, and that the loss of brilliance must be sought for in another direction. When it happens that it is only occasionally that plates show this lack of brilliance, it may be well to note with what lens such defective negatives have been produced. There is, of course, the possibility that the lens, by reason of dust on the glass surfaces, is scattering a certain amount of light, enough often, and especially with an air-gap lens, to produce foginess. Or the lens surfaces may have become slightly dulled through too frequent or injudicious cleaning, the brilliance of the polished surfaces being impaired. Moisture, again, on the glass—that is, condensation of moisture sufficient to produce a thin film over

the lens—will have the same effect on the plate. But if all these contingencies have been avoided, it may be well to consider whether the fogging does not arise from reflection from the insides of the camera and the use of a lens with a covering power greatly in excess of that required for the plate in use. It will be obvious that if a wide-angle anastigmat of, say, 8 in. focal length and available for a 12 by 10 plate, is used as an ordinary half-plate lens, a great deal of image-forming light which, working on a 12 by 10 plate, would give the marginal image, is in the half-plate impinging on the bellows, and is possibly being reflected therefrom on to the plate, producing the slight foginess which destroys brilliance.

* * *

Photo-Micrography by Ultra-Violet Light.

Readers may remember that in the special apparatus designed by Messrs. Carl Zeiss for photography with invisible ultra-violet light, focus is secured with the aid of a fluorescent screen.

The National Physical Laboratory have introduced a modification in their own apparatus in the form of a special compensating lens used above the objective. This compensating lens so alters the focal length of the objective as to bring the focus for visible blue light into the same plane as that in which the invisible ultra-violet focus exists when the compensating lens is removed. In other words, they have adapted the well-known expedient often used when non-achromatic lenses are employed for ordinary photography. It is interesting to see in the report that the laboratory claims to have adopted this method of focussing with success, after Messrs. Zeiss declined to make the compensator on the grounds that they regarded the plan as impracticable. The lenses and appliances were then worked out at the laboratory, for which achievement the N.P.L. certainly deserve congratulation.

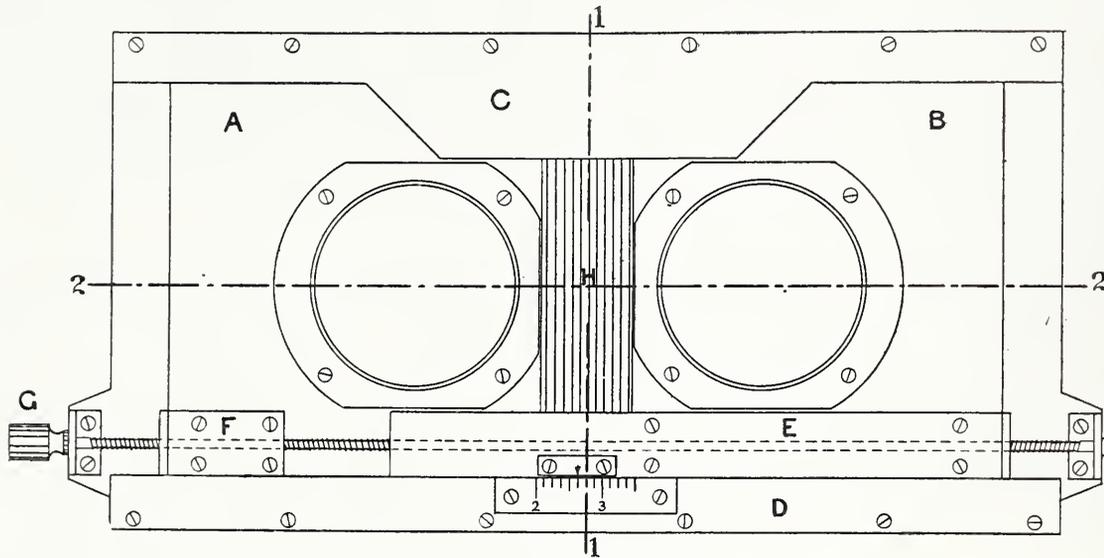
AN ADJUSTABLE STEREO FRONT.

WE have several times of late pointed out the advantages of the adjustable front in the stereoscopic camera, and have recommended that it should have a range of movement of front 2 inches separation up to, say, 3½ inches. At first this may seem rather difficult to arrange, but by practical experiment we have found that it is quite practicable in a front that with lens panels and screw is only ½ inch thick. In the front we have just made, when the separation is 2 inches there is still a space of ½ inch left between the lens mounts, and this is quite sufficient to contain a folded-up, straight bellows, that will expand sufficiently for the widest separation. The folds of the bellows, which is made of roller blind material, are ¼ inch wide, and are perforated so as to run along two guiding wires. Their edges are protected at the back by thin metal flanges, which overlap the bellows by about 1 inch, and in front by the slips that hold the sliding panels. A right and left screw actuates the two panels, and consequently the use of the adjustment is as simple as possible.

In the diagrams the adjustable front is shown in elevation and section, while sketches of the finished article are also given. In the elevation, A and B are the two lens panels, connected together as shown in section 2 by the straight bellows H. C and D are guide strips that hold the panels in place, while F and E are strips protecting the right-and-

left screw G. F is fixed to panel A, and E to panel B: they therefore travel with the panels, while E always overlaps panel A sufficiently to protect the lower edge of the bellows in the gap between the two panels. C is widened out in the centre for the same purpose. E and D are re-

proves to be most suited to the purpose. One complete turn of this screw alters the separation by 1-20th inch. The scale attached shows 1/8ths of an inch, the index moving with E and panel B while the scale is fixed. The screw fits tightly in a square slot cut half in the panels and hal-



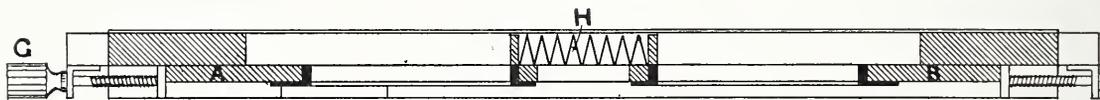
Elevation.



Section 1.

bated, as shown in section 1, so that no light can pass between them. The section shows that the upper and lower edges of the bellows, H, are perfectly protected from direct light, but not from oblique light passing behind C and E

in F and E, and this fact, coupled with the small pitch selected, renders an accidental movement almost impossible. The screw plates are fixed at the ends of F and E where shown, the end plates being bearings only. The

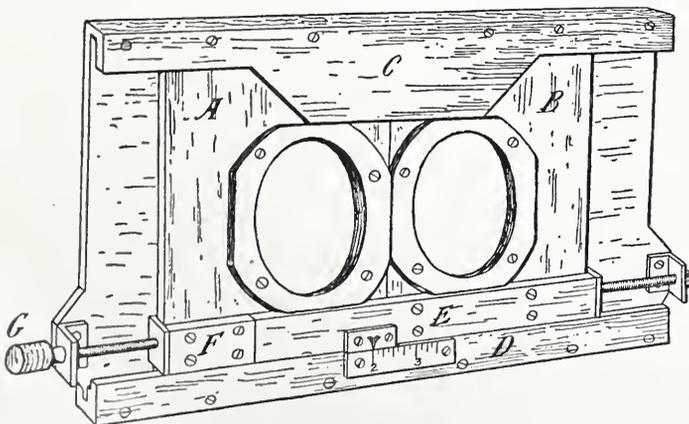


Section of stereo front along line 2-2 of above figure.

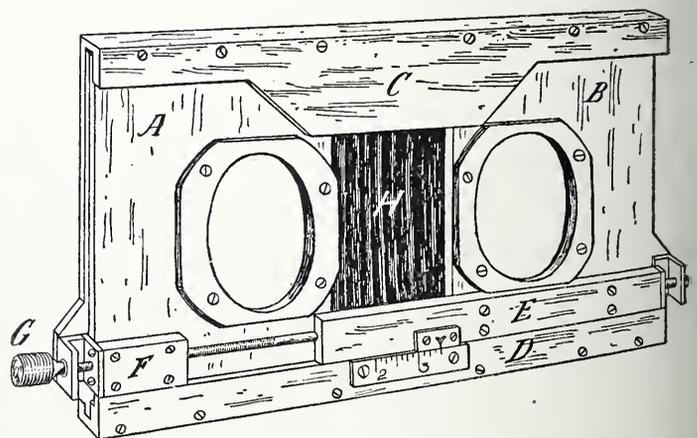
in the space left in front of the bellows when the panels are separated. Any possible leakage from this indirect light is, however, perfectly guarded against by two thin metal strips, S and S, fixed at the back of the panel. These strips also prevent any buckling of the bellows at the back, and the

head of the screw is within easy reach while focussing, and the separation can be adjusted to a nicety while watching the images on the ground glass.

The front illustrated is 3 3/4 inches wide, 7 1/8 inches long, and 1/2 inch thick. It was made to fit the front of a blind



Perspective view of the front showing the lenses at the minimum separation.



View of the front showing the lenses at the maximum separation.

absence of similar guards in front necessitates the use of the rods, R and R, which pass through perforations in the folds of the bellows, and serve as guides to keep them in place.

The adjusting screw, G, is a 1/8 Whitworth thread, which

shutter, and to give a maximum separation of 3 1/2 inches. By allowing for only 3 inches separation, and substituting metal for wood, it could be diminished in both length and thickness, but it is, as a matter of fact, by no means a bulky article as it stands.

HOME METHOD FOR PREPARING DISTINCTIVE DESIGNS IN MOUNTS.

It is not often that one sees entirely original designs on photographers' mounts—that is to say, on those confined exclusively to individual photographers. As a rule, the designs are stock ones as supplied by the mount makers. Nowadays there is not much to be said against them, for the majority are really very artistic. Yet the same design may sometimes be seen on mounts on which the highest class pictures are put, and also those of quite third or fourth-rate quality, a thing which is always liable to happen where designs are drawn from stock.

For this reason some few photographers—though the number is growing—prefer to draw, or have drawn, their own designs for mounts; but even in such cases it is sometimes found that when reproduced by the lithographic craftsman they are not altogether what was anticipated. There is, however, a way by which the photographer, after he has obtained his design, can make from it photographically an intaglio copper plate, from which impressions can be printed, and transferred direct to the stone. Of course, the mounts could be printed direct from the copper plate, but that would be costly as compared with lithography. It may as well be said that a transfer from a copper plate is, as a rule, more satisfactory than when the design is drawn on the stone. We shall now give a method by which any one of ordinary intelligence can produce copper printing plates of various sizes from a drawing, and while such methods may be thought to involve too much trouble in a photographic studio, the system of supplying exclusive mounts to the photographer may be commended to those who cater for the trade in mounts.

In the first place, the design and lettering are done in a strong black ink on a sheet of smooth white cardboard. The cardboard had best be of large size, say, a royal size board. The lines should be bold and solid, more or less bold according to the size of the design. The larger the size the bolder should be the lines; otherwise they will appear too fine, or will be lost in the negative owing to the reduced scale of the reproduction. There is another advantage in making the original drawing on a large scale, namely, that the work need not be quite so neatly done as if it were of the same size as the plate. When the design is finished it is photographed to the size, or sizes, desired; usually several different sizes are required from the one original. The negative should be made as dense as possible, so long as the lines have no deposit upon them. This latter is a *line quâ non*. The lines should be absolutely clear glass, free from fog or veiling. The best plates to use for the purpose are those of the photo-mechanical type. From each negative a transparency is made. This must be of the same character as the negative—that is, the lines must be very dense, while the ground is free from fog or veil. Having prepared a suitable transparency, we will now deal with the production of the intaglio plate.

Copper plates ready polished are stocked by all dealers and printers' requisites. Before use they should be cleaned with a little precipitated chalk, moistened with benzole, and a piece of wash leather, to remove any trace of grease that may remain from the polishing. The plate is next coated with a solution of bitumen. No very definite strength can be given, as different samples vary as regards their sensitiveness to light. But by purchasing the bitumen from those who make a specialty of materials for process work, one can rely upon getting what is suitable. As a rough guide, we may say that if a pint bottle be about a fourth filled with coarsely powdered bitumen, and benzole added so as to fill up the bottle to three-fourths its capacity, a convenient stock solution will be obtained. The best rectified benzole, that known as "No. 1," should be used. The

bottle should be well shaken occasionally for a day or two, and then allowed to subside for three or four days. The clear portion of the contents is then decanted off. This will be too thick for use, and it must be diluted, but for the reason given above no very definite proportions can be given. However, about a bulk to a bulk and half of benzole will not be far wrong. The diluted solution should be filtered before use.

It is now necessary to get a thin, even coating on the copper plate. The best way of doing this is to pour a pool on the centre of the plate, and then rotate the plate on a whirler such as those sold for quickly drying Autochrome or other plates. After whirling for a few minutes, the greater portion of the benzole will have evaporated. The plate is then stood aside for a few hours, in a part of the dark room where it will be warm, so as to allow the last traces of the benzole to evaporate. The plate is then examined, to see if the coating is perfect. If not, the bitumen should be cleaned off with benzole, and fresh applied. It is important that the coating be thin, otherwise the light will not penetrate through the transparent portions of the cliché, so as to render the bitumen insoluble right through to the copper, and it is essential that it should do so. The coating should only be just sufficiently thick to give a slight chocolate colour to the metal and no more. The plate is now ready for exposure.

It is a good plan to rub the transparency over with French chalk before putting it on the plate, to avoid risk of its sticking. Nothing definite can be said with regard to the exposure to light, for, as just remarked, different samples of bitumen differ in sensitiveness. The bitumen process is an exceptionally slow one. Three or four hours to bright sunshine will not be found too much, while two or three days in dull, diffused light may be necessary. It is, therefore, better to err on the side of too much exposure than too little. After exposure, the plate is put into a dish of rectified spirit of turpentine, and rocked for a few minutes. This should begin to dissolve the bitumen from the lines, as shown, by the turpentine becoming slightly tinted. If the action does not take place after a few minutes, a little benzole must be added. Some samples of bitumen are scarcely soluble in turpentine, so that the benzole becomes necessary to help it—sometimes (in extreme cases) to the extent of equal parts. When the lines are seen to be bare metal, the plate is rinsed two or three times in clean turpentine, and then put under the tap, and the water turned on full force to free it from the turpentine. It is then dried, and the edges and back coated with Brunswick black; when that is dry, the plate is ready for etching.

For the etching, either dilute nitric acid, or a strong solution of perchloride of iron may be used, but the latter is the more convenient and pleasant to employ. The plate is put into the etching bath and rockéd. When it is judged that the lines are bitten in deep enough—they need not be very deep—the plate is well washed under the tap, dried, and the bitumen cleaned off with benzole. If, when the bitumen is removed, the surface of the metal looks dull, it should be polished up with a small piece of very fine emery paper. That sold by dealers in engravers' and watch-makers' requisites, known as "blue back" is the kind to be employed. Our plate is now ready to be handed over to the printer, by whom the proofs and transfers are to be taken.

PHOTOGRAPHY IN JAMAICA.—Mr. Alfred B. Hitchin, manager of the photographic department of Messrs. Aston W. Gardner and Co., Kingstown, Jamaica, is now contributing a series of interesting photographic notes, weekly, to the Jamaica "Guardian." The notes will include reviews of new introductions in apparatus and materials, which will thus be brought more prominently before the notice of photographers in the island.

TELEPHOTOGRAPHY.

THE camera used for telephotography should be arranged so as to allow of high magnifications. My own camera is composite. It consists, in front, of an ordinary half-plate camera of about sixteen inches extension, to which can be adapted behind, as one would insert a dark slide, a whole-plate camera, having a pull of about thirty-six inches. Both cameras have five pieces of microscopic cover-glass cemented at the middle and the corners. For determining focal lengths the smaller camera has a vertical and horizontal millimeter scale. The composite camera is carried on a long base-board, which unfastens into three pieces.

The lenses used for telephotography must necessarily be of the finest workmanship if high magnifications are to be dealt with. Indeed, one of the best tests for lenses is their availability for these. Some expensive and much-advertised lenses are quite useless for this purpose. My own experiments have been carried out with homocentric and planar positives and Dallmeyer negatives. For small magnifications, sandwich colour screens of common "optical" glass are good enough; but for the very high ones true optical flats—such as are supplied by Wratten and Wainwright, or Staley—are indispensable.

The equivalent focal lengths of the positive and negative combinations are determined by well-known methods. In the smaller camera some true magnifications are determined by means of the scale engraved on the ground glass, and a suitable test object. These are averaged, and the result compared with the magnification obtained by dividing (the total camera extension measured from the back of the lens to the ground glass) by (the focus of the negative lens) and adding 1. It will be found that the camera extension should have added to it a certain quantity measured inwards into the negative; this quantity is readily calculated from the aforesaid comparison.

In order to focus a distant object, the positive and negative are screwed into their mount, and the two pushed together or pulled apart until, using the entire combination as a telescope, the object appears very clearly. The negative may be a longer focus than is intended to be actually used for the photograph; one obtains in this way more light to place the image on the ground glass. This having been accurately done, the negative intended to be finally employed is exchanged for the other, and a good focus obtained by means of the rack and pinion or sliding adjustment.

To obtain the final and fine focus some means of delicately altering the relative position of the lenses is absolutely necessary. I find that this can be done in a very simple way. All that one has to do is to unscrew the positive in front to the extent of about three-quarters of a turn; the fine adjustment can be very easily made by unscrewing a little further, or screwing in a little nearer.

Much has been written about exposure time. The time of exposure is in reality the time of making an enlargement, and follows the same rule. Thus, if we wish to magnify from n times to m times, the time of exposure for the latter must be multiplied by the well-known factor $\left(\frac{m+1}{n+1}\right)^2$. It is common, in ordinary enlargements, to calculate from the exposure time for equal size; in which case, $n=1$, and the actinometer time is multiplied by $\left(\frac{m+1}{1+1}\right)^2 = \frac{1}{4}(m+1)^2$. As timing for equal

size in telephotography is out of the question, we must find by trial a standard actinometer time which suits the latter equation. This time will then be always afterwards adhered to. The time is very easily found. So that, having this time in mind, we can say that the exposure time will be one-fourth of (the magnification *plus* one) squared.

It is clear that calculating from the square of the magnification only must give very great over-exposure.

The late Mr. Dallmeyer, in his treatise on telephotography, suggests the erroneous rule, but corrects it to a great extent by stating that the time so found will be sufficient to include an allowance for a 2-3 times yellow screen.

Captain Owen Wheeler, to whom telephotography is so much indebted, pointed out (*B.J.*, April 24, 1908) that the "square of the magnification" rule is "altogether wrong," and preferred to take only half the time so calculated—at any rate, for the high magnifications.

Mr. John Nixon, in an article on "Exposures in Enlarging" (*B.J.*, April 17, 1908) pointed out the true rule for enlarging. But this had been, in fact, for many years previously announced in the *B.J. Almanac*—to which source I am myself personally indebted.

Mr. Biermann ("Telephoto Quarterly," December, 1908) follows, at a magnification of twenty-three diameters, the rule announced by Captain Wheeler.

It is clear, of course, that the calculation of the exposure time must depend very much on the time taken to attain the actinometer tint. Probably Messrs. Wheeler and Biermann use a lighter tint than I do; but we should presumably arrive at the same *actual* time in field work. The rule remains. Taking it as a foundation, the experienced photographer will naturally make allowances for distance, clearness of air, and so on, which cannot be expressed in any formula. In my own work I have so far not exceeded about forty-five magnifications and forty-eight minutes' exposure; but with the lenses I have mentioned and using a good test object, I have not unfrequently obtained results undistinguishable from a near photograph of the ordinary kind.

It will be found that a tunnel of some kind cannot be done without, if sharp definition is to be obtained. Anyone who will take the trouble to look, say, at a distant house, through a cardboard tube—blackened inside and eight or nine inches long—will see at once how much clearer the object becomes. The tube acts as a sort of stop in the entering cone of rays, cutting off much of the scattered marginal light. It may have other merits. The matter is so obvious, that the tunnel has come down to us from the early days of photographic portraiture; indeed, it was not uncommon at one time to completely darken the camera end of the studio, so as to make it function as a tunnel. The tunnels I have seen made for use in telephotography are far too short to produce any adequate effect. The one that I use is a sort of square bellows camera with the front and back off, having a total extension of sixteen inches; it is five inches in the side. This is hung on to the camera front and can be collapsed and fixed at any point by means of later lazy-tongs. About six inches in front of a half-plate lens is a desirable extension. As the scattered light, which this cuts off, shortens exposure, so the use of the tunnel slightly prolongs exposure.

EDMUND J. MILLS.

HACKNEY PHOTOGRAPHIC SOCIETY.—On May 11 Mr. E. W. Harvey Piper will give a lecture, illustrated with lantern slides, on "Wells: An Idyllic Minster," at the rooms of the above society, and any

gentleman wishing to be present on that occasion may obtain an invitation by applying to the hon. sec., Mr. Walter Selfe, 70, Paragon Road, Hackney, N.E.

PHOTOGRAPHIC VIEW POSTCARDS.

[In a paragraph last week we commented on the advantage of negatives of local views for use, apart from postcard district, and contributing to the favourable advertisement of the studio. Apropos of the postcard branch of the business, "Wilson's Photographic Magazine," in which the practical methods of commercial postcard production are dealt with, specially in reference to the making of a really good high-class card which shall be a credit to the photographer and a travelling recommendation of his work. This aspect of postcard trade has, we fear, received too scant attention.—Eds.]

to the professional photographer of keeping an up-to-date set of negatives of local views for use, apart from postcard district, and contributing to the favourable advertisement of the studio. Apropos of the postcard branch of the business, "Wilson's Photographic Magazine," in which the practical methods of commercial postcard production are dealt with, specially in reference to the making of a really good high-class card which shall be a credit to the photographer and a travelling recommendation of his work. This aspect of postcard trade has, we fear, received too scant attention.—Eds.]

WHAT follows is not written for such of my fellow-craftsmen who make platinum cabinets at fifty dollars the dozen, and who, at the same time, have more work than they can well do; but for all who receive for their work the prevailing standard prices or less, and who find several weeks out of the fifty-two when they and their assistants could, part of the time, turn aside from studio routine to devote themselves to a lucrative and beneficent, though much neglected, branch of fine art and business.

We are all disgustingly familiar with low-class "spoony" (and sometimes obscene) postcards; apathetically familiar with the crude colourings of two-for-five-cents three-colour process and even lithographed view cards; and scarcely more than tolerantly familiar with half-tone monochrome view cards. And it might be added, though not to the credit of our profession, that to-day the majority of the photographic view cards throughout our land are quite poor enough in quality. Certain it is that the possibilities of photographic view cards have not begun to be realised.

For the Dull Season.

Most of us would be glad, by filling hours we could spare in dull seasons and by keeping assistants employed constantly instead of subjecting them to the unprofitable hardship of a total of several weeks "lay off" every year, or the hardship, to ourselves, of retaining and paying them when there was not half enough work to keep them occupied—we would be glad, say, instead of doing any of these things, to increase our own net annual incomes to the extent of from two hundred to a thousand or more dollars. And the thing is perfectly possible to achieve. Don't you believe it? I have proved it.

Permit me to tell you what I, an ordinary photographer, in a very pretty but not very lively town of six thousand, have done and am doing; and I think that after you have listened to any of you go and do likewise.

When I added to the usual studio work this line I found the shops well stocked—I might say overstocked—with postcards of all kinds, and, among others, a reasonably large variety of photographic view cards of average quality made by a non-resident.

I have already photographed, including additions from time to time, about a hundred and twenty different local views. And let me say right here, do not be afraid of getting too large an assortment. Each negative should be made under the most favourable conditions of light and atmosphere. Say not to yourself: These are for postcards only, and I cannot afford the time and pains. If this is your attitude you will be astonished some morning by finding in the stores, beside your cards, another and a more carefully made set by somebody else, and your venture will be, at least temporarily, at an end.

Selling Subjects.

You will find that churches sell locally, but not very much to transients. If you live in a small place, you must photograph every church, no matter how unimportant or how small its congregation, else some will needlessly be made jealous. Views down streets, panoramic and park views, views of public

buildings and railroad stations, will sell equally to transients and residents. For obvious reasons, it is usually better to photograph depots when the train or trains are in. The station agent will generally be glad to telegraph, without charge, to the next station back to ask the engineer to stop where you wish and to send forth at the right moment a volume of smoke from the locomotive stack. Except to the owners, or unless the buildings for some reason possess unusual interest, views of single business blocks are poor sellers.

Do not forget, when winter comes, to improve your opportunity to secure negatives of rare and fairy-like snow and ice effects. Delay not. Such beauties are evanescent. And if you have not time then to make up the cards, your negatives, if you have made them, will be ready for you as soon as the leisure day comes.

Preparing the Negatives.

It is well to have the exact postcard size marked on your ground glass. Of course, develop with reference to "gaslight" postcards.

Next, cut from undeveloped cards strips of from three-sixteenths to one-fourth of an inch in width. Procure a piece of transparent celluloid of exactly the size of your postcard. Hold this piece against the plate, and thus decide exactly what portion of the negative the postcard is to cover. Lay the negative flat, with the celluloid sheet exactly upon the portion to be printed. Moisten the strips and lay one each against an end and a side of the celluloid, and press firmly into contact with the negative. When you print, these will stop the card at the right place.

Next, take Higgins' India ink, and letter, with a medium pen, the title near what will be the bottom edge of the card, and in as small and unobtrusive letters as you can conveniently make. Of course, the lettering on the negative will have to be reversed. For convenience in classification it is necessary to have the number on each card. I place the number first, next the names of the town and State, after that the title of the subject. This is a logical sequence.

Glossy Cards—Fresh Developer.

It will be found necessary in every use of glossy cards to prepare the developer right in order to obviate "stress and abrasion" marks; for in most cases it is impracticable to handle the view cards in great numbers so as to exercise quite the same care about bringing surfaces into some friction with each other that would be possible in handling two or three dozen in a batch.

You may have your own ideas about a glossy surface being, for most subjects, less artistic than a matte or semi-matte surface. The public also have their ideas, and it is the public's money that you need. And if you want as much of it as possible, you had better use glossy cards.

In printing, print one card to test the time, and then go on and print your fifty to two hundred at once from a negative. Slight overtinting with Kruxo cards (which are what I use) does not produce serious results, but will even give a pleasing

olive tone. Only for snow scenes, where warmth is to be avoided, must the tone necessarily be black and white.

For developer I use metol-hydrochinone. I have found Eastman's non-abrasion M.Q. *perfect* in its use for glossy cards. With it, no bromide of potassium will be found necessary.

Of the bromide I have had to use two drops of 10 per cent. solution and one-third of a drop of a 10 per cent. solution of iodide of potassium to each ounce of developer. The use of less results in the appearance of abrasion marks, and the consequent necessity of cleaning them away with wood alcohol.

Keep the developer as cool as possible. At this season I have, before beginning, set the developing tray into a larger tray partly filled with snow, and left it there until the developer was quite cold, when I removed it. There is no harm in this. In fact, it is really a help, as development is more easily controlled, detail is better brought out, and the danger of stain and fog is reduced. You can get the developer so cold that it will waste your time by acting too slowly. But that is not necessary.

Fixing and Stop Bath in One.

It will be found an advantage to mix your hypo bath very strong, as by so doing you can reduce the danger of staining, and reduce also the time necessary for certain fixing. But don't leave the cards in a strong fixing bath unreasonably long—neither fix them insufficiently. One ounce of acetic acid No. 8 should be used with each thirty-two ounces of fixing bath. I am inclined to think this arrangement preferable to using the acetic acid in solution as a stop bath between the developer and the hypo. Instead, I use for the rinsing bath plain cold water, frequently changed and as cold as possible. This will practically stop development, and the omission of the acetic acid here permits the renewal every few minutes, without expense, of the rinsing bath.

Washing Cards in Numbers.

Washing cards is a problem. A large siphon tank admitting the water through innumerable holes in its bottom is probably the best device; but few of us possess or can possess these. On account of the thickness of the cards they actually need more washing than paper does. But because of the thickness and consequent stiffness the washing results in greater injury to the edges than paper would suffer with the same washing. It is best to wash so as to give the cards the most actual washing possible for a given amount of friction unavoidably incurred.

How to Dry Flat.

Then they must go on to squeegee boards. I use the heavy weight 14 by 20 inch ferrotype boards. These will hold eleven cards each. Roll them under blotters and spread the ferrotype boards out on racks on the floor or shelves before you go home. It is preferable that the cards should not dry rapidly, because if dried slowly they will come off in better shape.

When they come off, go over them card by card. Trim every rough edge and bad corner. If in every process you take all pains you cannot, of course, turn out in a day as many cards as you could if you slighted them. But quality tells; and if you always deliver the quality and never let a card go out that is not a credit to your gallery, the words, "Made by the — studio," with name of city and State printed across one end of the address side, will advertise your studio from Manila on the west to Melbourne on the east.

For storing your cards you will need cabinets made with pigeon-holes. Each pigeon-hole should be numbered, and should be high enough to hold a hundred cards when they lie together, and wide enough not to scrape the cards' edges when you put them in and take them out. The planed half-inch boards upon which bolts of cloth are rolled can be obtained

from dry-goods stores, will cost you little or nothing, and are just the thing to make these cabinets of. The making you can do yourself.

Best to Sell in Quantity.

Makers of sensitised cards will print on the address side what you wish, if you order in large lots. So you can offer to make for a manufacturer, merchant, or hotel landlord cards printed as he wishes if he will order in thousand lots. Real photographic cards of good quality will prove a great advertising medium for him, as they will usually be preserved and looked at often.

It will be found best for your studio not to retail. Also experience has proved it best to go round or to send round an assistant to take orders once every week from every retailer. Do not take an order at any one time from any one dealer for less than five or ten cards of any one subject.

Keeping Tabs on Orders.

In my order book I have the numbers of the cards in vertical columns, one column on the left of each page with lines ruled across the page between them. At the top of the page and between lines ruled from top to bottom are the retailer's names. Thus, all the orders for any given card will be found between two horizontal lines opposite the card's number; and the different views ordered by each retailer in a vertical column below his name—on the principle of the diagram system representing the multiplication table. This method will greatly facilitate the filling of orders, as you can lay out at once in separate piles all the cards ordered each week from each view, and then go on to the next view.

Prices.

How much should you get for your cards? Get \$3.50 a hundred if you can. If you can't get that, take \$3.00; but do not, under any circumstances, job them for less. You cannot afford to do it. If you are turning out cards of the highest grade, and in sufficient variety, you will not have to do it, not even in the face of desperate competition offering to job at \$2.00 a hundred—a price I scarcely see how any man can make, unless he turns over his work to incompetent and underpaid girls, and lets them skimp it. I have met with this two-dollar-a-hundred competition from a non-resident maker, and with the local request to meet the \$2.00 a hundred rate. When this request was repeated, I replied that I was making cards for as little as cards of such quality could be made for, and afford a decent living to the maker; that I wasn't running a sweat-shop; and that before I would reduce the price 1 per cent. I would quit the postcard field. In the face of this competition my cards grew more popular and win larger sales every day. Apparently the \$2.00 a hundred competition has not hurt me.

Brethren, right here let us strike hands not to make sweat-shop prices. Then we can look the world and our employees in the face, for we won't feel that we have to pay our assistants sweat-shop wages. And if we pay them right prices we can, and must, require right quality in their work. And I think it will then be found, in most cases, their intention and pleasure to render it.

How many cards can you job in a year? That depends largely upon the size and kind of town you work in. Small towns will probably sell more than large towns in proportion to population. From my own experience, I should say that an average town of, say, six thousand will use in twelve months about thirty thousand *photographic* view postcards. This estimate, large as it may seem, will, I believe, be found to be quite conservative.

This article is, I am conscious, a long one, but I have made it as short as was consistent with setting forth what appeared to me to be necessary to say on so important a subject.

CHARLES W. JEROME.

MORGAN SELF-ADHESIVE PRINTING-PAPERS AND SYSTEM OF MOUNTING, PLATE-MARKING, ETC., AT ONE OPERATION.

The following notes, written by Mr. G. W. Morgan, the inventor of the materials and equipment, which we reviewed a week or two in these columns, will give a more complete description of the facilities offered to the photographer and manufacturer of photographic papers.—Eds. "B.J."]

days when albumenised paper held full sway and cabinet and e-visite portraits were the universal standards in photography, estimation of how to attach print to mount did not in any way anxiety. Starch-paste, or gelatine, or dextrine, or other formous paste, did all that was required, and did it very well; sometimes the fat subject was occasionally made fatter, and n, leaner, on account of paper stretching when mounted wet. mounted pictures, which had comparatively little mount t, were passed through a heated burnisher or press, and were eady for delivery.

march of time, the desire for novelty, and the advance in al taste have swept away the old order of things, and the proal photographers of to-day are all but confused with the nt styles of portrait demanded by the public, as also the number ntng processes, and the variety in style, size, and shape of s for photographs.

increased margins of photographic mounts, as also occasionally eater thinness of the same, make mounting with water paste r kind unsatisfactory, on account of consequent twisting and d warping of the mount and picture in drying. Prints mounted watery paste have also an annoying tendency to rise at the and, moreover, wet or damped prints have to be handled with ional care to prevent the edges getting frayed.

ry photographer is familiar with the objectionable stretching y prints, and of the necessity of applying some kind of artificial to the same when dry, as, also to flatten the print generally, incidentally, the mount along with it. This is done either by shing, or pressing in a heated press, or by being passed through press. In any case pressure is an essential part of the process ving an artificial finish to a photograph so mounted; and, ally speaking, any of the above methods are effective as regards tng smoothness, and, at the same time, flattening the photo-

re are, however, serious objections to the whole process of tng and finishing of photographs as described. One is, as has ly been stated, the distortion of the picture by mounting in re or less wet condition, and another is the destruction, more s, by pressure of any embellishment that may be on the mount.

e system of mounting prints in a perfectly dry condition by ive preparations acted upon by heat has overcome most of the tions mentioned, but not all, and the writer makes this fact the gy for introducing to general notice the system recently inaugu- l by him, and founded on the more or less scientific application he laws which govern everything chemical, mechanical, or tic, connected with this department of photographic technique. e guiding principles have from the start been kept in view—viz., ency, economy, and simplicity.

Adhesive Backed Paper.

viously the simplest and most economical adhesive would be incorporated in the manufacture of the photographic paper, and, ithstanding the great difficulties of the case, this is now an mplished fact, the efficiency of the adhesive used being daily onstrated.

will be readily understood that work of this description had to one with a certain amount of privacy, and in conjunction with ers of the raw material. In this respect the writer was fortunate esiding near the works of makers of paper of the finest quality , for which purpose the pure water coming from the granite hills Aberdeenshire is eminently suitable. There is no need to dwell the various experiments—extending over a period of years— ired to produce a paper of sufficient purity for the purpose nded, and having on one side a coating of such a substance that, le being inert to salts of silver, it becomes adhesive under certain sure with heat, and produces a contact that cannot again be red. It is sufficient to state that all that has been done, and e is now on the market a British-made paper, the keeping

qualities of which are of a high order. It is free from metallic spots, or other impurities, and in the mounting of it no medium whatever is required, except that possessed by itself. For the immediate convenience of parties using special brands of paper, such as platino-type, etc., a very suitable, effective, and easily worked adhesive solution has been prepared which, while differing entirely from the coating on the paper, is quite as effective for the purpose intended. It is applied to the finished prints—either wet or dry—with a flat brush; the prints are then thoroughly dried, trimmed, and mounted, etc., as directed in the instructions that accompany each tin of solution.

The solution is made from pure ingredients, and is inert to silver salts.

Mounting, Plate-Marking, Embossing, and Die-Stamping Folders.

Another principle kept in view has been the designing and construction of mounting apparatus that, while being efficient in conjunction with such a paper as has been described, as also with commercial adhesive tissue, and Morgan's "dry-mounting" solution, would also be in the highest degree economical. That some measure of success has been attained in this direction is attested by the fact that the finished photograph can now be mounted and the mount plate-marked or embossed in any design, and the name of the artist die-stamped, *all at one operation*, and with practically one movement.

The evolution of the "folder," a special apparatus for this purpose, which, while mounting, also plate-marks, or embosses in relief more or less deeply, according to taste, and also at the same time imprints—also in relief—the name or trade-mark of the artist, took many months of study and experiment. These folders for mounting, etc., are of two kinds—viz., those intended for plate-marking as one of the operations, and those intended for embossing in cameo-relief as one of the operations.

In the first place, the plate-mark is sunk below the level of the mount to any depth desired. It may be a plate-mark of the utmost delicacy, or it may be of considerable depth, with either bevelled or rounded shoulder, and of any size or shape—oblong, square, oval, or round.

In the other case the border embellishment is *raised in relief above* the level of the mount, and may be a simple line or bead only, or it can be made as ornate as the fancy of the artist may desire. In the manufacture of folders for the productions of cameo-relief ornamentation, there is no limit to the number and variety of designs that can be introduced, and a special feature will be made of producing exclusive designs for those desiring something entirely out of the ordinary rut.

The dies are fastened upon thin plates that have by a special process been rendered unwarpable by the heat of the mounting press. The dies are also adjusted so that the mounts do not come in contact with the heated plate except where the pressure is intended, and each "folder" is fitted with a movable gauge, which can be instantly adjusted to any required size of mount, and which registers to the 1/1000th part of an inch. The whole apparatus is simple and lasting in construction, thoroughly efficient in working, not likely to get out of order, produces work of great elegance and beauty, and, what is of the greatest importance to the user, the manipulations are simple, certain, easily learnt, and do not require much physical energy.

In addition to folders for mounting, plate-marking, and die-stamping at one operation, there are other designs for mounting and plate-marking, or embossing only, at one operation, the die-stamping being done by another folder, constructed for this purpose only, and fitted with double ruled lines, permitting of instant alignment.

This is intended for the use of anyone who may not be prepared to go to the expense of having every folder used by them engraved with an expensive design for name or trade-mark, and is thoroughly efficient. The mounted print is placed within the folder, and a slight pressure given under the press, which in this case may be cold, and

the result is an imprint in relief. The only difference in the whole work is that of time, the naming being an extra operation. It is, however, to be recommended for unusual sizes; for standard sizes there is no doubt a great saving in having the mounting, embossing, and naming done at one operation.

There is also a folder constructed for embossing the covers now so usual in high-class work. These are similar in most respects to the others. The work may be done in plain relief, or in gold or colour. The manipulations are as easy as those for mounting, etc., and the work done is of great beauty. For this purpose the press must be used cold.

Presses for Mounting, Etc.

These have been specially designed to work in conjunction with special folders, and are each fitted with a powerful screw running in brass. The screw is acted upon by a heavy wheel, having a long leverage, which rises and falls by its own volition, and is exceedingly powerful and easy to work. The plate is under-heated, as otherwise the patent folders would have to be turned upside down for every print mounted. The bed plate is made very thick, to ensure an even distribution of heat, and also for resisting the great pressure necessary to give crispness to the various designs of dies required for the mounts.

Being under-heated, less gas is required, and the combustion being thorough, no bad fumes are given off.

The presses are constructed to permit of two persons working at the same time if desired, one filling while the other is pressing, and vice versa, so that the pressure wheel and screw are never idle for a moment during mounting, etc., operations. Two girls can easily mount, plate-mark, or emboss, and die-stamp, 250 prints, cabinet size or under, per hour.

The whole process as described presents certain features to the photographer that are worthy of his attention and consideration. The adoption of this process will save him at least 75 per cent. outlay in this department. There is no limit to the variety in size, shape, and designs. It will prevent a great deal of worry, inseparable from the stocking and replenishing from time to time of a large variety of more or less expensive mounts. No kind of mountant is required. Employees' time is saved. The whole work is more scientific, the plate-marking, etc., being the *result* of mounting, is therefore more correct. At a moment's notice a repeat order can be given, the same in every respect as the original order; and, lastly, the apparatus is not expensive, and can be added to from time to time.

For the whole of the operations herein mentioned there are complete and comprehensive instructions, and daily demonstrations are given at the premises of the sole agents, O. Sichel and Co., 52, Bunhill Row, London.

G. W. MORGAN.

THE PHOTOGRAPHIC RECORD AND SURVEY OF SUSSEX.

The following is the Report of the Council for the year 1908:—The last annual report was issued in April, 1908; during the interval a fair amount of progress has to be recorded, but much inconvenience has been caused by the unavoidable resignation of Mr. L. A. Gilbert of the post of hon. secretary; the best thanks of the Association are due to him for the time and attention he so freely gave to the cause; so far no successor has been appointed. Anyone willing to undertake the work should apply to the Hon. Curator, The Public Library, Brighton. It is necessary that the hon. secretary should be a resident in Brighton or Hove.

A pamphlet has recently been issued by the Association with a view of encouraging photographers to help in the work of the Association. The numerous camera clubs and photographic societies in the county surely must include some members who would be willing to devote at least a portion of their time to the distinctly and permanently useful purpose of benefiting the county and the public at large, by making records of the archaeological and antiquarian subjects which are scattered throughout the county.

The Association possesses a large collection of negatives and lantern slides; catalogues of these are drawn up for reference, and as an instance of the value of this collection, many negatives taken about forty years ago have been found most useful in compiling the article on the ecclesiastical architecture of Sussex in Vol. II. of "The Victoria County History of Sussex," while recently the Sussex Archaeological Society has availed itself of some of the lantern slides for illustrating lectures given in various parts of the county.

A further instance of the value of the records in possession of the Association is that recently a thirteenth century string course and piscina in the interesting church of Rustington were unfortunately destroyed to make way for panelling; fortunately the Association possesses both negatives and prints of the church before this occurred; still the loss of the original work itself is deplorable, particularly as its destruction was quite unnecessary; such a calamity calls for the strongest condemnation of all who value the antiquities of our county. Unfortunately this instance is only one of a dozen or so in the last five or six years. These misdoings make it all the more necessary that photographs should be secured of interesting objects before further damage is done.

A selection of photographs was shown at the Exhibition of the Hove Camera Club, at the Town Hall, Hove, in October last, and also at the Educational Museum at Haslemere.

The thanks of the Association are due to these bodies, and also to the Council of the Sussex Archaeological Society for kindly allowing circulars to be sent out with that society's announcements, thereby saving the Association considerable expense in postage.

A good number of photographs and drawings have been received during the year. Contributions have been sent by Mrs. Asden, Mr. F. S. A. Bramwell, Canon Cooper, Mr. J. H. B. Fletche J.P., Mr. F. S. Heath, Mr. P. M. Johnston, F.S.A., Mr. C. J. Lucas J.P., Mr. J. Lewis, F.S.A. (drawings of fonts), Major Astley Moberly, Mrs. Campbell Newington, Mrs. Padwick, Mr. A. Rood, Mr. W. W. Topley, of the Surrey Photographic Survey, Mr. V. G. Stevens, and the Hon. Treasurer. The thanks of the county of Sussex and of the Association and the public generally are due to the donors.

Photographs, drawings, engravings, negatives, and lantern slides should be addressed to the Hon. Curator, The Public Library, Brighton. Communications and correspondence for the hon. secretary should go to the same address.

The number of members, including the council, is at present sixty-eight; it is hoped that this number will be, in the near future considerably increased. Members are earnestly invited to act as local secretaries in their several districts and to urge the claims of the Association for support.

The hon. treasurer's account shows a total receipt of £10 2d., but the expenditure having been less than last year the balance in hand on January 1, 1909, was £7 5s.

Subscriptions of 2s. 6d. are now due; these and any donations should be sent to the hon. treasurer, J. C. Stenning, Bexley, Sfrons Road, Eastbourne.

MR. F. W. SPEAIGHT AND THE HORSE GUARDS PARADE.

SINCE the publication in the press at the commencement of March of the suggestion by Mr. F. W. Speaight for the improvement of the Horse Guards' Parade many commendatory opinions have been expressed on the scheme by both the technical and lay press, and question time in the House of Commons has been the occasion of inquiries as to the attitude of the First Commissioner of Works towards the scheme. The Right Hon. Lewis Harcourt does not regard the proposed improvement with favour, and the correspondence between him and Mr. Speaight indicates that for the present the official approval of the latter's suggestion is not likely to be forthcoming. Mr. Speaight, apparently impervious to discouragement, will doubtless think to himself that while First Commissioners come and go, he goes on for ever. He may consider the perseverance needed in connection with the Marble Arch improvement in negotiating with the two Governments, two County Councils, and three Borough Councils, as twice elected.

The following is the correspondence which has passed between his Majesty's First Commissioner of Works and Mr. Speaight with regard to the Horse Guards' Parade:—

157, New Bond Street, London, W., March 31, 1909.

STR,—I have the honour of now formally placing before you a copy of a pamphlet published on March 5, the chief object of which is to suggest a way by which shape and dignity can be given to the Horse Guards' Parade, and a vista obtained from the parade ground to the Duke of York's Column.

The further suggestion contained therein of an avenue from Marlborough Gate is, of course, not essential in any way to the scheme.

could be readily omitted, if the interference with the lake which construction would necessitate was felt to be undesirable.

nce publishing the plans I have come across a copy of Sir les Barry's design for the rebuilding of the Government build- in Whitehall, and it is interesting to find that he suggested a what similar treatment for the Parade Ground, and the con- ction of a roadway from it terminating at the Duke of York's s.

y first inclination was to submit the scheme to you before pub- ing it, but on consideration I felt that I ought not to trespass on e valuable time unless I was assured by a large and competent 7 of public opinion that the proposal was one worthy of your nderation. I therefore followed the course adopted in connec- with the Marble Arch improvement, i.e., the publication of scheme first, in order to see if those who naturally knew better myself considered it was one suitable of being submitted to the e of Works.

though I am aware that any such proposal as this will be con- red by you solely on its merits, yet I feel that I ought to men- in justification of my now placing the scheme before you, that ng the past three weeks public opinion has shown in a very arkable manner a practically unanimous approval of the general ciple of the plan.

wards of 100 articles have appeared in the chief London and ncial papers in favour of the main ideas of the suggestion, and technical press, from which an amateur might naturally expect icism, has strangely been the most enthusiastic in its praise, "Builder" stating:—"Mr. Speaight's idea for the treatment he parade ground and St. James's Park we can praise unred- edly as a very fine scheme, which would have a noble effect if erly carried out. Upon the general scheme we have no criti- to make—it is a very fine one, a great credit to its author, and should be very glad to see it carried out."

most every post brings letters of approval from members of the se of Lords, the House of Commons, and other public bodies. I hope that later on I may be allowed to submit to you a com- e list of those who have written in favour of the improvement. he kindly encouragement you were good enough to extend to- ds the Marble Arch improvement convinces me that neither you onally, nor the officials of your department, look upon these mpts of a "citizen of London" to bring about an improvement he appearance of the capital of the British Empire as an intru- , but that, on the other hand, you cordially welcome, and are anxious to encourage, the private citizen in taking a practical rest in the improvement of his city. Feeling assured that this osal will be favoured with the careful consideration of Sir omberg M'Donnell and yourself,—I have the honour to remain, your obedient servant. (Signed) F. W. SPEAIGHT.

The Right Hon. Lewis Harcourt, M.P.

14, Berkeley Square, April 2, 1909.

DEAR SIR,—I have to acknowledge the receipt of your letter of ch 31 drawing to my notice officially the scheme for the altera- of St. James's Park and the Horse Guards' Parade. You will bably have seen the answer which I gave in the House of Com- ns on March 8, in which I said that I have no intention of doing thing to destroy the historic associations or the present beauties one of the most charming of the London parks. As I believe t the alterations suggested by you would have this effect, I am ble to promise them any favourable consideration.—Yours faith- y, (Signed) L. HARCOURT.

F. W. Speaight, Esq.

157, New Bond Street, London, W., April 3, 1909.

IR,—I beg to acknowledge with thanks your letter of the 2nd ant. I am afraid, however, that I could not have made the uest contained in my letter, dated March 31, quite clear.

did not intend therein asking your consideration for that part my scheme for the improvement of the Horse Guards' Parade ich would necessitate interfering with St. James's Park.

f you will kindly refer to my letter I think you will find that the y portion of my original proposal which I ventured to press upon r attention was that part which would, if carried out, remedy e present shapeless and untidy condition of the Horse Guards' ade itself.

As I am so frequently being asked if the answer you gave in the

House of Commons on March 8 meant that you were opposed to any alteration being effected to the parade ground, I should be obliged if you would kindly inform me if that is so, or if, on the other hand, I am at liberty to state that the Office of Works hopes to remedy the present condition of the parade.—Awaiting the favour of your reply, I have the honour to remain, sir, your obedient ser- vant, (Signed) F. W. SPEAIGHT.

The Right Hon. Lewis Harcourt, M.P.

14, Berkeley Square, W., April 5, 1909.

DEAR SIR,—My objections apply with equal force to the sug- gested rearrangement of the Horse Guards' Parade and the incon- gruous collection around it of a number of miscellaneous London statues of various scales, designs, and dates.—Yours faithfully,

F. W. Speaight, Esq. (Signed) L. HARCOURT.

157, New Bond Street, London, W., April 6, 1909.

SIR,—I am the first to admit that there is much to criticise, for the reasons stated by you, in the suggestion of removing to the parade the existing London military statues, but that proposal is only incident to the scheme.

As I have before explained, the principle of my proposal is to effect an improvement in the present shapeless condition of the parade ground. To condemn the scheme on account of one or two details, surely must seem to many like condemning the plan of a house on account of the colour of one or two of its wallpapers.—I have the honour to remain, sir, your obedient servant,

(Signed) F. W. SPEAIGHT. The Right Hon. Lewis Harcourt, M.P.

H.M. Office of Works, Westminster, S.W., April 7, 1909.

DEAR SIR,—In answer to your letter of the 6th, I think it right to say that my objection to the proposed rearrangement of the Horse Guards' Parade applies to the whole scheme, and not only to the collection of the statues. In accordance with your permission I am sending the correspondence to the press.—Yours faithfully,

F. W. Speaight, Esq. (Signed) L. HARCOURT.

EASTMAN KODAK COMPANY OF NEW JERSEY.

A YEAR'S EARNINGS OF ONE AND ONE-THIRD MILLION POUNDS.

THE report of this company for 1908, and balance sheet as at December 31 last, have just been issued. The results of the year again exceed the previous records of the company. The net profits, after making provision for depreciation on buildings, plant and machinery, and after setting aside a sum of £206,185 to augment the special fund for the renewal of plant, amount to £1,334,540, as against £1,291,839 for the previous twelve months.

Dividends of 6 per cent. upon the preferred capital and 20 per cent. upon the common have been distributed—leaving £453,286 to be added to the undivided surplus fund, increasing it thereby to £1,605,485. In addition to this surplus there are now special reserves amounting to £748,984, making with the surplus profit a total of £2,354,469.

The earning power of the company shows a steady increase, as will be seen from the following statement of annual earnings:—

Year ending December 31,	1895,	£49,656
" "	1896,	£122,676
" "	1897,	£185,232
" "	1898,	£243,232
" "	1899,	£335,919
" "	1900,	£465,816
" "	1901,	£517,347
" "	1902,	£564,455
" "	1903,	£606,740
" "	1904,	£688,484
" "	1905,	£827,610
" "	1906,	£1,013,546
" "	1907,	£1,291,839
" "	1908,	£1,334,540

MONTREAL AMATEUR ATHLETIC ASSOCIATION CAMERA CLUB.—This photographic society has just held its third annual exhibition, and from the catalogue sent to us has been successful in bringing together an interesting collection of 180 prints.

Photo-Mechanical Notes.

A Photo-Litho Process.

A PATENT for the direct photographic printing on stone or metal for litho printing has been taken out by Hermann Schneider, who claims for it that it gives results of great fineness of gradation and fulness of detail. The surface of the stone is first given a fine grain by any of the ordinary methods used in litho work. It is important to obtain a fine and regular grain.

The next operation is to clean up with a weak solution of nitric acid. The stone is then rapidly dried, moderately warmed, and its surface covered with a weak solution of gelatine and kept perfectly dry at a temperature of 105 deg. F. The following solution is then applied to the gelatine substratum:—

Albumen	20 ccs.
Saccharic acid	10 ccs.
Water	200 ccs.

The stone is then dried.

The two following solutions are then prepared:—

A. Chrysaniline	2 gms.
Zinc chloride	50 gms.
Water	1,000 ccs.
B. Potass bichromate	14 gms.
Ammonium bichromate	30 gms.
Water	1,000 ccs.

A and B are mixed in equal parts and the mixture flowed over the stone, which is afterwards set up vertically in order to allow the excess of liquid to drain off. When the coating is dry, the stone is exposed under the negative for an average time of ten to fifteen minutes in a good light. The exposed surface is then gone over with a hard roller charged with ink specially prepared from the following materials:—Lampblack, Venice turpentine, and litho writing ink, mixed hot, to which has been added a paste composed of finely powdered bitumen, resin, and beef fat. The image is developed by lightly going over the surface of the stone with a sponge saturated with water. When the impression comes out sharply the stone is gummed up and dried.

It is then washed to rid it of gum, the ink removed with turpentine, and the stone again washed and treated with a weak solution of nitric acid, in order to clear away the sensitive film. It is then kept wet with salt water, and is again inked up with a lithographic roller and treated by the usual litho methods.

It will be seen that in this process the photographic design is obtained directly on the stone, the sensitising film being destroyed by the nitric acid applied after the first inking.*

The method is recommended for the reproduction on stone or metal of photographs from nature, pen drawings, and water colours, and may be employed for three- or four-colour processes.

* * * * *

There are two difficulties connected with this process. Firstly (as in all the many similar processes, where the grain of the picture depends solely upon the grain of the lithographic stone), there is the trouble of developing an image that is sufficiently well broken up to give a printable image; and, secondly, a special difficulty in connection with this process must be the nicety of practice required just sufficiently to etch the stone, after the ink has been removed, without destroying all possibility of printing. For ease of manipulation and certainty of results we do not imagine this process can approach the common methods of making a grained negative and then printing on to a polished stone.

Facsimile Reproduction of Coloured Originals.

In Dr. Mees' book on the "Photography of Coloured Objects," which we reviewed last week, there is no mention of one method used in reproduction establishments that can be of great service in rendering certain coloured drawings in "facsimile." In a coloured original, where the colours used are complementary, the photography is simple, because the appropriate colour filter and plate will give a satisfactory record of each colour by itself. But supposing black occurs, then it is impossible to photograph the colours without their being confused

* In the photographic processes on stone it is the photographic image which receives the inking. Here this image is removed and the stone itself is etched with acid, inked, and forms the printing surface.

with the black. Thus a red and a black original can be photographed to print the black only, by means of a red filter and red-sensitive plate; but a negative cannot be made to print the red only. The way out of the difficulty is to make two negatives, one as above, showing the black only, and the second on an ordinary plate, showing both red and black. A positive now made from the first negative will give the black as density, and this, placed in contact with the second negative, will then show the red only left as transparent, and from this a positive and then a negative can be made giving the black alone. Of course, the same method can be applied to the reproduction of all kinds of colours, particularly two colours lying near to each other, as, for example, yellow and red, and although it is a little roundabout it is frequently the only way to reproduce in faithful facsimile. In "Le Procédé" for December last there was an article on this subject illustrated by explanatory diagrams.

Patent News.

Process patents—applications and specifications—are treated in "Photo Mechanical Notes."

Applications for the following Patents have been received from April 5 to 10:—

CAMERAS.—No. 8,247. Camera attachment. John Currie, 18 Kelvingrove Street, Glasgow.

ANIMATED PICTURES.—No. 8,338. Improvement in film steadiers for moving-picture machines. John Louis Hammond and John W. Patton, 77, Chancery Lane, London.

WASHING APPARATUS.—No. 8,455. Apparatus for washing photographic plates and the like. Herbert Frederick, 53, Chancery Lane, London.

SHUTTERS.—No. 8,459. Arrangement for winding or setting roller blind shutters in reflex or reflector cameras. Alfred Herbert Prickett, 3, Gordon Road, Handsworth, Staffordshire.

REPRODUCING PHOTOGRAPHS, ETC.—No. 8,517. Method of reproducing photographs, drawings, and paintings upon precious and other metals, also upon porcelain and vulcanite, by mechanical processes for ornament and use in the form of jewellery, metal pictures, and the like. Leonard Bradbury, 66, Emmanuel Road, Balham, London.

COPYING APPARATUS.—No. 8,519. Improvements in apparatus for producing photographic copies. Georges Isidore Armand Andrieux, 18, Southampton Buildings, London.

CINEMATOGRAPHS.—No. 8,548. Improvements in mechanism for giving rapid intermittent feed movements, more especially intended for feeding films in cinematograph cameras and machine or apparatus for printing and exhibiting cinematograph pictures. Charles Urban, 47, Lincoln's Inn Fields, London.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

DAYLIGHT PROJECTION.—No. 3,762, 1909 (February 15, 1909). The invention relates to the exhibition of lantern slides or cinematograph pictures on the screen by projection. For this purpose a lattice is fixed to the screen. The lattice has its meshes, which may be of rhomboidal, circular, or other desired form sufficiently close together and sufficiently raised to form cavities or recesses the walls of which are preferably of a dark colour, and projected upon the plane of the screen shadows which cover the entire surface of such screen. By this means the influence of a foreign source of light is destroyed, and the projections may be obtained in a bright light as well as in darkness. Mario Ganzini, 25 via Solferino, Milan, Italy.

NON-FLAMMABLE FILM.—No. 16,114, 1908 (June 3, 1908). The method, according to the invention, chiefly consists in forming the film, without paper backing, of two superposed layers, a pro-

one of collodion, and a final one of transparent colloid (preferably gelatine, and in constituting by this compound support for the sensitised layer, enabling all the operations of taking and preparing photographs of animated objects to be effected without difficulty. This compound support, like the collodion which it contains, is sufficiently impermeable to undergo, without deformation, the action of the photographic baths, while all the manipulations are effected as in the case of an ordinary film. After the final drying of the negative, as the case may be, when the bands need no longer be supported, the two films constituting the support are separated to completely remove the provisional membrane of collodion, leaving only the final gelatine film carrying the photographic images. Having thus been freed from all traces of collodion, the film is constituted merely by gelatine, so that it is practically inflammable, and consequently may be used without danger in cinematographic projections.

In preparing the film, a film of collodion or celluloid, or of any transparent or non-transparent material capable of forming a smooth and preferably impermeable membrane or support, is used on a polished surface. After this first film has been dried, a second film of gelatine sufficiently thick to form on evaporation a regular film having the usual thickness of an ordinary cinematographic film is applied to the surface of the first film. Finally, after drying, a layer of sensitised photographic emulsion is applied to the compound support thus constituted, the sensitive layer being applied to the gelatine surface.

When the layer of emulsion is dry, the compound film is detached. It is detached in the usual manner from the polished surface on which it has been formed, and then cut into the necessary bands of exact width, perforated or non-perforated.

The sensitive films thus prepared are, therefore, constituted by several layers, and are chiefly characterised by the fact that the layers can be removed subsequently, after exposure, etc., and also the second layer, constituted by gelatine, being of sufficient strength to form, when alone, a normal support.

This process is the simplest one for use in the manufacture of sensitive film for cinematographs. It can, however, be modified in numerous ways without departing from the spirit of the invention.

Between the various layers substances intended to increase or decrease the adhesion of the films could be introduced. The gelatine can be rendered more supple or hardened by well-known means. Its incombustibility can be increased by the addition of phosphorus in solution. In place of gelatine can be used any other suitable substance having the same or better properties from the point of view of transparency and non-inflammability. The collodion or celluloid film can be prepared separately and covered with gelatine, then with emulsion by the same continuous methods as those used for the manufacture of photographic paper.

Even in the case of the practical possibility of forming the final film in a sensitive state as a single layer made from a mixture of gelatine and a suitable material, gelatine or the like, with the emulsion, the number of layers constituting the sensitised film according to this invention would be reduced to two—the provisional one, to be subsequently removed; and the final one, to be utilised after it has been subjected, whilst connected to the provisional one, to all the necessary photographic manipulations.

The sensitive film thus constituted would have, of course, to be considered as being practically identical with that obtained by the superposition of the three layers as previously explained, in view of the fact that the film would still comprise the three essential constituent parts of the three layers: temporary support, final support, and emulsion.

The treatment is exactly the same as that for ordinary cinematographic films as regards exposure, development, fixing, washing, and final drying.

After drying, the provisional inflammable layer or film which is on the back of the band, at the side opposite to the emulsion, is removed, which can be effected in numerous ways. For instance, by dissolving the layer, by dipping the film into a liquid solvent for the inflammable film, such as ether, alcohol, acetone, benzene, etc., according to the nature of the film or that of the

layers interposed for the purpose. It is also possible to work by inflation, as explained in the inventor's French Patent No. 333266 of June 22, 1903. It is, however, preferable to proceed in the following manner:—

A few millimetres of the film to be removed are separated by means of a sharp blade inserted between the films at the end of the band. By seizing the portions thus separated with the fingers or with small pincers and drawing them apart, the film separates in a regular manner from one end to the other of the whole of its length into two portions, one the provisional film formed by the collodion or celluloid or other material used, which can be employed for preparing new films, and the other carrying the images and forming the non-inflammable final film, which can be used without danger in cinematographs. Société Anonyme des Plaques et Papiers Photographiques. Lumière et ses Fils, 287, Cours Gambetta, Lyons, France.

New Trade Names.

PARVEX.—No. 309,719. Photographic apparatus included in Class 8. The London Stereoscopic and Photographic Company, Limited, 106 and 108, Regent Street, London, W., photographers and photographic apparatus dealers. January 21, 1909.

ELECTROPHOT.—No. 310,954. Photographic enlargements, photographs. The firm trading as the Electrophot Company, 52, Gray's Inn Road, London, W.C., photographic enlargers. March 2, 1909.

Analecta.

Extracts from our weekly and monthly contemporaries.

Cardboard Dishes.

A writer in "Photography and Focus" for April 20 gives the following instructions for making developing dishes at a small cost:—"I have had a large developing dish in use for the past twelve months, size about 20 x 14, to make which cost me, roughly, a shilling, and is apparently good for long service.

"To make it I bought a sheet of very thick strawboard, and cut out the shape of the dish, scoring the board partly through to bend it, as is usual in making cardboard boxes, etc. The seams were papered with stout brown paper, and the corners, first joined with thin string to keep them up to shape while the glue dried, treated in the same way, after which the string was cut and drawn out, and a second layer of paper glued over the corners. I used common glue, applied hot, and plenty of it. Two coats of paint and one of cycle enamel completed the dish. I use it, as stated above, for developing, but do not know whether it would serve for fixing, although I sometimes wash prints in it, and the small quantity of hypo thus conveyed into the dish has had no deleterious effect on the enamel. A pulp dish of the same size costs about 4s. 6d., so that there is a considerable economy in making one this way."

New Books.

Allgemeine Aesthetik der photographischen Kunst auf psychologischer Grundlage. By Willi Warstat, Ph.D. Halle: W. Knapp. 3 mks.

This is a highly theoretical treatise of 100 pages. It deals very verbosely with the principles of pictorial aesthetics, and discusses the various means by which photographic results can be so managed as to give the highest aesthetic pleasure. It cannot be called exciting reading, and would appear to be too deep for the ordinary photographic amateur as he is constituted in this country.

Modern Photographische Kopierverfahren. By Dr. Erich Stenger. Halle: W. Knapp. 2 mks.

In this volume, the 63rd of Herr Knapp's "Encyklopädie der Photographie," Dr. Stenger performs the useful task of bringing into one volume a record of the technical methods of printing processes which have recently been devised or have come into prominence of late. He includes in this category ozobrome and the silver-bromide-pigment-paper, known here as "Carbograph," the

"oil," and "bromoil" processes, the catatype process and "pigment-gravure," which latter is a non-transfer carbon not yet apparently on the market. Of these methods the author gives information as to the manufacture of the materials, chiefly from patent specifications, and as to methods of working, which are technical in their nature. Thus, he has little to say on the pictorial principles to be observed in the pigmentation of oil or bromoil prints, although his description of the technical working of these processes is commendably full, and even extends to such oddments of printing processes as oil-ozobrome and gum-ozobrome, while his treatment is briefly historical in every case. He might easily add to the value of such a treatise by giving the references to sources of original publication.

The largest share of space is taken by a description of the catatype process, which we are told has now been brought into a workable state by its proprietors, the Neue Photographische Gesellschaft, of Berlin. The large number of patents taken out in supplement to that of the inventors of the process, Drs. Ostwald and Gros, has rather suggested the difficulties experienced in reducing this interesting method to practical form, but Dr. Stenger now goes so far as to say that the process now "für die Praxis brauchbare Form gebracht werden könnte." He deals briefly with the later patents and explains the aims of the makers at finding a means for reducing the activity of the catalysing agent. It appears that two varieties of the process are now upon the German market, one in which the final print is produced in a manganese compound, and one in which the catatype method is applied to the making of a pigment print. This latter would appear to be the more satisfactory of the two, but in any case the long series of operations to which the original paper negative or positive is applied rather suggests that the advantages of this process of printing without light must be very considerable indeed for the paper to compete with the modern gelatine and collodion printing media in which the after-operations are reduced to a final state of simplicity. However, Dr. Stenger's chapter on the process is the most useful review of the recent progress which has appeared, and is evidently written as the result of a practical acquaintance with the method.

"DEUTSCHER PHOTOGRAPHEN KALENDER," 1909.—No one has any reason to be at a loss for information as to houses in the German photographic trade, when he can buy Herr Schwier's "Kalender" for 2 marks from the office of the "Deutsche Photographen Zeitung," in Weimar. The twenty-second yearly issue of this most useful reference annual is a little fatter than hitherto, due, apparently, to the increase in the memberships of the German photographic societies, a full directory of the members of which occupies more than half the "Kalender." The remaining portion of the volume, printed on yellow paper, is of more frequent service. It contains, first, an alphabetical list of the firms in the German photographic trade; secondly, a classified list of apparatus and materials, in each case with the firms manufacturing or supplying; and, lastly, an alphabetical list of towns, to each of which the names of photographers or other firms established there are appended. The arrangement allows of very easy consultation.

"PHOTOGRAPHIE ALS LEHRFORSCHUNGSGEGENSTAND."—The opening address, delivered by Dr. R. Luther before the students in the photographic section of the Dresden Technical School, has been reprinted under this title, and is issued by Herr Knapp as No. 66 of his "Encyclopædie," price 1 mk.

"THE IMPERIAL HANDBOOK."—The 1909 edition of the always welcome handbook of the Imperial Dry Plate Company, Ltd., contains a varied assortment of brief notes and articles of direct practical usefulness to the photographic worker. These relate to "Interiors," "Under-Exposure," "Drying Negatives," "The Alum Bath," "The Fixing Bath," "Developing and Toning P.O.P.," "Reducers for Negatives," "Combination Printing on Bromide Paper," "Factors Governing the Character of Negatives," "Copying by Artificial Light," "Correct Exposures," and "Imperial Gaslight Paper"—truly a lengthy list, and representing a stock of information and advice very clearly and concisely expressed. The "Handbook," which is obtainable free on application to the Imperial Company, at Cricklewood, also announces the winners in the competition organised last year for photographs suitable for reproduction in the handbook. Particulars of the contest of a similar kind for next year are also given.

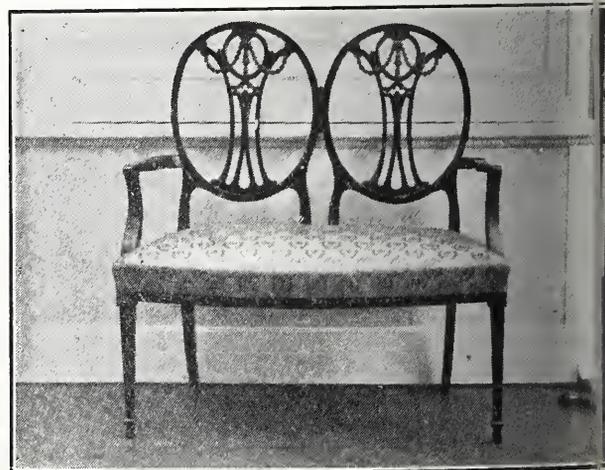
New Apparatus, &c.

Heppelwhite Chairs and Settees for the Studio Sold by Sichel and Co., 52, Bunhill Row, London, E.C.

It is satisfactory to find the houses which supply the professional photographer with his "accessories" showing their discontent with the ugly furniture which has long been found in studios.



their feelings are the echo of those of their customers: the supply is simply a response to the demand. At any rate, the chairs and settees of the graceful designs of the English makers are now obtainable at quite moderate prices. We illustrate two being shown



by Messrs. O. Sichel and Co. on their premises at Bunhill Row. The chair is sold at the price of £2 17s. 6d., the settee at £4 10s. Messrs. Sichel inform us that it is their intention to keep the showroom supplied with a variety of furniture of the English model.

FORTHCOMING EXHIBITIONS.

- April 27 to May 1.—Maidstone and Institute Camera Club. Secretary, J. Harris, 23, Knight-riding Street, Maidstone.
- April 29 to May 17.—Photo Club de Paris. Secretary, Photo Club, 44, Rue des Mathurins, Paris.
- May 20 to 27.—Malvern Camera Club. Entries close May 10. Secretary, J. B. Nickolls, The Exchange, Malvern.
- July 7 and 8.—Canterbury Camera Club. Entries close July 2. Secretary, B. J. Fisk-Moore, St. George's Gate, Canterbury.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

SATURDAY, APRIL 24.

Polytechnic Photographic Society. Outing to Wimbledon Common.
 North Photographic Society. Excursion to Danzey.
 Photographic Society. Outing to Denham.

SUNDAY, APRIL 25.

Microscopic Society. Presentation of Awards.

MONDAY, APRIL 26.

Photographic Society. Social.
 London Camera Club. Auction of Photographic Goods.
 Grammar School Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
 Photographic Society. Open Night.
 Chester and District Photographic Society. Competition: "Winter."
 Photographic Society. Annual General Meeting.

TUESDAY, APRIL 27.

Photographic Society. "The Attractions and Humours of Photographic Experiments." Hector Maclean.
 London Camera Club. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
 Photographic Society. "Picturesque Edinboro'." J. H. K. Todd.
 Park Co-operative Camera Club (Govan). Club Meeting.
 Amateur Photographic Society. "Bromide Enlarging." J. D. Dick.

WEDNESDAY, APRIL 28.

Camera Club. Practical Demonstration of the Oil Process." F. J. G. G.
 Photographic Society. "What Can be Done with a Hand Camera." Goetz Lecture.
 Friends' Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.

THURSDAY, APRIL 29.

Camera Club. "Antarctic Exploration." L. C. Bernacchi, Physicist to the "Discovery" Expedition.
 North Photographic Society. "The History of Photography." P. Whitehead and C. P. Proctor.
 Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.

ROYAL PHOTOGRAPHIC SOCIETY.

Meeting held 20th inst., Mr. G. Lamley in the chair. Mrs. Minna delivered a lecture on "Racial Types in South Africa and the Malay and Dutch people, their homes and occupations. A number of these, of which the subjects were figure studies taken in the Malay States, presented most pleasing pictorial effects, and were much applauded by those present.

CATALOGUES AND TRADE NOTICES.

KINDS OF TRADE WORK.—In their new price list, just issued, Messrs. Dorrett and Martin, Belle Vue Road, Upper Tooting, S.W., have done themselves justice. They prominently mention the many branches of trade work which they do, and, as a rule, do very well and promptly. Apart from the stock lines of albumen, carbon, and platinotype enlargements, they make a specialty of certain very attractive mounted and finished enlargements at a moderate, but decent, price. Messrs. Dorrett and Martin are not a firm turning out the wretched stuff of the cheapest kind which passes nowadays as photography. They offer credit work at a reasonable price, and this principle rules also in their work for development, contact-printing, slide-making, retouching, and other service, such as the making of multiple and stamp negative copies of coloured subjects, etc. Tinted prints and engineers' tracings are also here priced, but perhaps the firm's most valuable department is that for the supply of miniatures, either on ivory or opal or the cheaper class of article produced with a cellulose surface. These range from 1s. 2d. to 4s. 6d., and the firm has all grades of jewellery, in which they may be inserted. The firm also does work, too, in "photo-buttons" and "stamp photos" is well known, and the whole catalogue, which is sent post free to bona fide trade or business readers of the "B.J.," suggests many ways in which the enterprising photographer may take advantage of the wide and varied work done by Messrs. Dorrett and Martin.

TELLA CAMERA COMPANY, of 68, High Holborn, London, W.C., have just issued the 1909 edition of their illustrated catalogue, which contains particulars relating to the numerous varieties of cameras, lenses, shutters, and accessories obtainable from this firm. Special attention is drawn to the "Avenue" outfit, which from the description would appear to be exceedingly good value for the low price

charged—namely, £3 2s. 6d., in half-plate size. Photographers intending to exchange old goods for new, or to add to their present outfit, would do well to write to the Tella Company for a copy of this list.

NEW PROFESSIONAL REQUISITES in considerable variety are described in the current number (No. 10) of the "Professional Photographer," issued by Kodak, Limited, from Clerkenwell Road, London, E.C.

Commercial & Legal Intelligence.

INVENTOR'S AFFAIRS.—The first meeting of creditors in the case of Birt Acres, of St. Vincent's House, St. Vincent Road, Westcliffe-on-Sea, managing director of a photographic films company, was held at 14, Bedford Row, London, on April 19. The debtor does not admit insolvency, and has not furnished a deficiency account. There are thirty-one unsecured creditors for £544 11s. 7d., and two fully secured for £4,000, but debtor estimates the value of the securities held by these two creditors at £6,300, leaving a surplus of £2,300. The other assets are 500 £1 shares in a company, 14 £1 shares in another, and one good book debt of £966. Altogether the estimated surplus is £3,235. The Official Receiver, in his observations, states that the act of bankruptcy on which the Receiving Order was made was the failure of the debtor to comply with the requirements of a bankruptcy notice served upon him. Debtor states that he commenced business on his own account as a manufacturer of photographic films at Salisbury Road, Barnet, about sixteen years ago, with certain patents and machines made by himself and about £100 cash capital. About 1897 he sold the business to a private company, which was shortly afterwards wound up voluntarily, debtor taking some of the machinery as his interest. He started business again at Athenæum Road, Whetstone, and subsequently bought land at Wickford, Essex, and erected works upon it at a cost of £500. In December, 1907, he sold the business with the Wickford premises to a company for £2,540 cash and £3,496 shares, and agreed to lease the Whetstone premises to the same company at a rent of £125 a year. This company is the one in which debtor holds the 500 £1 shares, and is also the company which with another is scheduled as debtor for the book debt of £966, but the company claim that they have a substantial call upon debtor's estate. The unsecured liabilities are in respect of debts contracted on behalf of the companies of which the debtor claims to be a creditor, a loan, and private debts. The creditors stated to be fully secured hold freehold premises at Whetstone (subject to an option to the purchasing company to purchase for £2,500), 3,000 £1 shares in the purchasing company, and a policy on the debtor's life for £1,000. Debtor was present, and was questioned by the Official Receiver and the creditors as to his relations with the company, and disputed that he owed the company money. He declared that he was prepared to pay in full all but one or two special debts, and suggested that he could successfully carry on the business under certain conditions. Doubts were expressed by the meeting as to the debtor's chance of doing this, and a resolution was passed asking the Receiver to adjudicate him bankrupt. Debtor finally consented to this course being taken.

VALENTINE AND SONS (1907), LTD.—This large Dundee photographic business made a profit in 1908 of £12,822, and after paying directors' fees, setting aside £1,500 to depreciation, and paying the preference share dividend, including the balance of £625 brought forward, there is £7,764 left, of which £2,550 is devoted to extinguish half the brokerage and formation expenses appearing in the balance sheet, and then the ordinary shares get 6 per cent. for the year. This leaves £2,213 to go forward, subject to payment of directors' and auditors' fees. The total of the balance sheet is £158,753, in which only £11,200 figures as goodwill. Sundry debtors owed the company at December 31 £39,375, and it owed sundry creditors £19,523, including £4,702 due to bankers. The depreciation fund stands at £3,000.

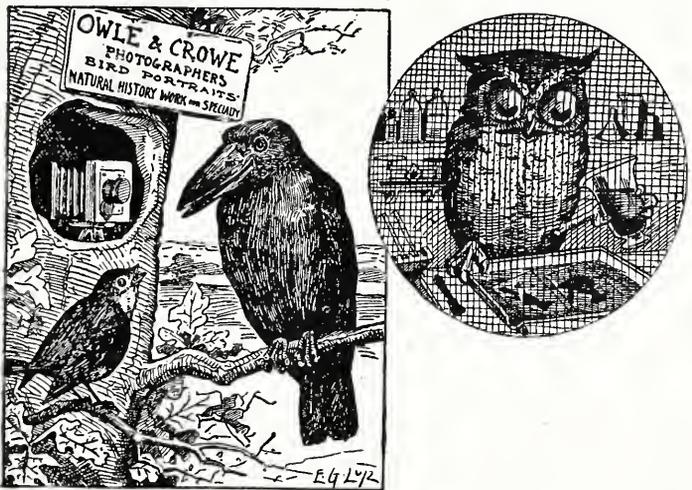
NEW COMPANIES.

W. T. COLE AND SON.—£1,000 (£10). To take over the business of a chemist and druggist, optician, and dealer in photographic materials, carried on by W. B. Cole, at 17, St. Mary Street, Weymouth, and at Melcombe Regis, Dorset, as W. T. Cole and Son. Private. 17, St. Mary Street, Weymouth.

News and Notes.

THE AEROGRAPH IN SCOTLAND.—Firms in Scotland are now having brought to their notice specimens of aerograph work. Mr. A. Aufholz, representing the Aerograph Company, 43, Holborn Viaduct, London, E.C., will be at the Old Waverley Hotel, Buchanan Street, Glasgow, from Tuesday, April 20, to May 6; and in Edinburgh, at the Carlton, from May 7, for one week. The new machine for colouring mounts, etc., will be exhibited, and all interested in this class of work should endeavour to make an appointment and see the machine in operation. Besides, there will be shown many examples of aerograph work for all branches of photographic practice. Mr. Aufholz is an expert in this department, and will be prepared to give those calling on him by appointment a practical demonstration of the work of the aerograph.

PHOTOGRAPHY IN NATURAL HISTORY.—Our contemporary, the "Camera," of Philadelphia, gives in a recent issue the drawing



Mr. Tom-Titt: "How is it, Mr. Crowe, I never see your partner, Mr. Owle?"

Mr. Crowe: "Oh, he's always in the darkroom. Greatest thing ever—he can develop plates without using a ruby lantern."

we reproduce, not stating, however, whether it is indebted for it to Mr. Martin Duncan.

THE PROFESSIONAL PHOTOGRAPHERS' SOCIETY, of New York State, on its impending meeting in New York, are to be very heartily entertained by the Metropolitan Section of the Association. A song-book composed for the occasion reaches us in advance. Under the title "Fidgety Photographers', Frolic Formulæ and Sorrow-Soothing Songster," this publication contains innumerable personal references and skits, strung together to popular airs such as "Marching to Georgia." For example, Mr. Falk on copyright (chorus of "Everybody Works but Father"):

Ben Falk he loves copy-right,
He's got it in his blood,
Congress cuts up di-does,
He falls down with a thud.
Then he ups and cus-ses
Spits on both his hands,
Kicks up some more mus-ses,
AND THEN HE LANDS.

"NATIONAL PHOTO-BULLETIN."—We have received a recent issue of the "National Photo-Bulletin," published by the Photographic Department of the National Drug and Chemical Company of Canada, Limited, Montreal. The "Bulletin" is a monthly issue, which brings new apparatus and materials before the notice of the amateur, and gives him some useful tips and articles. It is distributed gratis through the dealers—the Drug and Chemical Company are not retailers—and should prove a valuable and direct means of reaching and interesting amateur workers in the Dominion. We see that British firms occupy the leading places among the advertisements.

Correspondence.

* * We do not undertake responsibility for the opinions expressed by our correspondents.

* * Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

A CAUTION TO INTENDING PURCHASERS OF BUSINESS.

To the Editors.

Gentlemen,—May I solicit the favour of a short space in the "Journal" to warn those of my brother "procs.," especially the younger and less experienced, anticipating purchasing a photographic business? I am on the "qui vive" for a business, and amongst several replies to inquiries to advertisements I had one from a party offering me, what he termed, his "business." Now I happen to know the vendor, to my cost, also the "business," which has not been in existence more than two years. His stated "business" was one of a three years' duration!! There is no doubt that this is one of many "faked up" for sale. I am informed that the premises have been newly decorated and furnished, and replete with all new apparatus, etc., etc. I have no doubt it is all very nice and pleasing to an artistic eye, but what one would like to be assured of is the existence of a genuine turnover.

This type of business is opened and run by an expert in the photography and "slimness." The concern is "worked" and advertised for all it is worth, free sittings given, etc., so that the "book" can show a respectable turnover! The consequence is that the market becomes glutted, and people are "fed up" with photographs. Then comes the slump, and then the "business" is put up for sale, "owing to ill-health," etc., etc.!!!

My advice to those contemplating making a start on their owls is to make thorough inquiries as to how long the business under consideration has been established, and, if only a short time, to be nothing to do with it, only at a valuation of apparatus, furniture, stock-in-trade, etc.; also see that the lease is in order; see what the tenant is liable for; if any structural alterations have been made, and if so, whether the tenant has agreed to put things "as they were" on the expiration of the lease.

There are many other pitfalls for the unwary, but which the Editor cannot afford me the space to ventilate now. In conclusion, let me say that "the wisdom of the serpent" is a very necessary quality in dealing with these "D. S. Windles" and vendors of "sucked oranges."—Yours faithfully,
ONCE BITTEN

THE EFFICIENCY OF THE FOCAL-PLANE SHUTTER

To the Editors.

Gentlemen,—The observations made by you in your issue of the 9th, and Mr. C. J. Stokes's letter in your last, have been read by me and no doubt by the majority of your readers with considerable interest, affording, as they do, valuable, if somewhat discomfiting, information to users of focal-plane shutters.

I think, however, that when you assume the efficiency of a modern diaphragmatic shutter opening in iris form and of the best type to be $33\frac{1}{2}$ per cent. at top speed, you do this type an injustice. If all factors are considered, in my humble opinion 50 per cent. would be a closer and fairer approximation, irrespective of the period of full opening. In one of two iris shutters tested (subsequent to my paper) of the above description there is, however, distinct, if small, period of full opening at top speed, probably due to inertia of the leaves on reversal, coupled possibly with a certain amount of play. A test of the other shutter illustrates that at the highest speeds the period of closing is materially longer than at slow speeds; it also shows that the movement at some speeds is very far from being either continuous or uniform. An ancient "Unicum" records good efficiency at highest speed—1.40th second actual, though marked on the dial somewhat differently. The elliptical method of opening, I hear, is to be abandoned in favour of the star-shaped opening, which will result in greater efficiency, and it is to be hoped in lessened tendency to variation in speeds through outside influences.

In reference to Mr. Stokes's letter, I must cordially agree with

marks as to the absurd claims which have been made by and others in respect of focal-plane shutters, an efficiency per cent. under all conditions being frequently inferred or claimed. In the point raised—or, rather, as I now learn, by me—I had little doubt that a perceptible loss of efficiency, though my limited mathematics were unable to give it a value. Your correspondent's formula appears to furnish a and useful guide to an approximate realisation of the loss d in this and other kindred conditions.

Stokes, however, says that in the conditions shown in the the "duration" is doubled, not decreased, as assumed by possibly, indeed probably, my assumption was wrong, but I help thinking Mr. Stokes is in error also in an opposite n. With a slit in advance of the focal plane, as illustrated in gram, the image of an object reflecting light equally would on the focussing screen as a bright line, with maximum ity of no measurable width, in the centre of a band of light han the slit, and vignetting from the centre on each side, perceptibly as points opposite the edges of the slit are hed. For the purpose of estimating duration of exposure and of light cannot be considered equivalent to a slit of width in contact with the plate. A part, and probably a art, would have no perceptible action on the plate during the of the blind across it, especially if a rapidly moving object eing recorded. If we make an assumption that all the ed parts are inoperative so far as the plate is concerned, it is ent to an infinitely narrow slit in contact with the plate and quent shortening of exposure. Such a big assumption is, of not warranted, though true in part; it has a direct bearing y on the question of "speeds," but also on that of efficiency, a factor which might readily be overlooked in a purely mathe- treatment of the problem.—Yours faithfully,
E. A. SALT.

PRESENT BANALITY IN CHRISTMAS CARDS.

To the Editors.

emen,—I have read with much interest your remarks in the h Printer" on British Christmas cards, and wonder what ublishers of Great Britain will say to them. My impression cannot say anything to justify their position. The Christmas ade, I quite agree with you, seems to have come to that here originality has ceased both in design and literary mat- he real trouble, I may tell you, is this: that every Christmas ublisher believes he knows all there is to be known about the as card trade, and suggestions either for literary matter or tion are not required, particularly if any novel line be offered. ublishers' argument all along is they do not want to publish g novel, as they know what the public will buy; and so diffi- it to move the publishers to do something new or anything the way, that it is almost useless attempting to put any time e direction. It is the old, old story—British trade prejudice e self-satisfaction of the man at the helm, "who quite knows e wants, thank you," so he says.

ve just returned from a business trip in the United States, trasting this Free Trade country with America, one can only nced how hopelessly we are behind times. In 1899, when I at that country, I was quite satisfied of the go-aheadness and en-minded receptiveness, if I might say so, of the people of a; it is the want of this very receptiveness that is sending untry to the dogs.

o the literary matter that decorates most of the Christmas hat emanate from most of the so-called art publishers, this nly high-faluting and sentimental nonsense, and not at all e either for those who send or those who receive the cards. is so much that is beautiful in the English language that e taken from our poets, our standard works, etc. This, r, is simply ignored.

floral abominations that are turned out, too, I agree with you, ocking designed. The latest horror is the embossed celluloid nd I am told there is a great sale for this class of card. This o, there will always be publishers who will produce them; but e something better and to cultivate the taste of the public ething more truly artistic is quite out of the question. Their s, they are there to make money, and not to educate the although we hear something of this in the fluffy advertise-

ments and the inspired press notices which are now and again let loose on the public.

Your protest, believe me, is quite too late to affect the Christmas cards of 1909; these have been long finished with, but were they on the stocks your protest would have no weight; the publishers will go on producing the thing they consider will sell—and that they claim is the rubbish you decry—and will be quite unaffected by any criticism from any outside source.

During the last twelve months I have turned out quite a number of Christmas card designs for various publishers, but the curious thing is that when we see our work reproduced we are often unable to recognise it, so badly, indeed, has it been reproduced; and I must say some of the most original and strikingly interesting and novel lines have been turned down, while something that has been done twenty times before seems to meet the demands of the publisher. I repeat, novelty in Christmas cards is evidently not required. I have had passing through my hands some eighty original subjects of the most beautiful type—they were landscapes of the most beautiful quality, done by an artist who had exceptional genius. These subjects were absolutely the thing; they were shown to one of the largest Christmas card publishers, who made the remark that they were not buying any new material as they wanted to re-use so much old material they had got. Another said they were very beautiful, but as they were quite of a novel character they thought they would not try them, and so on. At last one publisher took twelve of them, and I have just seen the proofs, which for a wonder have been beautifully reproduced; but out of almost all the Christmas card publishers who saw these designs only one firm saw anything in them, and that is the reason why I, like many other workers, cannot waste time in catering for the Christmas card trade. Quite a number of the best and most original workers in this direction have had to give Christmas card designing up altogether, for, quite apart from the refusal of original designs, the prices obtainable are, as a rule, not worth accepting.

You are quite at liberty to publish this letter if you think well.—
Yours faithfully, NOT SELF-SATISFIED.

THE HISTORY OF PHOTOGRAPHY.

To the Editors.

Gentlemen,—Permit a somewhat belated protest against the opinion expressed by Mr. E. West in his letter on page 225 of your issue of March 19, wherein Mr. West says that "The Photo-Miniature, No. 60" "seems too trivial for the purpose" of making up a lecture on the history of photography for a photographic society. For the particular purpose mentioned, where a few of the most vital facts connected with the subject are to be stated with brevity and interest within a short time, "The Photo-Miniature, No. 60," "Who Discovered Photography?" would seem to be most desirable as a source of information. With regard to the quality of its information, its accuracy in detail and the arrangement of the facts, I need but point out that the monograph was prepared by Mr. George E. Brown, the present editor of the "B.J.," and very carefully supplemented by Mr. Chas. W. Canfield, both of whom are known as authorities in this special field.—
Yours faithfully, TENNANT AND WARD.

122, East 25th Street, New York.

April 12, 1909.

SULPHIDE TONING.

To the Editors.

Gentlemen,—With Mr. Blake Smith's contention—expressed in his letter of last week's issue—that the failure of stale sulphide solutions is due to the production of "hypo" with concomitant reduction in the percentage of sodium sulphide, everyone who has made a study of the chemistry of this toning process will, I think, agree. At any rate, this is true for a certain degree of staleness of the sulphide solution.

But there are one or two points in the letter on which I, and probably others of your readers, would welcome some elucidation.

Mr. Blake Smith asserts the product of the ferricyanide-bromide bleaching bath to be a lake of silver and silver bromide. The term "lake," I take it, is appropriate for those bodies which with a more or less pronounced individuality nevertheless show considerable variability in percentage composition. I presume, therefore, that Mr. Blake Smith's analyses of the substance constituting the

bleached image have varied widely, and one would like to know the extent of the variation he has found to justify him in the application to this instance of the term "lake." So far as my analyses have gone they show the product of the bleaching bath to have (speaking with due regard to the unavoidable errors of a difficult quantitative estimation) a constant composition.

But if the product has a constant composition, why call it a lake? If, assuming what has not yet been disproved, the constancy of composition of the bleached product, it is to be called a lake, then consistency demands that we deny to ordinary silver sub-bromide (Ag_2Br) the dignity of a salt; we must call it a lake of silver and silver bromide! Though the term "lake" implies a negation of knowledge of the substance to which it is applied, yet it seems to minister to many as a sort of chemical "Mesopotamia," soothing and satisfying the troubled soul.

Mr. Blake Smith states that when the bleached image is placed in hypo, this reagent dissolves the silver bromide of the lake, leaving the silver of the lake as a faint residual image. Then why is not this residual image of silver silver-like in appearance? It certainly is not so. Is it, perchance, the case of a lake again—a lake of silver in gelatine, or a lake of silver in the cellulose of the paper?

Surely this faint residual image remaining after the bleached print has been treated with hypo is nothing else than what has been called the residual image of development, i.e., that portion of the original developed image which is not silver. It is, in fact, nothing else than what you get if you treat an ordinary (untoned) bromide print with persulphate or other silver solvent.

I am somewhat surprised at the prodigality in Mr. Blake Smith's recommendation that dilute (1 per cent.) solutions of sodium sulphide should be thrown away after use. I have been constantly using over and over again for a period of more than a year a 1.2 per cent. solution, and it is still acting so efficiently that I take with some demur the advice to "throw it as rubbish to the void."

I would like to take this opportunity of correcting a mistake I made in the "B.J." of November 30, 1906, in describing the mode of preparation of this practically perpetual sulphide solution. I there spoke of it as a solution of sodium sulphhydrate; from its method of preparation it cannot be other than a solution of the normal sodium sulphide. I would also add that more recent experience with other brands of paper than the Wellington (exclusively used in the investigation referred to above) have led me to prescribe and use double the quantity of water stated in the paper (i.e., 500 cc. instead of 250 cc.).—Yours faithfully,

DOUGLAS CARNEGIE.

To the Editors.

Gentlemen,—Referring to my letter on this subject in your issue of March 19, your "Ex Cathedra" article, and the further letters in March 26 issue, I may at once state that had I remembered your leader of January 29 my letter would not have been written, as this seems to fit most of the facts in a very satisfactory way. Of course, I must now admit that hypo is formed as the result of the decomposition of the sodium sulphide, as my friend found on looking up his "Watts."

What brought the matter up was this: A case came under my notice in which prints were satisfactorily bleached, one of the well-known commercial sepia toning sets being used, but would not darken. Part of the sulphide solution, which had not previously been uncorked, was measured out, diluted, and applied. When it was noted that there was no action the remainder of the solution was poured into the dish, naturally without any effect. The bleached image in one case appeared to be of the usual depth and colour, whilst in another case it had partly disappeared.

However unsatisfactory the experiments detailed in my letter may have been, I cannot lose sight of the fact that, using the same bleaching tablets and adding two grains of hypo to each ounce of bleaching solution, I absolutely duplicated my correspondent's failures. In this particular case the chemicals were above suspicion, and contamination of the bleacher with hypo seems the only explanation.

I quite saw at the time of writing that fresh sulphide plus hypo was not the same as decomposed sulphide, but it appeared to me, and it still does so, that if we are to account for this specific result by deterioration and the formation of hypo we must pre-suppose complete decomposition—all hypo and no sulphide—or very nearly

so, at any rate. Under no conditions of keeping likely to occur in practice could such total conversion take place.

The statement is frequently made that sodium sulphide decomposes, but, although I have frequently used the remainder of a large bottle when it was in a liquid state, no ill result has been observed. In the "Photo-Notes" article, which prompted this discussion, the statement is made that a weak solution "will not keep at all." To set against this, I have a 1 per cent. solution, which was made in November, 1906, with ordinary tap water, portions of which were used at the time, and the bottle was then forgotten, and bleached prints cut in two and partly toned with this and partly with a new solution, show no difference whatever. Furthermore, one of the 1 per cent. solutions in an open pyro bottle in the open air for three weeks, it still gave normal results. In other words, the deterioration bogey, in my experience, is greatly exaggerated, although I may have been fortunate in my choice of sulphides, which, incidentally, have always been of the white variety.

Of course, the easiest way of explaining failures is to assume deterioration of the sulphide, but, in my opinion, most of the yellowish tints are due to unsuitable black and white prints in the first instance. Where, however, we have the yellowing called to an extreme stage, or where it amounts to a complete refusal to develop with or without slight destruction of the bleached image, such deterioration doubtless enters into the failure, although I think that overworking the bath until the sulphide is nearly exhausted is a more frequent cause of the trouble. Apart from this, varying degrees of contamination of the bleacher with hypo will most certainly bring about precisely the same result, and the possibility of this being the correct explanation in individual cases must not be lost sight of.—Yours faithfully,

J. BRYN.

Chiswick, April 14, 1909.

ASSISTANTS AND APPRENTICES.

To the Editors.

Gentlemen,—Referring to your article on this subject in your issue of April 2, the real cause of complaint is the fact that the photographic profession is over-run with the "amateur turned professional," through finding out that "there is very little in that cannot be picked up," as you term it.

The "amateur turned professional" in his egotism thinks that because he happens to turn out a fairly good picture at perhaps a hundred or two exposures, and, probably owing to the flattery of his friends, which causes his already over-swelled head to swell still more, thinks the time has arrived for him to start a studio. His friends and relations sit for him and say, "What a clever fellow he must be!"

In about a month or two, owing no doubt to a pressure of business, you see an "ad." in the local paper, setting forth that Mr. Blank has a vacancy for an apprentice, or "articled pupil," as he puts it, in his well-appointed studio, premium required.

The poor gulled "articled pupil" commences his duties; is generally shown the way to print, tone, and develop a few poor specimens of bromide portraits; and as regards retouching, his master would not know a properly retouched negative if he saw one, leaving out proper printing in the various processes, lighting and shading in all multifarious branches that, properly done, go to make up a beautiful portrait. I can say without fear of contradiction that the overstocked labour market in the photographic profession is solely owing to the "amateur turned professional." Within the last two years seven studios have been started in this district, all but one being "amateur turned professional," and nearly every one of them has been advertising for young ladies to learn the business—of course with a premium attached. The man is not a poor mean object who would take apprentices with the idea of getting work done cheaply, and, of course, badly done at that.

There were four apprentices where I learnt photography in the South of England (before the dry-plate days), and we learnt the whole routine, starting at the bottom of the ladder: plate cleaning, albuminising plates, and paper sensitising, etc., and we all vie with each other in our work. The consequence was we have all had the highest possible situations at splendid salaries, and I believe three out of the four are now employers of artistic talent.

the other hand—having had nearly 40 years in photography, speak from experience—when a fully qualified man takes a minimum apprentice, I have found that the parents or guardians the pupil after a few weeks, want to know how is it that the pupil has not been started in the “studio,” or else has not already become a fully fledged “black and white artist,” or “miniature painter”; in fact, as a rule, parents generally want the pupil to start at the wrong end of the stick, the top of the ladder instead of the bottom.

The parents, as a rule, instead of seeing that it is to the pupil's best to “obey” the master, back the pupil up in all kinds of subordination, such as coming late to business, and wanting to do everything but the right thing; in fact, parents are conceited enough to think that they practically own the business, because of their art, or the whole, of a small paltry premium has been paid.

Have you such a case with me at present. The indentures have only been signed nine weeks, and out of that time the pupil or apprentice stayed away three weeks and four days, without leave, simply because she wants to start right into black-and-white finishing in miniature painting, and I wish her to learn the groundwork of retouching first.

I have already received several letters from the parents; the first one stated that a gentleman told her (the parent) that her daughter could easily be proficient in retouching in three months and would then command £1 per week, and that I must immediately get the pupil go on with miniature painting and the colouring of heads. Have you, or any one else, ever heard of such idiotic nonsense?

Apprentices or pupils should do whatever the master legally asks them to do, to the best of their ability, and parents should not interfere with the “genuine masters”; then one could turn out really clever photographic artists, of course, always provided that there was some artistic element in the pupil, and that the pupil wished to learn.

“You can lead a horse to the water, but you can't make him drink.” So it is with some pupils; they are stubborn and will not learn, and the consequences are, the master lets them go their own way.

The cry about not teaching apprentices studio work is all very well in its way, but some apprentices seem to lose their heads immediately a sitter enters a studio, and if it is a lady “decolleté,” they simply stare as though they were hypnotised.

In the case of an ungainly pupil I have always found it the best policy to write and inform the parents that it would be best to cancel the indentures and return the proportionate amount of premium rather than risk my professional reputation by allowing the ungainly pupil to practise on my clients. It is dangerous to ask such a catastrophe.

“You cannot make a silk purse out of a pig's ear,” any more than you can make an artist out of an apprentice who should have been a blacksmith or mason.—Yours, etc.,

ARMANDO.

DEFECTIVE TRIPODS.—A correspondent complains that little attention seems to be paid by manufacturers to the improvement of the tripod in the direction of strength, and he sends us a specimen of a tripod leg that has snapped across at precisely the same place as several other tripods that he has possessed. It is an ash tripod of the usual type, and the breakage is attributable in this case to a badly selected piece of wood cut across the grain. No doubt the failure was accelerated by a badly fitting tripod head, which is a too common adjunct to the tripod. There is, so far as we can see, little fault to find with the usual type of ash tripod in point of design; but it is an undoubted fact that the wood is often badly selected, and the head made too small. A short cross-grain is a defect that we have often noticed, while we have had personal experience of the difficulty of getting a head to fit a particular tripod. Even the heads supplied for use with particular sets of legs are often too small, while it is curious to note that, as in the tripod belonging to our correspondent, the worst and weakest piece of wood in the whole construction is placed just where the strain is greatest. These are matters of detail, but at these points it is quite easy for purchasers to note the defects for themselves, and to reject the faulty specimens.

Answers to Correspondents.

PHOTOGRAPHS REGISTERED:—

- F. W. Payne, 12, Shop Street, Drogheda, Ireland. *Photograph of the S.S. “Mellifont” on the River Boyne.*
 G. A. Dean, 14, High Street, Rugby, Warwick. *Two Photographs of the Interior of the Hospital of St. Cross, Rugby.*
 J. C. Carter, c/o Hongkew Medical Hall, Shanghai. *Eleven Photographs: The Phonograph in China. Blind Chinese Musicians. Chinese Woman Beating-out Rice by Hand. Chinese Children leaving a Cotton Mill on Wheelbarrow. Chinese Street Barber. An Old Chinese Joss House. Chinese Travelling Cook-shop. Mountain Chair Coolies with Chair. A Ningpo Junk. Dragon Street, Soochow City. Chinese Girl Ginning Cotton.*

A. C.—They are not the people of whom we wrote.

A. LANDER and Others.—In our next.

HYPONALUM TONING OF P.O.P.—I was reading, some time ago, in a photographic paper, about a hypo-alum bath for toning P.O.P. Could you give me full particulars in your current issue of “B.J.”? M. P. H.

The only reference we can discover is the suggestion of R. Read in “Focus” for April 22, 1908, p. 381, to use an old hypo-alum bath for the toning of over-printed P.O.P. postcards. These are taken from the ordinary sulphocyanide gold bath at an early stage, and, after fixing, put in the cold hypo-alum bath, where they are said to assume a good purple tone. It is possible you may be referring to a method of toning P.O.P. with sulphide, recommended by C. Harold Smith, in the Ilford Company's “Photographic Scraps” for November, 1904, p. 180. No doubt the Ilford Company, if they have a copy, would send you one; otherwise we must refer you to the “B.J. Almanac,” 1906, p. 813.

STUDIO.—For a studio 30ft. by 15ft. and height at eaves 8ft., with a fair amount of light from N.E., what proportion of light in roof and side would be sufficient, and also at what angle would you advise roof?—STUDIO QUERY.

You do not say if you wish to work the studio from both ends or only from one end. If the former, 5ft. at each end, top, and sides, may be opaque and the rest of glass. If it is to be worked only from one end, the same length may be opaque, and about 14ft. glazed. Supposing the roof is of the ridge form, it need not be glazed to the ridge; up to a couple of feet from it will suffice. Opinions differ as to the best angle for the roof. It is, however, well to have a good slope, to carry off the rain.

STUDIO QUERY.—(1) Is it possible to obtain results equal to a north light in a room facing the sun all day by using curtains? If so, what material would you use? The room has the following dimensions:—20ft. by 15ft., height 10ft. However, the light comes from a side window only, which measures 10ft. by 7ft., about 1ft. from the floor. Would you advise me to use an arc lamp to supply the top light? If so, do you consider a small size would be efficient, in conjunction with the diffused sunlight? (2) Is the Autochrome filter suitable for orthochromatic work? If so, how many times will it increase the exposure?—STUDIO LIGHT.

(1) Yes, if the light be skilfully managed. Thin muslin or tracing linen will be good for subduing the light when the sun is shining on the window. Dark blue or green curtains will be suitable for arranging the direction of the light. At times you may find the arc light, as shown in the sketch, useful as a dominant light. (2) It is not suitable for ordinary orthochromatic work, as it lengthens exposure unnecessarily.

LENSES FOR SHORT STUDIO.—Having had to remove from my premises, have taken a small place until I can get a suitable site, and find out that I can only get 14ft. length in the studio to have the light in the right place. Would you kindly tell me what kind of a lens would be best, and what length of focus I require to take cabinet, groups, and carte de visites full length? My studio camera is a half-plate, fitted with a cabinet portrait lens, and I can only get far enough back for a C.-de-V. head.—P. B.

In so short a studio you will find it difficult to take full length portraits. You will have to have two lenses, one for cartes and one for cabinets. For the former, a lens of six inches focus requires about 12 feet between sitter and camera. For the latter, one of nine inches requires about the same distance. These are the shortest foci that will cover the respective sizes. We would suggest that

you abandoned the idea of taking full lengths and confine yourself to busts and half lengths.

VARNISH FOR OIL PAINTING.—Will you kindly advise me as to the most suitable varnish to apply to oil painting executed on china?—**A. DEBENHAM.**

If it is desirable to varnish such a picture, good mastic varnish, such as is sold by artists' colourmen, will be suitable.

COUNTRY PROFESSIONAL.—We very much doubt whether prints toned in this way would last as long as you say. It is different if the prints are completely treated, say, by bleaching and darkening with the thiomolybdate bath. The latter forms a satisfactory and inexpensive method of toning. See the circular issued by the makers, Edmunds and Co., Ezra Buildings, Columbia Road, E.

EXPOSURE ESTIMATIONS.—(1) The speed number (Wynne) of the Jougla "Omnicolore" plate? (2) What are the requisite merits and demerits of the two types of actinometer—the photometer normal and similar instruments, and those of the Wynne and Watkins' class? (3) Are there any British-made direct vision actinometers, and how do they compare with the photometer normal?—**OMNICOLORE.**

(1) In our "Colour Supplement" for February 5 you will see that Dr. Mees gives the Watkins number for the "Omnicolore" as $2\frac{1}{2}$ (about 10 Wynne), that for the Autochrome being 1. (2) The instruments that depend on visual observation are a little difficult to use at first, and practice is required to take a reading quickly; but they are much favoured for colour photography by some workers. The others are, of course, quite easy to use, but in weak light does not darken in proportion to the ratio for correct exposure of colour-sensitive plates. (3) Not that we know of.

DEVELOPMENT.—(1) In your March 26 ("Colonial Number"), page 232, is formula for "Neutral Sulphite." This appears to be 8 parts of sulphite and 1 part of potass metabisulphite. Unless I am mistaken, you have previously published and discussed *re* such neutral sulphite, but in different proportions—viz., 4 parts of sulphite and 1 of potass metabisulphite. Which is correct? (2) Is amidol and diamidophenol the same thing, as one often sees a formula in which the reducer is spoken of as amidol or diamidophenol, and Watkins calls the factor for amidol (2 grs.) 18, and the factor (no particular strength given) for diamidophenol=60. (3) What is factor for a portrait negative, using the pyro soda developer (diluted to 4 grs. of pyro in 3 oz. developer), on page 232, as above mentioned?—**SULPHITE.**

(1) Both are correct, and frequently used, but we prefer the one we last gave, as it gives a developer that acts rather more quickly. (2) Practically they are the same thing, and we use diamidophenol in precisely the same way as we previously used amidol. We are unable to explain the discrepancy in the factors. (3) This depends on the kind of negative you wish to produce. We should say it would be from 10 to 15. Consult Watkins' manual for the factors of pyro developers.

LIPPMANN STEREO PLATES.—Have you any knowledge whether the Lippmann discovery of plate for use without lens is to be placed on the market? And when, probably?—**CARL T. DUGDALE.**

Nothing commercial has so far been heard of the method, and it does not look as though it is possible to make the plates. Professor Lippmann's address is The Sorbonne, Paris.

REMOVING PAINT FROM PHOTOGRAPH.—I shall feel much obliged if you will kindly inform me if there is any known process by which oil paint can be removed from a photograph and if so, if you can give me the name and address of any firm, or anyone, who could do so for me. I have a small photograph, about 6 in. by 8 in., a landscape view, which is of great interest to me, but unfortunately the sky and the trees in parts have been painted over in oil colour, and thus the picture is spoilt. The photograph is an old one, probably taken some forty years ago.—**RICHMOND.**

We fear there is no method of removing the old paint without ruining the photograph, seeing that it has been done so many years. If the paint were new, it is possible that it could be got off by treatment with benzole. We should suggest that you copy the picture as it is, mask out the sky in the negative, and then print in a fresh one.

RAPID PHOTOGRAPHY.—Would you kindly tell me the best method of doing photo. postcards "while you wait"—that is, to turn

them out in fifteen to twenty minutes from time of asking—**RAPID.**

There is no particular method, except that it is usual to print from the wet negative by squeegeeing a piece of thin celluloid upon it. This dodge, aided by rapid development of negative and gaslight printing, is employed to turn out prints quickly.

T. G.—The process is worked under several names. A formula and brief instructions were given in our issue of February 12, p. 1, in reply to a correspondent, "Plans."

BURNISHER.—It will not give results equal to those of the burnishing.

GAINSBOROUGH.—We know of none. We imagine it will not be worth anyone's while to write one.

CATHAY.—It is contrary to our custom to make such comparisons, which, however qualified, may easily be misleading. We have reported on five of the instruments in the "Journal" and "Almanac" during the past year or two.

REVERSAL IN NEGATIVES.—I write to ask if you can explain a curious phenomenon? I exposed a roll of six films, which upon development came out as positives, and when printed the prints came out negative. As far as I know, the film was not subjected to any different treatment to usual.—**L. E. C.**

The only common cause of such reversal is exposure of a partially developed film to actinic light, the faint negative image thus impressing a stronger positive image on the unaffected sensitive emulsion. It is not possible to say whether this took place in your case.

STUDIO SHUTTER.—Would you please inform me on the following through the "Answers to Correspondents" column? I have a studio shutter, which was purchased through Marion and Co., and the name on the shutter is Cl. Guerry, Paris. The improvement is to ensure safety in exposure. Trusting you will oblige.—**GEO. O. STOTT.**

Yes, what is it you wish to know? If you will ask a question we will endeavour to answer it.

CHARGES FOR WATER.—I have for many years carried on business as a photographer, and have paid the usual water rates levied by the water company. But this quarter, without any previous notice of any kind, a demand has been sent by the Metropolitan Water Board for an extra £5 rate for the year that has passed, in addition to the usual 5 per cent., which they have already charged on my assessment. What I want to know is, Can they legally charge me for arrears, when no demand has been made and no notice previously given that this sum would be required? The charge has been levied by the Metropolitan Water Board, who has taken over the water supply in this district from the Kent Water Company.—**MAJOR.**

We regret we can express no opinion on the legality of the charges, as we have not a copy of the Metropolitan Water Board Charges Act. However, if you write to the Board we have little doubt but that it will give you an explanation of the charges that have been made and the reason for them. You can get the Act itself from Messrs. Wyman and Sons, Fetter Lane, for a few pence.

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SUMMARY.

An abstract of the paper by M. André Callier recently read at the Royal Photographic Society appears on page 341. Its practical corollary is the avoidance of excessive contrast in printing when means are taken to avoid scattering of light from film of the negative. Opal glass in contact with the film has been found the best for this purpose by M. Callier.

The chief points in regard to which caution is necessary in the purchase of a photographic business are dealt with in an editorial article on p. 339.

The improvements which may be made in the appearance of the studio and other parts of the photographer's premises at small expense are the subject of an article contributed by Mr. W. Michell. (P. 340.)

Some photographers' advertisements, which appear in our contemporary, "Advertising," as the result of a competition, are printed on p. 344.

The *passé-partout* mount may be recommended as a neat and effective means for the professional display of new specimens of prints. (P. 338.)

An American journal has published a popular description of the methods employed by one of the large firms of stereoscopic publishers, the H. C. White Company. (P. 346.)

Two factories for the manufacture of dry-plates are said to be in course of erection in Japan. (P. 337.)

At the R.P.S. on Tuesday next an exhibition of bromoil prints. Mr. F. J. Mortimer, will be opened by an address from the Liberator at the usual evening meeting. (P. 350.)

A report of a bromoil demonstration, by Mr. F. J. Mortimer at Croydon Camera Club, appears on p. 352.

Drastic changes have been made in the selecting committees for the forthcoming exhibition of the Royal Photographic Society. (P. 337.)

A viewing frame for Autochromes and a collapsible background lantern-screen stand figure under "Patent News." (P. 348.)

The efficiency of focal-plane shutters, sulphide toning, and flashlight photography are topics discussed under "Correspondence." (P. 354.)

Under "Photo-Mechanical Notes" the renovation of spent peroxide of iron, the use of pure paper for three-colour, and collotype for amateurs are dealt with. (P. 348.)

EX CATHEDRA.

The R.P.S. Exhibition.

Although a good deal was said at the recent Annual General Meeting, it will probably come as a surprise to learn that very great changes have been made by the Council of the Royal Photographic Society in the Selecting Committees dealing respectively with the pictorial and technical sections of the Exhibition. It is now announced by the Council that the committees which will deal with the forthcoming exhibition will be constituted as follows:—

PICTORIAL COMMITTEE.

A. H. Blake	Harold Holcroft	F. J. Mortimer
C. F. Inston	E. T. Holding	F. T. Hollyer
	Arthur Marshall	

TECHNICAL COMMITTEE.

F. J. Cheshire	A. J. Newton	C. Thurstan Holland
Douglas English	Major-General J. Waterhouse	W. Farren
C. E. K. Mees		

There is further created a third committee to deal with colour photography as a separate section.

COLOUR COMMITTEE.

F. Martin-Duncan	Jas. A. Sinclair	E. Marriage
------------------	------------------	-------------

It will thus be seen that the only two remaining members of the former Pictorial Committee are Messrs. Inston and Holding, who last year served on that committee for the first time, though both they and the other members, with the exception of Mr. Hollyer, have industriously acted as judges at exhibitions for some years past.

* * *

The Congress of Applied Chemistry.

From the provisional programme of the official proceedings now published, it is seen that the Congress will be received by the Lord Mayor at the Guildhall on Wednesday evening, May 26, and that the meetings will be formally opened by H.R.H. the Prince of Wales at the Albert Hall the following afternoon. In addition to the many sectional meetings lectures will be delivered by Sir Boverton Redwood, and Professors O. N. Witt, Haller, and Paterno. Receptions will be held at the Foreign Office, the Society of Chemical Industry, and at the Natural History Museum. On the last day of the Congress, June 2, a visit will be paid to Windsor Castle, by permission of the King. Those applying for membership of the Congress should address the general secretary, Mr. Wm. Macnab, 10, Cromwell Crescent, London, S.W.

* * *

Dry-Plate Factories in Japan.

According to a report in the current issue of the "Deutsche Photographen Zeitung," two dry-plate factories are now in course of erection in Japan, one in Yokohama, under the name of the "Japan Dry-plate Company," and the

other by the firm of Rokuosha, the director of which is Sugiura Roku Yernon. It is estimated that Japan consumes dry-plates to the yearly value of £25,000 to £28,000, the market hitherto having been supplied by English makers, and lately to some extent by American. It remains to be seen whether the climatic conditions of Japan will allow of the manufacture of high-grade plates. Mr. Blow, of Kyoto, writing of the photographic conditions in Japan in our issue of April 26, stated that for three months of the year the manufacture of gelatine emulsion plates would be rendered impossible.

* * *

An Optical Problem.

Several times of late we have been asked to solve a rather curious problem relating to combinations of lenses. It is one that is not usually dealt with in text books, for probably no writer has foreseen that it could be one of practical interest. Yet for some reason or other it is one that is continually cropping up. Stated generally, the problem is as follows:—A lens is fixed at a given distance from a screen, which is not at its focus. A sharp image is, however, to be produced by the interposition of a second lens of given focal length between the first lens and the screen. Where should this second lens be placed, and what is the focal length of the resulting combination? We know the focal lengths of the two lenses, but not their separation, and therefore our querists generally fail to find the focal length. A little consideration should, however, show that the separation can easily be determined from the usual formulæ. The distance from front lens to the screen is known, and this obviously is equal to the separation plus the back focus, that is, the distance from second lens to screen. In this equation the separation is the only unknown quantity, and, therefore, its value is easily determined, after which the calculation of the focal length is a simple matter. To take an instance, suppose the front lens to be a 6in. positive and the back one a 6in. negative, while the distance from front lens to screen is 14in. If a represents the separation, the application of the usual formulæ will show that the back focus is equal to $\frac{36}{a} - 6$. This added to $a = 14$

which equation can be changed into $a^2 - 20a = -36$, and from this a must equal either 18 or 2. The former being impossible, 2 is the correct answer. The focal length can then be shown to be 18 inches.

* * *

Fogging from Dark Slides.

A reminder, which at the commencement of the photographic season is particularly timely, is given by Dr. Stolze in the current "Photographische Chronik," as to the fogging nature of unsuitable leather used for the hinges of a dark-slide shutter. The writer's note was prompted by the production of bands of fog on plates exposed in a slide newly provided with leather hinges, the unsuitability of which, however, was immediately recognised by its odour. On using an older sample of leather, the odour of which had been dissipated by free exposure of the material to the air, it was found that plates exposed in the same slide showed no sign of banded fog.

* * *

Grades of Half-Tone Printing.

We have always held that, in the case of photographs the final destination of which is the page of a printed book or circular, the photographer himself should provide his customer not only with the finished print, but with the half-tone block, in which connection a word of advice as to the most suitable ruling of screen is one which is occasionally needed. If the half-tone is for the cheapest

kind of printing, such as that of a newspaper, a screen ruling of from 60 to 80 lines per inch is not too coarse. For a somewhat better paper—calendered papers and those such as that on which the "British Journal" is printed—a rather finer ruling can be adopted, from 90 to 120 lines per inch; whilst the different varieties of coated "art" paper allow of the use of the finest screens from 133 up to 150 and 175. Many of the block-makers issue an illustrated circular, showing the effect of an impression from screens of these various rulings, and the photographer who has any block orders to give out will find such a circular very useful to have at hand.

* * *

Passe-Partout Mounting.

An objection which is sometimes raised by the professional worker when he seeks a better presentation of his specimens is suggested is that the cost of framing is a very considerable item. It is without doubt a great tax on the man with a small business to keep up a good supply of new and attractive specimens, but it is unquestionably necessary if the public are to be interested and secured as customers. The dry-mounting method is now within the reach of all, and individuality may be given to the mount itself by the aid of this excellent, and at the same time rapid, method. Further, the print may be trimmed so as to suit the subject and the mount built up according to the size and shape of the print. It is, however, with regard to the preservation of the mounted print that we are more concerned at the present moment. There are in most businesses occasional throw-out negatives in the 12 by 10 or 15 by 12 sizes, either from direct large portrait work, enlarged negatives, or landscape and group work, and these form a supply of really excellent glass for passe-partout mounting or framing. The films may be readily cleaned off with a nail-brush and hot water, and if a diamond is not at hand any glazier will cut the glasses for a few pence to the exact size of the mounted print. A sheet of straw-board may also be cut to the same size, and then sandwiching the print between the board and glass the three are bound together after the manner of a lantern slide. Special binding strips are supplied for the purpose, though in our opinion it is always well to moisten these, not with a damp sponge, but with a brush and some stiff paste. There is then very little likelihood of the binding ever coming away from the glass. Small wire and cloth hanging-loops may also be had from the dealers, and, carefully done, a dozen or two prints are in a condition for making an attractive display, and will remain clean and tidy for an almost indefinite length of time.

* * *

Scatter and Contrast.

Dr. Mees' abstract of M. Callier's paper, which we publish on another page, draws attention to several points of very considerable practical moment to photographers. Perhaps the most striking point is that which deals with the matter of enlargement. It is shown clearly that with the usual condenser system of illumination an increase of contrast is inevitable, but the suggestion to use an opal glass diffuser with a powerful arc light is, unfortunately, one that many photographers will be unable to adopt. A substitute for it, very suited to amateurs' use, is the old method of using magnesium ribbon burnt in short lengths and waved about behind the negative. We are certainly of opinion that this method is capable of giving a far bigger percentage of good results from average negatives than can be produced by the lantern when fitted with a stronger illuminant than an oil lamp or incandescent gas. Years ago we used nothing but the magnesium method, and though our negatives then were far more plucky than we are accustomed to make them now, yet we obtained

satisfactory enlargements without any difficulty in order to excess of contrast. Ground glass was the screen used, and it was placed at the back of the negative not in contact with the film. The proper conditions for obviating scatter were thus not perfectly fulfilled, but probably the method of illumination adopted compensated to some extent for this defect in the arrangements. There is of course, no reason why opal glass in contact with a negative should not be used in the ordinary lantern. A condenser will then still fulfil part of its ordinary functions. That is, it will serve to concentrate the light on the negative, though it will have no effect on the intensity of the light which passes through. An interesting feature of M. Callier's paper is the fact that many photographers have attributed quite the wrong properties to opal glass screens. Such screens have frequently been recommended for use with thin negatives for the purpose of increasing contrast, though it is now proved that they prevent the increase of contrast that without them would be obtained. Photographers often make use of similar paradoxical methods, as, for example, in the use of an alum solution to protect the negative from heat, though alum in solution absorbs more heat than plain water. No doubt when greater contrast is produced with the aid of a diffuser the excitation is that the exposure has not been proportionally increased. The improvement is simply due to shorter exposure. Another method of securing greater contrast which is often advocated is the use of a weak light. In lantern-slide making we are often advised to use ordinary light for exposure when contrast is desired, and incandescent light or magnesium when softness is desired. Whether this is scientifically correct advice we are not certain, but, in any case, our own procedure is exactly the opposite. When we want strong contrast we prefer to use strong light and very brief exposure, while for soft results we prefer weaker light and long exposure. Possibly in this case a good deal depends on the plates used, and perhaps both methods are correct in certain circumstances.

ON BUYING A PHOTOGRAPHIC BUSINESS.

At present being about the time of year when many portrait businesses change hands—as a reference to our advertisement columns will show—it may be well to point out a few of the things that should be duly considered by those who are contemplating buying a portrait business, for, in many cases, such consideration would prevent much disappointment, and in the end loss of money. In our columns last week a correspondent offered a caution to those who may be intending to purchase a business, more than hinted that some businesses are really “faked” for sale, and that the stated returns are not really *à fide*. There may be, no doubt, ground for this in some instances, and it behoves would-be purchasers to thoroughly investigate and satisfy themselves as to the soundness of any concern before parting with their money. Advertisements, frequently are very alluringly phrased, but it does not follow from that that the business is what it is represented to be. Most persons when they have anything to dispose of try to describe it to the advantage with the view to its securing a purchaser—but this is but natural.

One of the first things to be done in buying a business, photographic or otherwise, is to see if the books have been kept, and then to consider the amount of the returns and what net profits they show. It is necessary that these items should be considered together, for it may be that a business which shows a return of a couple of thousand pounds a year may yield less net profit than one yielding only half, or even a third of that sum; while the

worry and anxiety in carrying on the former may be infinitely greater. A comparatively small business, with high prices, say, cabinets at a guinea to twenty-five shillings a dozen, will show a very much greater net profit than one in which the prices are only ten or twelve shillings the dozen. The material in the former case costs little more than in the latter, whilst less labour and expense is necessary to produce the smaller quantity of work. Hence it will be seen that the gross returns of a business is no actual criterion as to what profits actually accrue from it unless the prices and outgoing expenses are duly taken into consideration.

Another point that should not be neglected is to see how sittings, shown in the books, have been obtained, and whether they were really paid for. The books may show prominent local names, but they may be but invitation sittings and not really paid for, and the possibility is that the people were not, or ever will be, actual customers. It is usual in the sale of a business to quote the returns for the previous three or four years, and if the entries are genuine one may form a pretty correct idea from the annual figures as to whether the business is an increasing one or on the decline. If the latter, the cause should be sought, for it may be that opposition has sprung up in the district or, possibly, that the neighbourhood is going down. Either of these causes, of course, very greatly discounts the value of the business, more particularly if it is an old-established one.

It is always a good plan after the books have been fully investigated, for the intending purchaser to take up his residence in the neighbourhood for a few days to see for himself what the district is like. While in residence he will have the opportunity of learning much of the character of the business, and on what lines it has been run.

Another matter of importance that should be seen to is the lease of the premises, how long it has to run, whether it is renewable at its expiration, and at what rental. Also, and this is important, what are its conditions, as well as in what state of repair are the premises. One of the usual conditions in a lease is that the premises must be left in good and tenantable repair at its termination. It may happen at the expiration of a lease that it cannot be renewed, or if it can, only at an increased rental. Still the tenant has to leave the place in good repair, although he may not have been in occupation for more than a year or two, while the dilapidations may have been going on from the time the lease was first granted. The new tenant may also have to reinstate portions that may have been removed when fitting up the place for photography, and this is sometimes a very costly matter.

One often sees in businesses advertised as doing so much “under management”—thus implying that it would do more if the principal was in it. That, however, is another matter for consideration by the purchaser, for it must be kept in mind that there is nothing to prevent the late manager from starting a business on his own account, or entering the services of a rival photographer in the immediate neighbourhood. In this event he might, if he was well liked by the customers, very materially injure the old business. So might also the seller of it if he was not bound under a substantial penalty not to start in business within a certain radius, within a given time—a condition that should always be enforced when buying a business.

A feature is frequently made in the sale of a business of the number of negatives in stock. The prospective purchaser will do well to see from the books what they have produced in orders for duplicates during the previous year or so, for it should be kept in mind that old negatives are not the same valuable asset that they were in the past, for at the present time people rather prefer to have fresh sittings in up-to-date styles than order from old negatives.

In the majority of cases negatives more than a year or two old are little better than so much useless lumber.

It sometimes happens that no regular books have been kept, or if they have, only in such a perfunctory way that little can be learned from them. It does not necessarily follow that the business may not be as represented. In such a case as this the receipts for the various materials—plates, papers, chemicals, and other things—should be seen, and from them some sort of rough estimate may be formed of the amount of business done, but of course it can only be a very rough one.

A very important point in connection with the purchase of a business, particularly if the prospective buyer is, say, an amateur who is contemplating entering the profession, is that he should duly consider his own qualifications, and whether he is capable of turning out work of the same quality as the seller, also whether he has a similar busi-

ness capacity. If he has not, the trade will almost certainly pass into the hands of neighbouring competitors. A portrait business after all is a very personal one, like a medical practice. The newcomer may not have the artistic ability and tact with sitters, and, perhaps such pleasing methods of dealing with them as the vendor. In such a case the business will naturally suffer.

In the foregoing we have endeavoured to point out of the more important points that should be considered in buying a portrait business. There is one other, however, that should be alluded to. A business may have come down to quite a low ebb, but it does not follow, if an amateur is able to produce a higher class of work and with more business tact and enterprise than the seller takes hold of it, that it cannot be made a highly remunerative one. Such cases are of frequent occurrence with businesses that have been bought for quite small sums.

THE SPRING-CLEANING SEASON.

It has often been a matter of surprise to me that many photographers seem to take little heed of the appearance of their studios and apparatus, seeing that appearances go for so much in a portrait business, more particularly with new customers. The remark applies more especially to what are usually termed "middle-class" establishments, but it also applies in some instances to higher class ones I have visited. This state of things may partly be due to the fact that the deterioration being gradual, the photographer has unconsciously ignored it, or, maybe, does not realise it to its full extent. The case, however, is very different with a stranger who is entering the studio for the first time: he or she will not be favourably impressed with the look of the place, and such an impression is not conducive to confidence in the work of the artist, however excellent that may be. First impressions often tell for much in the success of a pleasing portrait—more especially with ladies.

The Look of the Studio.

A studio and the accessories in it may have looked fairly well during the dull autumn and winter light, but a bright spring and summer one gives the whole place a shabby and woebegone appearance. I happened the other day to be in a good class, exceptionally large provincial studio, which I found filled up with a lot of accessories that were shabby in the extreme, and quite out of date, as were the majority of some twenty or more backgrounds—most of them rolled up and laid at the sides. All these, like some of the accessories, would probably never be used again—they were simply so much lumber, and nothing more. They were, I was seriously informed, simply kept because they helped to fill up the place, and give it a furnished appearance. But the place would have looked far better furnished had a large portion of this shabby and dilapidated lot been got rid of, and only the more modern retained.

One is quite aware that many middle-class photographers had by no means a good year's business last year, and, for that reason, are not inclined to go to any great outlay in beautifying their places for the coming season. That, however, is a mistaken policy, unless, indeed, "£ s. d." considerations are actually imperative. Great outlay, however, is often not at all necessary in order very materially to improve the general appearance of a photographic studio and its contents, and therefore a few hints from one who has had some practical experience in this direction may be of service.

Renewing Blinds and Curtains.

In the first place nothing gives a studio a more shabby appearance than stained and dirty blinds and curtains; these are the first things to be taken in hand. If the blinds are on rollers,

spring or otherwise, it is better to replace them by new ones, and to utilise the old material for dusters and such-like purposes. Washed blinds can rarely be made to run evenly on the rollers, and, moreover, by exposure to light and damp, the fabric comes always more or less rotten. It is really cheaper in the end to buy new material, and put it on the old rollers. If the blinds are arranged to work loosely horizontally on wires, they can be washed with advantage, as they will work as well as before. With regard to the side curtains of woollen material, the dyer and cleaner will do the needful with them at a very small cost, and then they will look nearly as good as new, supposing the fabric itself has not perished.

Reviving Accessories.

Accessories are constantly being chipped, scratched, or otherwise damaged, and then look very unsightly. As a rule they are easily repaired or renovated by the photographer himself. Whenever a piece of "compo." gets knocked off, if it be a roller stuck on again with glue—every photographer has, or ought to have, a glue-pot—no real damage is done. Often, however, the piece is put aside, and becomes lost. Even then, if the surface it occupied is coloured the same tint as the ground-work, the injury will pass quite unnoticed, and also save the time of the spotter in having to touch it out in all the prints. If the accessories are "compo." work—imitation stone, or the like—the best way to renovate them is to give them a coating of the same description (distemper, or flatted oil) which they had originally. The former is made by mixing common whiting and drop or other colour to match the work, with water to the consistency of thick cream, and then adding sufficient common size oil shops (made hot) to form a thin tremulous jelly when dry. This should be applied cold and in the jellied state. The latter (oil flattening), a suitable flattening will be white lead, black, or other colour, ground in oil as sold in the oil shops, thinned with turps to the consistence of ordinary paint. About a third of its bulk of japaner's gold size is added. This should be stippled on with a hog-hair paint brush, when dry without gloss. Both the distemper and the flattening should be tried on a small piece of the work first and allowed to dry, as each becomes somewhat different in tone as it dries.

A coat of paint will greatly improve the appearance of a studio, and this the owner, or his assistant, can apply, and requires no particular skill. Supposing the paint is in a good state, soap and water will greatly brighten it up. If a portion of the studio is papered, and the paper has become dirty and stained, as it probably has, it can be re-papered by the owner, as here again but little skill is necessary in applying paper in short lengths. Carpets should be taken up and beaten. If, when relaid, they be washed with water and

hours will be greatly revived, and give quite a new appearance. At the oil shops is now sold what is called "carpet soaps," are said to restore the colours, but I have had no personal experience with any of them.

It is of more importance to the appearance of the studio, and the appearance it may have on sitters, is that of the apparatus, again at which is often quite overlooked by the photographer. It shows quite well that in its present state it suffices to produce good work, and if it looked better would be no better in respect. But this is to ignore the fact that the appearance of the apparatus may have a material influence upon the customer. If it looks "spick and span" it inspires greater confidence in the excellence of the work it will do than if it be shabby and dirty. For that reason I would suggest that the camera stands should be taken in hand. Unless the polish is in a bad state, it is not necessary to send the apparatus to the restorer: things may be made to look almost as good as new with but little trouble.

Restoring Metal and Woodwork.

In the first place, all the metal parts—racks, pinions, and screws—like that which can be taken off with a screw-driver, should

be removed: unless that be done, it is next to impossible to get the dirt off round their edges, and, if it be polished over, it will be very pronounced when the work is finished. All the parts that can be detached having been removed, the woodwork is well washed with soap and water, and wiped quite dry. The surface is then polished with a "reviver," of linseed oil, camphor, vinegar, butter of antimony, and ammonia, or the useful special preparations sold for the purpose, such as that made by the Vanguard Company under the name "Happy Thought." After the work has been washed clean, the reviver is applied after the manner of French polishing—always rubbing it on in one direction only. It should be applied evenly and lightly. A second application may be made, if necessary, after the first has become thoroughly dry and hard—say, on the next day. After that is dry, the brass fittings are replaced, and the camera will look almost new. The stands may be dealt with in a similar manner. At the oil shops polish revivers are sold, and some of them are said to clean the work as well as polish it, but it will be found more satisfactory to remove the dirt first with soap and water, and apply the reviver afterwards.

WM. MICHELL.

THE SCATTERING OF LIGHT BY DEVELOPED PLATES.

Being an abstract, by Dr. C. E. K. Mees, of a paper by André Callier, of Ghent, read before the Royal Photographic Society, and published in the current issue of the "Photographic Journal."]

It has frequently been observed that projection by means of an optical lantern to form an enlarged or reduced reproduction of a negative results in a positive which differs from the original negative in respect of the steepness of its gradation. This knowledge of this fact is usually emphasised by the technical worker with regard to two special procedures: negatives intended for the preparation of bromide enlargements are always developed for a shorter time than those from which

been printed by contact. The two positives are on the same plate, developed for the same time. Fig. 2 shows a sensitometer strip printed in the same manner, and the difference in

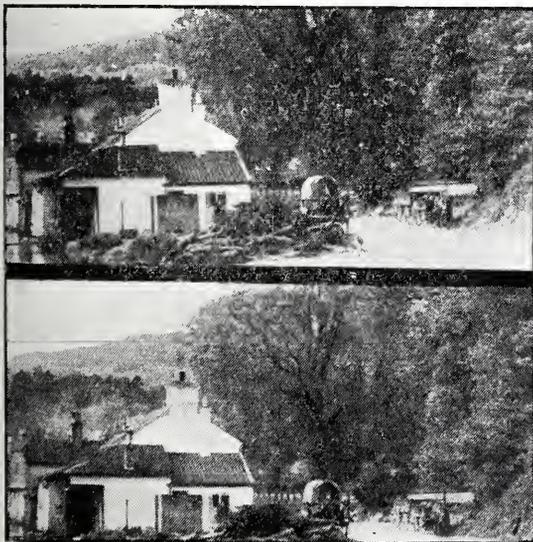


Fig. 1.

contact prints are to be made; and positives to be used for the making of enlarged negatives must be very "flat," or the negative when made will exhibit too great a degree of contrast. That is to say, a projected image has greater contrast than the negative from which it is derived, and a positive produced by projection will show greater contrast than one printed by contact.

This is well shown in Fig. 1, in which the one picture has been projected by a lantern with a condenser, the other having

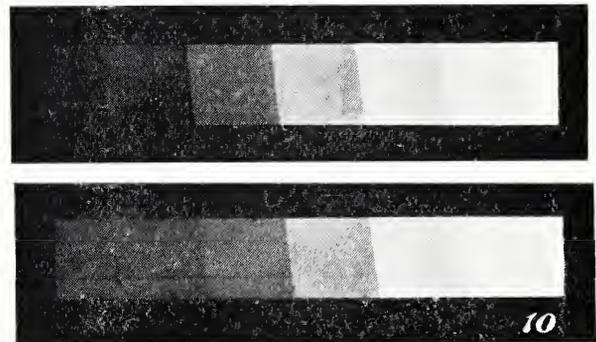


Fig. 2.

graduation between the two prints is clear. So far as I am aware, the only explanation of this which has been attempted was given by V. C. Driffield.* That explanation was, that some of the light passing through the negative when making contact prints was reflected back by the white surface of the



Fig. 3.

positive plate or paper, and, being again reflected by the surface of the negative film, was utilised by the positive film. Fig. 3 shows this. In projection, such light reflected back by

* "The Principles involved in Enlarging," "B. J.," 1894, 714.

the positive plate or paper would be lost. This explanation seems scarcely sufficient to account for the observed phenomena, and, as will be shown later, all the facts can be accounted for without resort to this double reflection at all.

It was first suggested by Sir W. Abney that photographic negatives not only absorb incident light, but also scatter it. Mr. Chapman Jones endorsed and emphasised the importance of this scattering action. S. E. Sheppard and C. E. K. Mees examined the scatter for their type of photometer (Hüfner), and concluded that it was of small importance. On the suggestion of Professor Martens, M. Callier has therefore sought to discover if scatter occurs, and to what extent it is of importance.

In order to investigate the matter, he has measured the densities of photographic "sensitometer strips" (i.e., strips of plate exposed behind a sector wheel to a standard light, and then developed), by means of a photometer adjusted in such a way that in the first place the density was illuminated by parallel light, and in the second by completely scattered and diffused light.

In the first case, any scattering of the parallel light will cause a loss of light to the photometer, and will count as if the light were absorbed, while in the second case the light (being already completely scattered) cannot undergo any further

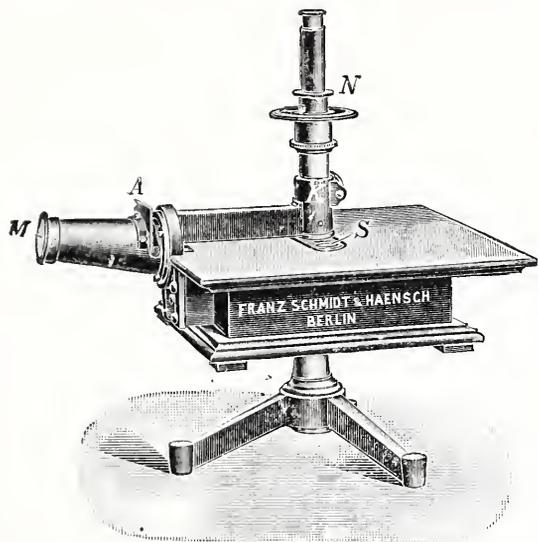


Fig. 4.

diffusion, and the measurement represents simply the absorbing power of the density.

The Method of Measurement.

The photometer used was the Martens polarisation photometer, made by Schmidt and Haensch. This is shown in Fig. 4, where M represents an opal glass, which is the source of light, S the sensitometric strip, and N the circle on which, after adjustment of the two fields to equality, the density is read. When parallel light is to be used M is the source of light, and, in consequence of its distance, the light falling on the strip is practically parallel. If, however, a piece of opal glass is placed under S with its surface in contact with the film of the density to be read, then the light falling on the density is completely diffused. The use of this second opal glass greatly reduces the available light intensity, and to overcome this difficulty M. Callier has arranged his photometer so that the glass M is very close to a large projection Nernst burner (Fig. 5.) The burner is put in an ordinary enlarging lantern without front or condenser. This lantern is fixed in position, and the photometer is fitted with levelling screws, so that its own position is fixed. Between the burner and the photometer is put a glass cell, through which a current of distilled water is circulated

by means of a small centrifugal pump, in order that the photometer may be protected from the heat of the lamp.

Results.

The results obtained show that the densities measured in parallel light (which we may call D_p) are much greater than those measured in diffused light (D_s). The ratio $\frac{D_p}{D_s}$ is nearly a constant for each kind of plate, and is called by M. Callier Q.

For the accuracy of reading, and the determination of the errors, the original paper in the "Phot. Journ." should be consulted, but I may remark that this appears to me to be one of the most accurate pieces of photometrical research which have ever been made, the measurements of Dr. Sheppard for the "photometric constant" being the only photographic example of the same degree of accuracy which I can recall.

M. Callier has also measured a strip which had been already measured on the Hüfner spectrophotometer, and shows that the Hüfner readings are intermediate between his two values, being nearer to those in parallel light. Thus, the Hüfner

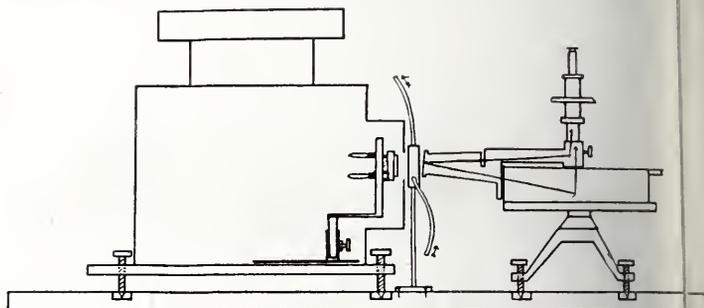


Fig. 5.

instrument shows considerable scatter, though the degree of scatter does not vary with different densities.

It may be noted that this result invalidates the measurements of Mees and Sheppard only to a very small degree, as is shown by the rigid proof put forward by them that their densities are proportional to the mass of silver per unit area.

The value $\frac{D_p}{D_s} = Q$ is not quite a constant, as is shown by the following table:—

D_s	$\frac{D_p}{D_s} = Q$
.119	1.622
.296	1.618
.628	1.567
1.072	1.542
1.544	1.511
2.011	1.483
2.404	1.466
2.693	1.473

The Effect of the Emulsion upon Q.

Measurements of Q for various kinds of plate show that the value of Q depends upon the size of the plate grain. The following results were obtained:—

Plate.	Q.
Wratten Ordinary	1.54
Wratten Verichrome	1.68
Wratten Verichrome "fog-strip"	1.52
Wratten Verichrome, intensified	1.87
Jougla extra rapid	1.67
Ilford lantern plate	1.45
Agfa Diapositive plate	1.35
Wratten lantern	1.22
Plate made of gelatine containing Chinese ink	1.00
Plate made of dye by the pinatype process	
Lippmann plate made by Dr. Lehmann ...	

It is clear that the method of density measurement adopted will have some influence upon the shape of the characteristic

and also a slight effect upon the value of the inertia. Densities measured in investigations should therefore be measured, if possible, in diffused light.

Conclusions.

These results obtained by M. Callier show that when a negative is lighted by parallel light it will have a different scale of contrast (amounting for ordinary plates to the same effect

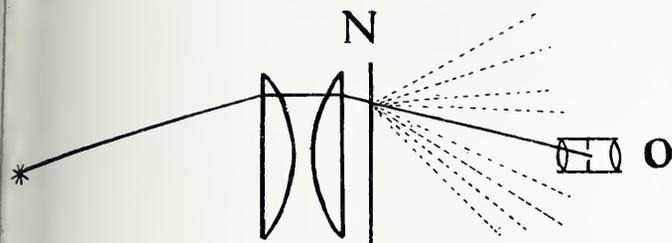


Fig. 6.

could be produced by about doubling the time of development) to that which it will have when lighted by perfectly parallel light. This difference in contrast is produced by light which is not absorbed, and which passes through, but which is scattered. Now, in projection this scattered light is lost owing to the fact that it does not enter the objective (Fig. 6). In contact printing the scattered light is, of course, not lost.

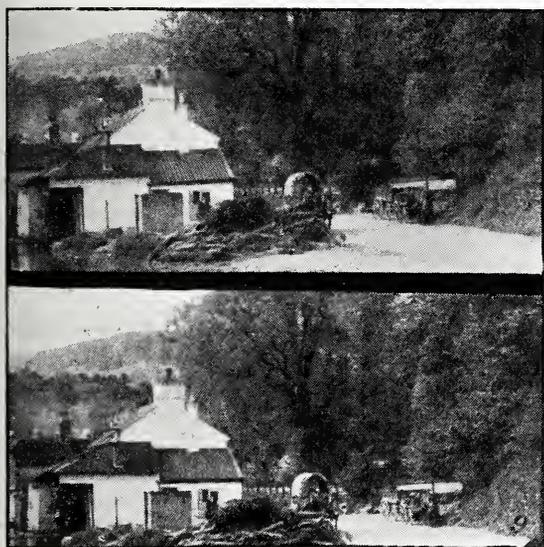


Fig. 7.

however, we light a negative for projection by perfectly parallel light, by putting it film down upon an opal glass which is lighted without a condenser, then the scale of gradation will be the same as that obtained by contact printing. Figs. 7 and 8 were prepared in this way, the one positive being projected by means of opal glass, the other being made by contact. It is well to note that the negative *must* be put film

down upon the opal, hence the reversal. It will not do to put the glass side upon the opal, as otherwise the "critical angle" seriously limits the perfection of the diffusion.

In projection by daylight, ground glass producing fairly well-diffused light is usually used, and consequently the contrast is less exaggerated than when a condenser is used. In



Fig. 8.

order to find whether the degree of parallelism in the Martens photometer is the same as that used in an enlarging lantern, the following method was used:—A sensitometric strip, with densities measured in parallel light and a series of neutral glasses of known density, but possessing no scatter, were put together into an enlarging lantern. These were lighted evenly by means of a large condenser. The source of light was the acetylene burner S (Fig. 9), and a monochromatic green screen was used to avoid error due to the colour of the neutral glasses, the densities of the glasses having been measured by the same screen. The neutral glasses R and the strip P were projected

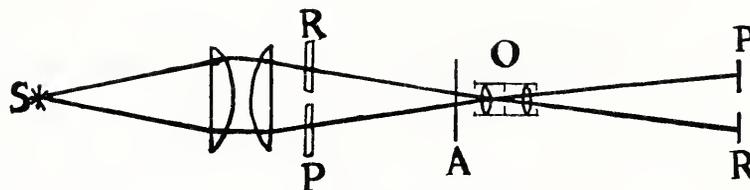


Fig. 9.

as images, R^1 and P^1 , upon a photographic plate. After development the densities of the negatives obtained were measured. Since we know the densities of the neutral glasses we can plot the characteristic curve of the new negative, and find by interpolation the densities of the strip. The values found correspond within the error of measurement with those found in the photometer for parallel light.

The results found in this work make it possible to explain why a negative appears to lose opacity when varnished. Measurements of a negative before and after varnishing show that varnishing causes a considerable loss of density when measured in parallel light. When measured in diffused light no such loss is found.

PHOTOGRAPHY AS AN AID TO TEACHING.—A course of eight lectures primarily intended for teachers engaged in secondary schools will be given at the Manchester Municipal School of Technology, on the practice of photography so far as it relates to methods which may be utilised as aids to teaching. An endeavour will be made to demonstrate in a simple manner the uses of photography as a means of illustration. The processes described will be fully demonstrated, and the different forms of apparatus used will be shown and explained at the lecture table. The lecturer is Mr. Charles W. Gamble, by whom the subject will be treated in accordance with the following syllabus:—The usual forms of apparatus used in the studio, the field,

and the dark-room—The hand camera—Forms of hand camera for particular purposes—Special plate-holding devices, as changing-boxes, magazines, and holders for films in rolls and the cut state—Daylight changing and developing contrivances—Lighting the subject to be photographed—Manipulation of the camera—Principles governing exposure and instrumental aids to determining exposure—The development, fixation, washing, and drying of negatives—Modification of negatives for varying the character of the print—Artificial light processes for the rapid production of prints—Lantern slides for lecture illustrations—Simple types of optical lanterns—Making enlargements—Mounting pictures—The Autochrome process for the production of pictures in colour. The lectures begin on May 6.

PHOTOGRAPHERS' ADVERTISEMENTS.

Our monthly contemporary, "Advertising," issued at sixpence, from 101, Fleet Street, E.C., contains in its April issue the results of a competition of special interest to our readers, inasmuch as they are forms of advertising suggested for newspaper use by readers of "Advertising." Some few years ago Mr. W. J. Casey, in a brief respite from the managerial direction of Messrs. Raines and Co., contributed to our columns a series of articles on advertisements for photographers, in which he very usefully enumerated the appeals which a photographer may make to the public, and analysed the motives which members of the public may be supposed to have in visiting the photographic studio. A shrewd appreciation of those motives is, of course, the first condition of preparing advertisements capable of drawing business; and it will be seen that the competitors in the "Advertising" competition have touched upon several though by no means all the inducements which the proprietor of a studio can hold out. We may first quote the remarks of the Editor of "Advertising" upon the advertisements submitted

A Natural Picture of Your Children

Is one in which they can be seen as you see them daily. How often we hear people say of children, when playing in their nursery, "What a pretty picture they would make." But after a journey to the Studio and a tedious attempt to make them look happy and natural, the resulting picture is either partially or completely a failure. The only way to get a real living picture of your Children is to have them

Photographed At Home

In their natural surroundings. We make a speciality of this style of *Child Photography*, studying all the details that have made it so wonderfully natural. Will you let us photograph your children in their home? You will be delighted at the result.

Our Offer.

We will call at your house and photograph your children without any obligation on your part if you are not completely satisfied with the Picture we make. Send us a Postcard to-day.

**The Natural Picture Studio,
5, Broadway, Brighton.**

By C. T. Norman, Brighton.

(Awarded first prize.)

to him, and may then comment on one or two of those considered worthy of publication in our contemporary, of which, by the way, we would mention one feature of service to those who photograph for the Press, viz., the list of periodical publications being newly issued.

"The advertisements submitted are, as a whole, good, but I find there is a recurrence of certain words and phrases through those submitted. Thus I notice 'framed sunshine,' as a specific instance, occurring two or three times. This and other repetitions suggest either a curious coincidence or that some standard reference book is being consulted. I am loth to think that the latter can be the case, but, all the same, I would urge competitors to draw upon their own imagination for ideas.

"Not so curious, to my mind, is the fact of the occurrence to so many competitors of the specialising in photographing babies. This, however, is very widely done at present by photographers, so that this class of advertisement is simply resolved into a matter of the quality of the 'copy.'

"Naturalness of pose (often a mere sophistry), artistic finish,

Unsolicited Testimonial.

Rose Villa, Benton.

Dear Sir,—“Before definitely engaging you, please send photo.”

The above is an extract of letter received by me.

The photo sent was the means of securing a good appointment.

That I chose your studio for this, to me, important work was due to having seen specimens of the excellence of your work in naturalness of expression, pose, and general finish.

I cannot too highly speak of the appointments of your studio, which tend to put one at their ease and remove at once the very prevalent idea that to face the camera is equal to the ordeal of Dentistry. That this photograph had all the elements of a *Speaking Likeness*, is proved by the acceptance of the subject. That you have secured a Voluntary Advertiser is due to your excellent work, unconscious posing, up-to-date accessories, and moderate charges.—Yours truly, A. F. JONES.

**To HAROLD NICHOLLS,
The Art Studio, Benton.**

By J. T. Grace, Ryde.

(Awarded second prize.)

picture-like effects, and prices—these are, seemingly, the main points as viewed by competitors. In some instances novel features are presented, the presence for individuality in the pictures, the necessity for care in retouching, and for careful mounting on suitable mounts. Others touch upon the sentiments and reminiscences conjured up by the photographs of those we have lost—a delicate subject, but one worthy of con-

“Enclose Photo”

80 per cent. of "Situation Vacant" advertisements contain the clause, "Enclose Photo." Has this any meaning for you? Are you wanting a better situation? Is there any likelihood of your being dismissed? If so, have you a photo of yourself? Many men have lost opportunities of securing better berths through not being able to comply with the above clause. Let me impress upon you from a business point of view, that it is essential to always have a good smart photograph of yourself handy. I am an expert in putting that touch which means so much to a photograph. Come and give me a trial now, and be ready to grasp opportunities.

A. Brown, Castle St., Sheffield.

By A. J. Henshall, Sheffield.

(Awarded second prize.)

sideration; catching the 'fleeting smile' is a neat expression, too.

"The prize-winning advertisements have been selected for three reasons—originality of idea, facility of expression, and form of display. I mention the latter, as I am giving a few selected advertisements in the same fashion as last month.

out any attempt at display. Competitors should, therefore, pay attention to this point." They are quite in agreement with the award of the first prize

**Artistic—
Yet How Natural**

Is the saying awarded our Photographic Reproductions. Babies' portraits we specialise in. Your baby would make a lovely picture. We can just catch that dear little smile on baby's face beautifully. Don't think baby would spoil a picture by crying, baby will be sure to smile at the right moment—click—and the portrait is taken by our latest improved baby photographing apparatus. Of course, it is easy to see that if we can get such good results with the little ones, it is equally certain our portraits of "grown-ups" will be as successful. Call at our studio, and see for yourself the delicately finished specimens of our Fine Art Photography. Will you?

**Coopman & Jones,
Redland Rd., Bath.**

By A. E. Tuton, Hull.

part to give much prominence to an offer to photograph children at their homes. The writer of the advertisement, if he be a photographer, knows that of all descriptions of portraiture that of children requires all the art and artifice which can be applied to it, and in ninety-nine cases out of a hundred no place is nearly so well fitted for the work as the studio. However, for once in a way, such an announcement is useful as a means of coming into touch with possible new customers who may have special reasons for wishing for at-home portraits.

The idea of making use of the phrase "send photo.," so common to advertisements of situations vacant, is one which has the advantage that it appeals with equal force to customers of either sex. It is, of course, chiefly of value in a district where the population is made up of clerks, shopmen, and others occupying minor positions. An advertisement such as this, which would draw business at Clapham Junction or Finsbury Park, would be useless at Chislehurst, or perhaps resented at Crouch End.

The last advertisement, which again seeks to play upon the desire for portraits of children, errs in familiarity, and sounds a little cheap perhaps, but for newspaper announcements in many districts it should prove a convincing argument.

One point which should not be overlooked in the consideration by a photographer of his advertisement "copy" is that no announcement, however good, will bear constant repetition. The first appearance or two will be read, but when a notice becomes familiar it loses its attractive power, and, moreover, is apt to create the impression that the photographer, from the fact of his saying the same thing week by week, is lacking in ideas.

PHOTOGRAPHY AND OUR ANCIENT CHURCHES.

II.

The Study of Minor Ecclesiastical Antiquities.
In the matter of selection of suitable subjects to illustrate his historical studies the photographer's choice will, of course, often be restricted through circumstances local or otherwise. The churches of certain districts are, as might be expected, frequently more interesting on account of their special architectural or archæological peculiarities than those of others. Paradoxical, however, though the statement may appear, it is nevertheless true that edifices of the less interesting type are, generally speaking, very suitable as subjects for photographic treatment, and this because they belong to a class of buildings of which, as a rule, satisfactory pictorial memorials are not procurable, and which, moreover, owing to its comparative insignificance, are always particularly exposed to the assaults of the modern architect and his abettors. The photographer is, therefore, strongly recommended to devote at least a portion of the time he is prepared to bestow upon practical ecclesiology to the study of the minor ecclesiastical antiquities of the district which he proposes to make the field of his researches. Among buildings of this kind the commonest are our ancient parish churches, of which examples in all the six periods of architecture are more or less abundant. Buildings dating from the Saxon period are naturally the least common of any, and these in an entire condition are now extremely rare. Examples, more or less fragmentary, are numerous in Lincolnshire, and very common in Northamptonshire and Suffolk, whilst isolated specimens occur in most of the northern counties of England, particularly in Northumberland and Yorkshire. In Scotland, the priory church of Restennet, in Forfarshire, the erection of which is attributed by the latest archæological authorities to Northumbrian builders, is the only edifice which exhibits the distinctive features of Saxon architecture.

Churches, more or less entire, dating from the Norman period, are common, particularly in England. Buildings illustrative of the four later periods of architectural history are fairly abundant in all the styles in both countries, with the single exception of those belonging to the Decorated era, examples of which, though numerous in England, are in Scotland of very infrequent occurrence.

With the object of assisting the beginner in the selection of suitable subjects for photographic reproduction, I shall now proceed to give a few hints as to the way in which he should set about his task, and as to the structural and other details to which he should specially direct his attention when engaged in the examination of ecclesiastical buildings, or their contents or adjuncts.

Record Photographs of Churches.

As a general rule—to which, however, exceptions are to be met with in certain antiquities of the monastic class—the church itself, where such exists, will naturally be the first object of the photographer's scrutiny. Of this, in its purely pictorial aspects, assuming these to have been hitherto neglected, he should in the first place endeavour to obtain a few views. If the building be one of comparatively small dimensions, as is often the case in churches of the parochial type, four photographs will usually suffice to convey a fair notion of its outward appearance. It is advisable, however, that, whenever this is possible, these views should be taken from the four angles, south-east, south-west, north-west, and north-east, or the respective equivalents of these if the building does not stand due east and west. By this means a better idea of the connection of the several parts of the structure will be obtained, and the general aspects will probably be more artistic than those of a series exhibiting only the separate sides of the building. On

the churches of larger size, particularly on those which possess transepts or similar adjuncts, the expenditure of additional plates during the preliminary stage will sometimes be necessary. Buildings, again, of the dimensions of our cathedrals and minsters make, of course, still greater demands on the resources of photography for their adequate presentment. In cases like these, where the treatment will evidently be largely determined by the nature of the subjects themselves, necessarily an unknown factor in the problem, definite rules for the photographer's guidance cannot well be laid down. The necessity for such rules will not, however, be felt, if he be willing to act on the recommendation already here given as to the class of subjects most suitable for profitable study.

The series of views exhibiting the general appearance of the exterior of the structure having been satisfactorily completed, an examination of the chief details with a view to the selection of photographic illustrations of its more characteristic features must next be carried out.

Porches and Doorways.

Church doorways, particularly those of buildings dating from the Norman and First Pointed periods, are frequently well worthy of the visitor's attention. The larger churches are usually provided with three, one being in the western gable, the other two facing respectively north and south, and situated opposite each other at the west end of the nave. A priest's doorway in the chancel wall is also occasionally to be met with. Norman doorways are often richly decorated with figure and floral sculptures. The subjects of the figure groups are usually scriptural, or taken from the mediæval "Bestiaries," a species of literary allegory extremely popular during the twelfth and thirteenth centuries. Sculptured representations of the twelve signs of the Zodiac are also of common occurrence. Over the doorways of certain churches of very early foundation may still be seen incised sundials dating from the Saxon period, and usually accompanied by short inscriptions in archaic characters. Such dials, though now exceedingly rare, seem to have been common in churches of that era. A complete series of photographs

of those that still exist would probably be of service not only to the antiquary, but also to the philologist.

Sculptured porches, both of early and late date, are fairly numerous.

Amongst the other sculptured features of the exterior to which the photographer may profitably direct his attention when engaged on his ecclesiological survey may be specially mentioned the grotesque corbels and gargoyles and carved stringcourses which frequently decorate the eaves and upper walls of the chancel and other parts of the building, the capitals, tracery, and other details of the windows, the mural arcading in the form of richly elaborated interlacing arches which is so characteristic of the architecture of the Later Norman period, and the ornamental portions of the buttresses supporting the arches of the aisles and transepts, or the walls of the tower, nave, and choir.

The window tracery of many of the churches that were erected during the prevalence of the Decorated style of architecture is remarkable for its beauty, and for the variety and intricacy of its geometrical design. The tracery of the Perpendicular period, also, though of a more formal character, is frequently of considerable artistic merit. Tracery is an uncommon feature in the windows of the Norman period, and is only sparingly employed in those of thirteenth century date. The larger grouped lancet windows of the Early English era are, however, usually striking and harmonious, and will well repay the photographer's careful study. An interesting and uncommon feature in certain churches of the fifteenth century date is what is known as a *low side window*, a small rectangular aperture in the wall of the chancel or choir, through which, during the celebration of divine service, a view of the altar might be obtained by persons who were unable to enter the building.

The interiors of many of our early churches are rich in objects of archaeological interest. Elaborately sculptured chancel arches are numerous, particularly in the buildings of the Norman era, and usually form excellent subjects for the camera. The series of ornamental pillars which mark off the aisles of choir and nave, and the carved bosses which serve to support the vaulting, are frequently no less worthy of study. MATTHEW WILSON

(To be continued.)

THE COMMERCIAL PRODUCTION OF THE STEREOSCOPIC PRINT.

[Although stereoscopic photography grew on English soil, and, as an amateur's pursuit, has seen its palmiest days in Great Britain, the commercial possibilities of the stereoscopic print have been exploited most successfully by American enterprise, which has found a large market for prints of an educational character. The current issue of "American Industries," on publishing an account of the business of the H. C. White Co., gives a graphic picture of the scale on which this firm publishes stereoscopic photographs. Photographers here will perhaps recollect that it was for the White Co. that Mr. H. G. Ponting has taken many of his photographs in the East.—E. "B.J."]

THEORETICAL conditions are such that all properly made stereographs must be produced on special stereoscopic negatives. Hence a comprehensive plan for securing such must be mapped out and executed before the production of stereographs on a large scale can be accomplished. Such a plan has been consummated by an American firm in the past decade, and in addition the production of the goods has been reduced to an exact science, and is now a large industry.

Having secured the negatives, the next step in the plan involved absolutely new methods of production. The old makers of stereoscopic photographs, of which there were hundreds, nearly all now forgotten, executed their product by hand. Inaccuracies and defects fatal in obtaining the perfect stereoscopic effect and realism necessarily followed. As perfect negatives are required, so the stereographs must be carefully and scientifically produced, else the effect of actual vision as well as true perspective is lost.

Automatic machinery now performs with unerring accuracy operations hitherto considered absolutely impossible to be accomplished except by the human hand. The cost is lessened and a vastly

superior photograph of uniform excellence is produced. An idea of the almost infinite detail and painstaking care required in its production—in the innumerable processes necessary and the mechanical accuracy of the automatic machines used, which are marvels of ingenuity—can only be gained by a careful inspection of the plant where these goods are produced.

The process of making stereographs at this plant would be a revelation even to the most up-to-date photographer. Starting with the glass plate or photographic negative the various processes leading to the finished stereograph may be described.

Machine Methods of Producing Stereoscopic Photographs.

First the print is made. The plate negative is clamped in front of a Cooper-Hewitt light and an automatic, motor-driven photographic printing machine, working in a dark room, exposes the sheets of sensitised paper one at a time. Suction pads are arranged in a circle, and, from a pack of photographic paper, they pick up separate sheets

se are carried around to the negative, placed in contact, and a ter then opens, permitting the light to pass through the negative expose the paper. The shutter then closes, the printed paper is oved from the negative, passes on and is carefully deposited in a iver. After a test has been made to secure the correct time of osure for the paper used, every succeeding print is exactly the e, a uniformity that was entirely impossible by the old hand ess.

ext the print is developed and fixed by an equally automatic hme, in which each succeeding sheet of the exposed paper is ed up, carried through the developing, rinsing, and fixing bath le held by clutches attached to an endless belt, and delivered at the opposite end. Placed in washing machines, to which hose tached, the prints are thoroughly washed. The washer works omatically, receiving a fresh supply of water every few minutes ead on a coarse net belt, and carried over steam pipes, the prints dried. Up to this point the stereograph prints are square, $3\frac{1}{4} \times 3\frac{1}{4}$ es, and the next operation is trimming, which is done by dies t must be absolutely accurate; as the right and left print when uted must exactly align.

n trimming, the tops of the prints are curved and the outer points nded. The prints are now ready for mounting. The mounts are x 7 inches in size and of a uniform dark olive colour. The titles rted in sizing on an automatic press with a speed of 10,000 our, and the title is then gilded in an automatic gilding machine ich does not throw any particles of gilt into the operating room, l passes out the cards dry and free of gilt dust. The prints, after ng mounted, are retouched where necessary and carefully ncted. The final process is the waterproof coating placed over e entire face of the stereograph, which greatly prolongs its use-ness.

The processes of making the stereoscopic instruments, while not uiring such delicate and complicated machinery, are nevertheless remely interesting. The company's business originally was that of king spectacle lenses and optical instruments. These lines have been sued since 1870. Thirty years of experience was a valuable asset embarking ten years ago in the extensive enterprise undertaken. ay be assumed from the fact that photographic processes have n reduced to a science through automatic machinery, the stereop-ic instruments of this firm are likewise made largely by chinery.

The company's photographers have not only photographed well-own scenes, but have, at great inconvenience, photographed usual scenes. Photographers went through the Russian-Japanese ar, photographed scenes of the Martinique disaster, the San ancisco earthquake, coronations, inaugurations, expositions, and merous other special events. One photographer sent out by the npany covered 140,000 miles in seven years. Another started on welve months' trip, but new demands arose, and he was sent from ace to place until he had encircled the globe, consuming forty-three onths on the trip without returning to this country.

Education by Stereography.

Through the perfecting of the world-wide organisation and the eans for presenting the scenes, the stereograph has now come to e recognised as a great educational factor. In this day of objective struction, the history, geography, and characteristics of a country come lucid to those who are enabled by this new, but old, pictorial ccess to view in the schoolroom or library actual scenes from that untry exactly as they appear to the human eye, with the exception colour, and that is suggested. Many public libraries throughout e country are now provided with "Travel Tours" as an adjunct

to the best reading of history, art, and travel. A still more signifi- cant feature is the increasing number of schools and colleges which make stereoscopic views and accessories for study.

An important feature of the business is the making of enlargements for schools and libraries. The stereoscopic negatives lend them- selves to the production of lantern slides, and the company maintains a large department for making these, including an artistic staff which has produced some most artistic colour work. The extensiv- use of the stereopticon for educational work in the public schools, colleges, and State educational departments, as well as for public lectures, has great enlarged this particular field.

Stereoscopic Prints v. Travellers' Samples.

A very successful department recently established by this company will be of particular interest to readers of the "American Industries." The company sends its photographers to large plants where stereo- scopic photographs of various processes and workrooms are made Through the instrumentality of a new invention of the company called the "stereo-pack" these scenes are reproduced conveniently in stereoscopic form at comparatively small expense. "Stereo-packs" representing tours of the plant are placed in the hands of dealers and agents. This plan not only imparts enthusiasm to representa- tives, but gives additional stimulus through showing in a realistic manner the superior facilities direct to retail customers. The "stereo- pack" is unique, pleasing, and in cost below anything heretofore put out in high grade work. The sense of actuality obtained is decidedly novel, being so strong the observer can really imagine he is making a tour of the plant. In the pack may also be included strikingly realistic reproductions of any leading product the manufacturer wishes to illustrate. The company's Commercial Department is also exploiting the value of the stereo-pack as a most satisfactory sub- stitute for the travelling salesman's heavy troublesome samples. Several large companies are planning to illustrate their line in this manner. Single photographs, no matter how large, are not to be compared with a stereoscopic reproduction and are considerably more expensive than the new "self-mounted perfect-stereographs."

To those who have been paying immense baggage excess charged on samples because no adequate means was at hand for illustrating their product, the new "stereo-pack" will be a great boon. Since the stereograph reproduces articles and scenes with all dimensions seen by the human eye when viewing the original, since the object is reproduced life size and may be coloured in exact reproduction of the original, it would seem that sooner or later the plan would be adopted by every firm who finds it necessary or desirable to show samples of their product.

The commercial possibilities of the stereoscopic photograph in the form of the "stereo-pack" seem almost unlimited. As examples of its use in illustrating the facilities of the manufacturer to domestic or foreign dealers and consumers might be cited the food product industry and cotton manufacturing. It seems impossible to conceive of so convincing a proof of the sanitary conditions existing in a given food plant, or of the marvellous facilities of the immense modern cotton mills. Then there is the railroad anxious to develop indus- tries and home building along its line and to stimulate passenger traffic. What means approaches this new plan for showing superior conveniences, facilities, and unusual beauties?

The reproduction of products has fully as wide a scope. Hundreds of products are sold by photographs which until now have been the best means of illustration obtainable. Manufacturers of furniture, machinery, stoves, vehicles, motor cars, lighting fixtures, etc., etc., have now available most satisfactory means for showing in realistic fashion and in true perspective all of their products.

THE GERMAN PHOTOGRAPHERS' UNION will hold its thirty-eighth meeting, under the patronage of His Royal Highness the Grand Duke of Saxony, in Weimar, to last from August 23 to 27. In connection with it an exhibition of photographs and photographic articles and aquisites will be arranged in the building of the Builders' School, which will be open to the general public till September 5. Besides lectures and other proceedings of a business character, the programme of the meeting comprises a day's excursion to Jena, where the new university buildings, the glass works of Schott and Co., and the far-famed optical works of Carl Zeiss will be visited. Weimar

itself is endowed with a peculiar attractiveness, concentrated in the smallest space, from a literary and artistic point of view. Goethe and Schiller, Herder and Wieland, as well as Carl August, Anna Amalia, Maria Paulowna, Carl Alexander, and Sophia, are only a few of the illustrious names connected with the history of the mental culture of Germany, from which Weimar derives its glory. The places which still bear witness of that great period and the various collections sacred to such memories will, through the courtesy of the respective administrations, be freely opened to the visitors of the meeting.

Photo-Mechanical Notes.

Facsimile Reproduction of Coloured Originals.

IN reference to the paragraph in last week's "Photo-Mechanical Notes," Dr. C. E. Kenneth Mees writes:—"In "Photo-Mechanical Notes" on page 323 of the "Journal," you mention a method of analysing coloured originals containing black, published in "Le Procédé" of December last, and you state that in my new book there is no mention of it. I think that if you refer to page 46 of "The Photography of Coloured Objects" you will find that the method is mentioned. It is referred to quite briefly, and possibly not so clearly as given by you, but I think the instructions given can be followed by a careful reader.

Collotype for Amateurs.

We have received from H. Calmels, 150, Boulevard Montparnasse, Paris, a small booklet, entitled "Le Procédé Collo," which is a detailed description of a modified collotype process, very similar to the "Sinop" process, sold here by Messrs. Penrose. All the apparatus and plates can be purchased for a small sum, the process appears to be easy to work, and the prints fair, judging by the example shown. Except that the emulsion is supplied either on the plates or in *pâte* for coating, and that the method of printing is different, the working of the process is identical with ordinary collotype. The press sold and illustrated is an ingenious modification of the ordinary letter-copying press. The process is advocated for professional photographers, but we doubt very much whether the results to be obtained by dabbling in collotype in this small manner are sufficiently good for a respectable professional to be proud of, or to make any money by.

The Renovation of Spent Perchloride of Iron.

We are frequently asked for information as to the practicability of renovating iron perchloride solution after it has been used for etching copper, but while this is no doubt practicable it does not appear to be profitable. One large firm of engravers some time ago fitted up a plant for electrically recovering the iron perchloride from the etching baths. Though this was perfectly successful it proved to be more expensive than the purchase of new perchloride. Chemical means are sometimes suggested, but these methods are almost certain to introduce irregularity into the etching, which, to be ideal, should be quite mechanical. A pure solution at a certain strength and temperature, used only for a certain area of copper and then discarded, will give definite results, that can always be repeated, and in the long run will be found both economical of time and material.

Pure Paper for Three-Colour.

We have frequently referred to the great importance to the photo-engraver of using paper other than the clay-surfaced glossy substance now general, a material which the artist, and, indeed, all book lovers, regard as an abomination. It is, therefore, with pleasure that we have seen some three-colours printed on a paper specially made by Messrs. Dickinson, guaranteed to have a minimum of "loading," and a pleasant surface with no facing clay, and to be made of pure rag fibres, and therefore as durable as it is possible to make paper. This paper when "calendered" is quite feasible for the finest screen work; indeed, we were shown some three-colours of microscopic work on it, and though this calendering makes the paper smoother, there is not the glare that there is from the "art" papers. The paper before calendering is quite suitable for all work which has not too much fine detail, and its use would enable books to be made of the same paper throughout, for both text and illustration.

Dried Albumen.

Of late years there has frequently been some doubt shown in formulae having dried albumen as an alternative to egg-white, as to how much of the former should be taken as equivalent to the latter. A correspondent now writes to the current "Process Work," quoting from the "British Journal Almanac" of 1875, to the effect that Mr. R. W. Thomas, the inventor of dried albumen, there stated that "70 grains of it dissolved in loz. of distilled water gives you a solution identical with (undiluted) egg albumen—the same chemically and better physically, neither more nor less."

FORTHCOMING EXHIBITIONS.

- April 27 to May 1.—Maidstone and Institute Camera Club. Sec. J. Harris, 23, Knightrider Street, Maidstone.
 April 29 to May 17.—Photo Club de Paris. Secretary General Photo Club, 44, Rue des Mathurins, Paris.
 May 20 to 27.—Malvern Camera Club. Entries close May 10. Sec. J. B. Nickolls, The Exchange, Malvern.
 July 7 and 8.—Canterbury Camera Club. Entries close June 23. Sec., B. J. Fisk-Moore, St. George's Gate, Canterbury.

Patent News.

Process patents—applications and specifications—are treated in "Photo Mechanical Notes."

The following applications for patents have been received between April 13 and April 17:—

- CINEMATOGRAPH-PHONOGRAPH.—No. 8,838. Improved means for securing synchronous movement in moving-picture and talking machines, or like records. William George Barker, 55, Chancery Lane, London.
 FILMS.—No. 8,896. Perforated photographic films. Hubert Palmer Town Hall Chambers, Great Yarmouth.
 PRINTS FROM TRACINGS.—No. 8,973. Improved apparatus for use in obtaining light prints from tracings and the like. George William Clarke, 6, Lord Street, Liverpool.
 STEREOSCOPIC CINEMATOGRAPHY.—No. 9,081. Improvements in and relating to stereoscopic cinematography. William Norman Lascelles Davidson, "Ranmore," Cross Roads, Southwick Brighton.
 FOCUSsing-SCREEN HOLDER.—No. 9,085. Focussing-screen holder for magazine cameras. Arthur Henry Arnold, 204, Woolwich Road Charlton, Kent.
 CINEMATOGRAPHS.—No. 9,106. Improvements in cinematograph or animated-picture machines. Kennedy and Moore and Harry Hunt, 11, Burlington Chambers, New Street, Birmingham.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

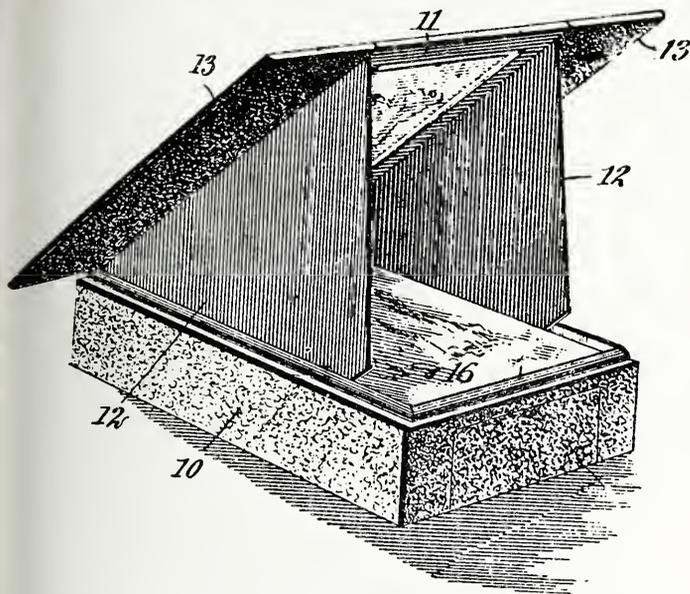
- OPAQUE PHOTOGRAPHIC PLATE.—No. 7,087. 1908 (March 31, 1908). This invention relates to photographic sensitive surfaces mounted upon an opaque medium or support, and has for its object the employment of such surfaces in contact printing according to the method forming the subject of Patent No. 13,874, 1907 ("B.J.," January 10, 1908). The base or support may, for example, be composed of ebonite, black glass, or black paper. The base or support is coated with gelatino-bromide or equivalent emulsion. The opaque support (plate) is exposed in the camera, developed in the usual manner, and a negative obtained, but owing to its opaque character it will be seen that it is incapable of giving prints or positives in the usual way by the action of light, and in order to obtain positives from such negatives a method of contact printing such as is described in Patent No. 13,874, 1907, is employed.

Owing to the facility afforded for carrying out the various operations in connection with the obtainment of negatives it will be readily apparent that expedition is ensured, and to those whose occupation is connected with the Press this will be found a considerable advantage. The use of an opaque base or support, such as herein described, also affords considerable safety in handling, it is less liable to fracture, while being absolutely anti-halation and capable of economical production. Frank Wordsworth Donisthorpe, Hohenfels, Combe Down, Bath.

- FRAME FOR VIEWING TRANSPARENCIES.—No. 11,354. 1908 (April 1, 1909). The transparency is mounted in an inverted position in its frame, and exposed directly to the light rays. The person then views the reflection in the mirror rather than looking directly at the transparency. In this manner the mirror is shaded from all

light rays except those passing through the transparency, and the latter, being directly exposed to the light, receives the full illumination.

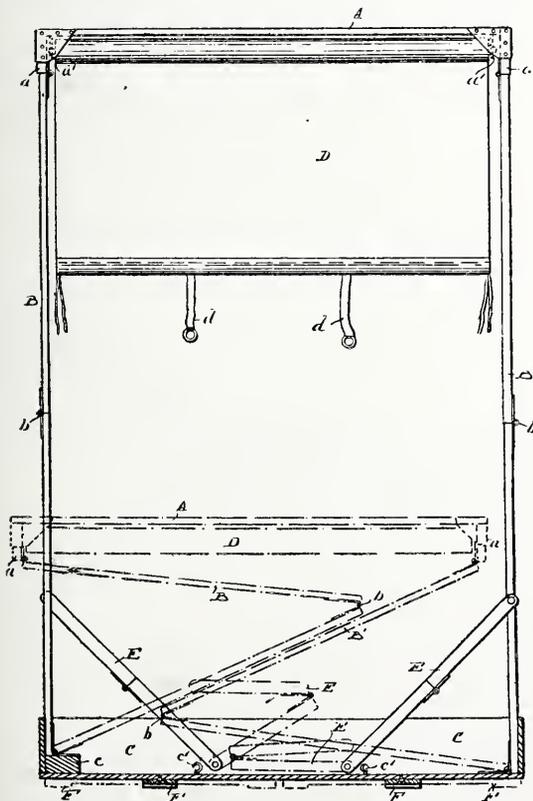
In the figure 10 is the base of the apparatus, which may be made



a receptacle for transparencies, 16 is the mirror, 11 the carrier for the transparency, 13 cover pieces for the transparency, and 12 side pieces to exclude light from the mirror. Benjamin Joseph Falk, 14, West 33rd Street, New York City, U.S.A.

COLLAPSIBLE LANTERN-SCREEN STANDS.—No. 21,245, 1908 (October 8, 1908). The invention relates to supports for lantern screens and photographic backgrounds of a portable form, enabling the screen or background to be conveniently carried about and set up in any desired position without special means for attachment.

The support consists of a light frame mounted inside a long



narrow box, to which the sides are hinged at the lower end. The sides are each in folding parts (usually two) and fold inside the box, one over the other, the top of the frame (which carries the screen or background in the form of a roller blind) covering the collapsed sides and forming the top of cover of the box. Folding struts or supports hold the frame in extended position.

Fig. 1 is an elevation of a frame constructed according to the

invention, with the box in section, and the frame consists of the top, A, and the sides, B and B¹, each of the latter parts being in two halves hinged at b to fold inwardly as shown in broken lines. The two sides are hinged at their lower ends within the long, narrow box, C, the sides, B, being hinged to a block, c, at the end of the box, while B¹ is hinged to the bottom at the other end. This arrangement allows the collapsed side, B¹, to lie under the collapsed side, B, the dotted lines showing the whole frame in the process of collapsing or extending and illustrating the manner in which the various parts fold.

The top, A, has end-pieces, a, and the sides, B and B¹, are hinged to the lower edges of these end-pieces, which, when the frame is collapsed, fit closely in the ends of the box, C. The sheet, D, forming the screen or background is wound upon a spring roller after the manner of a blind, and the roller is carried by brackets, a¹, at the underside of the top, A. When the sheet is wound up it lies entirely within the recess formed by the end-pieces, a, with the top bar. When extended it is held by the tapes, d, and hooks, c¹, on the bottom of the box, C.

The frame is held in extended position by the folding struts, E, each made in two parts, hinged at the under-side and pivoted to the sides of the box near the bottom. To give a firm support to the whole apparatus, two feet, F, are pivoted below the box, C, and are turned out at right angles to the length of the box when the device is in use, but when collapsed they are turned parallel to the length of the box, as dotted in chain lines. To enable the collapsed apparatus to be carried readily, a handle, G, is fitted to the top bar, A, and a simple catch, such as g, holds the parts in place in the box.

In collapsing the apparatus for storage or transport, the sheet, D, is first released and wound upon its roller. The side, B¹, is then bent at its hinge, and the side, B, similarly bent to bring its two halves over those of B¹, as shown in Fig. 1, the two folding struts, E, being bent at the same time, usually by the foot, to permit the folding of the sides. On dropping the folding parts they lie compactly in the box, with the sides, B and B¹, one over the other, and the struts, E, alongside, and the top, A, with the rolled-up screen, covering the whole. Frank Van Neck, 11, Cursitor Street, Chancery Lane, London.

TELEGRAPHIC TRANSMISSION OF PHOTOGRAPHS.—No. 4,562, 1908 (March 20, 1909). The claim is for a process of transmitting and reproducing images at a distance in which two movable cylinders (of different diameters and placed at stations connected by an electric line, and each operated by a motor) are firstly regulated to the same peripheral speed by a preliminary adjustment of the motors, the cylinders being also regulated so that a point on one of them registers with a fixed point at the same moment that a point on the other registers with another fixed point at each revolution. This relation between the two movable cylinders is obtained by arresting by means of a hook armature held in position by a magnet in series with the line, the smaller of the cylinders during the time occupied by the larger cylinder in completing each of its continuous revolutions. The latter is provided with a tappet, which produces a single and periodic interruption of the synchronising current in the line at the end of each revolution, and consequently the release of the smaller cylinder and the resumption of its movement. An arrangement of tappets and cams allows the arrest and resumption of operation of the larger cylinder to be governed reciprocally by the cylinder of smaller diameter. Laurent Semat, rue Saptich, Cairo, Egypt.

The following complete specification, etc., is open to public inspection, before acceptance, under the Patents Act, 1901:—

PRINTS.—No. 7,519, 1909. Treating photographic prints. Cunningham.

New Trade Dames.

BALLOON (DEVICE).—No. 309,017. Photographic cameras. W. Butcher and Sons, Limited, Camera House, Farringdon Avenue, London, E.C., photographic apparatus manufacturers. December 19, 1908.

JONOK.—No. 310,367. Photographic printing papers and cards. M. S. Berger and Co., 106 to 110, Kentish Town Road, London, N.W., photographic material manufacturers. February 10, 1909.

Analecta.

Extracts from our weekly and monthly contemporaries.

How to Vignette a Figure Direct from a Group on to a Negative.

WRITING on the above subject in "The Amateur Photographer and Photographic News" for April 27, Mr. Ernest Collins says:—"It frequently occurs that we wish to copy a single figure from a photographic group. Blocking out either on print or negative is unsatisfactory for more reasons than one; it is troublesome and generally leaves a hard line. The following process is effective and simple, and carefully carried out cannot fail to give good results:—

"Adjust the group on the copying board so that the figure which is to be copied is exactly opposite the centre of the lens, and carefully focus the image to the size required. The figure will, of course, occupy the centre of the ground glass and be surrounded by the other figures of the group. Next procure a piece of board and nail to it a smaller piece on which it may stand. I find that a piece the size of a camera front is most convenient. Exactly opposite the lens cut out a hole about the size of the lens hood, and on the side *next* the camera tack a piece of *white* cotton-wool wadding—a tack at each corner will suffice. Then pluck away the wool bit by bit until a small hole is made surrounded by a fringe of the wool hairs. This is now placed between the lens and the picture and moved to and fro until as much of the selected figure appears on the screen as is desired, and if the wool has been properly adjusted the central figure will show softly vignetted off to pure white at the margin. The wool being out of focus, no details will appear, and on the exposure being made and the resulting negative being developed to a good average density, it will yield a print softly vignetted without further trouble. This will appeal to enlargers, who generally have enough to look to whilst exposing without having to manipulate vignetting cards the while."

Hypo in the Developing Tank.

Two questions are likely to be asked (says a writer in "Photography and Focus" for April 27), as to the use of tank developing machines. One is as to putting the hypo solution into them. The amateur may wonder whether he ought to use the same tank for developing and fixing. There is no harm in so doing, if only reasonable care is exercised. These tanks are made of metal, and it is much easier to clean them than it is to clean a porcelain dish. The latter soon develops minute cracks in the enamel, cracks which are quite invisible, at least in the early stages. These cracks retain some of the solutions, and so contaminate what is afterwards put into the dish. Metal does not possess this drawback. At the same time, it is more than ever important to cleanse the tanks thoroughly after they have contained hypo.

The other question about tank development which will arise is one upon which a misconception exists. It has been stated that by using a very dilute developer plates may be put into a tank and left undisturbed for some hours, at the end of which time they will be found to have developed, automatically, to the right extent. There is no such royal road to success. Good negatives may have been made in this way by some lucky accident, just as a bird might be shot by discharging a gun at random into the air; but it would only be an accident. Whether development is quick or slow, whether it is done in a tank in daylight or in an open dish in the dark room, the duration of development has got to be determined by the photographer. Moreover, plates cannot be relied upon to develop satisfactorily in an undisturbed solution. If in a dish, the dish must be rocked occasionally, or mottling will result. If in a tank, the liquid must be agitated in some way or other from time to time. The best plan in such a case is to turn upside down at intervals either the whole tank, if it can be made water-tight, or else the container carrying the plates, so that for half the total time one set of edges is uppermost, and for the other half the other.

Photo-Sketches.

Is it not a fact (writes Mr. Nelson K. Cherrill, in "The Photographic Monthly" for May) that many greatly prefer a "sketch" to a "mere photograph," but are bound down to the latter by the feeling of incompetence to produce anything like a passable result

with brush or pencil? It is in the belief that there are many such that I come with a suggestion for a kind of compromise between the work of the camera and that of the paint-brush, which, while it suffers from the usual fault of compromises in being neither the one nor the other, is, I think, notwithstanding this, an interesting departure on its own account.

The negative, which must be of the "thin" type, is placed in an optical lantern, and its enlarged image thrown on a sheet of drawing-paper, exactly in the same manner as for producing a bromide enlargement. The paper should be of that slightly absorbent character which enables repeated washes of colour to be applied without too much danger of disturbing the underlying tint. Whatman's "water-colour sketching boards" I find to work excellently in this respect. When the image is focussed and the room nearly (but not quite) dark, all that is needed is to fill in with a brush and colour all the light parts seen on the paper, in such a manner as to make the whole present *one uniform tint all over*. When this is done the "sketch" will be complete. Of course, the *rationale* of the process is, that the negative gives a graduated image, and by bringing up the various tones with paint, so as to *appear* an even tint, more paint is insensibly added just where the tone of the work requires it. The process is quite easy, and only needs that kind of skill necessary to fill up a light patch with colour till it looks as dark as the remainder of the paper.

New Books.

"The Book of Trade Secrets." By an Expert. London: J. Haslam and Co., 15, Broad Street Place, E.C. Price 1s. net.

This is a book of recipes and instructions for renovating, repairing, and preserving old books and prints. The contents are arranged in alphabetical order, boldly side-headed. Many of the recipes are said to be invaluable trade recipes, and it is quite evident that the instructions are given by one who is a practised restorer. The directions throughout are most concise, and though one may question the wisdom of the photographer undertaking such work as the restoration of a valuable picture except after considerable experience, the volume gives just such instruction as is required.

"TRAVEL AND EXPLORATION."—The May number of "Travel and Exploration" opens with an article by Mr. L. C. Bernacchi on Lieutenant Shackleton's South Polar explorations, illustrated by a full-page portrait of Lieutenant Shackleton, three views of Antarctic scenery, and a map. Mr. Bernacchi says that the next British expedition will probably again make its way south by way of the Ross Sea, and suggests that Tibetan yaks might be employed for the journey to the South Pole. In an article entitled "Through Austria's New Provinces," Mr. Clive Holland describes a tour through Bosnia and Herzegovina. Among other articles, Mr. D. R. O'Sullivan-Beaure, formerly British Vice-Consul at Pemba, discusses the ivory trade of Zanzibar. Every article is illustrated with reproductions of photographs on plate paper, and there are reviews of books of travel and notes by specialists on exploring enterprises, tourist travel, motoring in the Antarctic regions, and aerial flight.

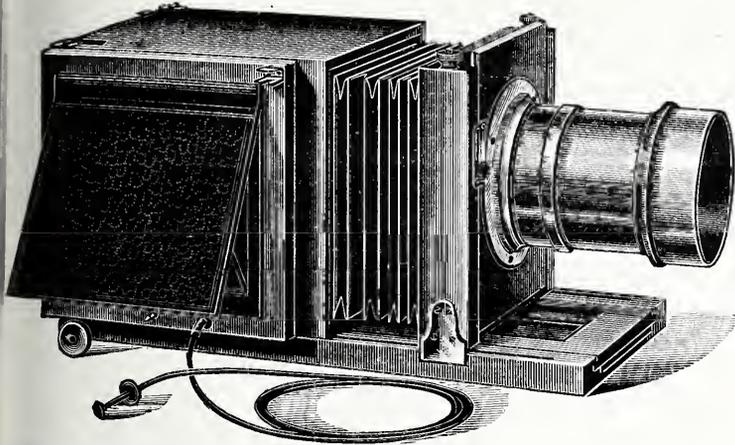
"INTERNATIONALES ARCHIV FUER PHOTOGRAMMETRIE."—The fourth number of this quarterly journal of surveying, etc., by means of the camera, contains, among others, articles on photographic survey methods in astronomy by Dr. N. Herz, and on calculation of constants by Prof. Karl Fuchs. There are notes on current progress, reviews of books, and an index to the first volume completed by the issue before us. Our contemporary is published by Herr Carl Fromme, 2, Glockengasse, Vienna II.

ROYAL PHOTOGRAPHIC SOCIETY.—A house exhibition, consisting of photographs by Mr. F. J. Mortimer (editor of "The Amateur Photographer"), will be opened at 66, Russell Square, on Tuesday next, May 4. At the evening meeting of the same day a paper will be read by Mr. Mortimer. This will be the second exhibition of his work which Mr. Mortimer has shown at the R.P.S.; the collection previously shown consisted entirely of marine studies. All the photographs to be offered for inspection on Tuesday next are by the Bromoil process.

New Apparatus, &c.

The "Sichel" Studio Reflex Camera. Sold by O. Sichel and Co., 52, Bunhill Row, London, E.C.

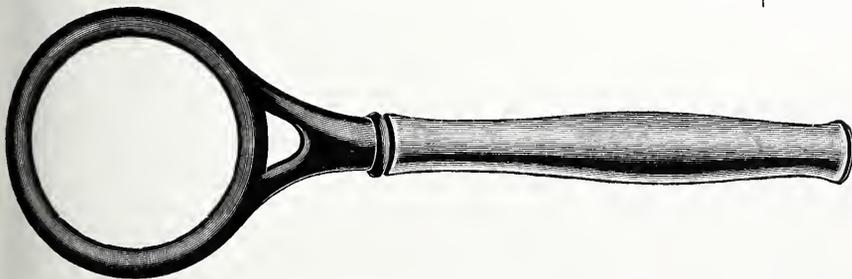
The advantages of a camera of the reflex type for studio portraiture, particularly of children, being very considerable, there is good reason to call attention to a model of camera built solely for studio work. The exposure is given by means of the mirror, which is actuated by a spring and released with the "antinous" attachment. This



allows of short exposure of the duration given with "cap off and on." The focussing screen is placed at the side of the camera, and is thus conveniently viewed when the camera is used at the usual height, but the instrument can be turned over on its side, this position allowing of a very low point of view being taken. Focussing is done by rack and pinion from the rear, whilst the total extension of 24 inches is obtained by pulling out the front. The instrument is solidly made, and complete with three double slides, but without lens, costs £10 in the half-plate size.

The "Primus" Non-Stain Print Ladle. Sold by W. Butcher and Sons, Ltd., Camera House, Farringdon Avenue, London, E.C.

One of those handy contrivances of which, under the name of "Primus," Messrs. Butcher in their time have introduced a large number, has just been placed on the market under the above name, and, as shown in the drawing, consists of a rubber ring about two inches in diameter mounted on a handle of hard wood. This "print ladle" provides a very neat means indeed of transferring



prints from the toning or developing bath to the wash-water and thence to the fixing solution, the worker having no need to allow his fingers to come in contact with the hypo bath. The ladle serves very nicely to lift a print from its bath and after transference to press it gently beneath the surface of the hypo solution, and it should be its own recommendation to those who print on either a large or small scale. The price of the ladle issued to the trade in a cardboard box is 1s.

The "Klimax" Postcard Frame and Printers. Sold by W. Butcher and Sons, Ltd., Camera House, Farringdon Avenue, London, E.C.

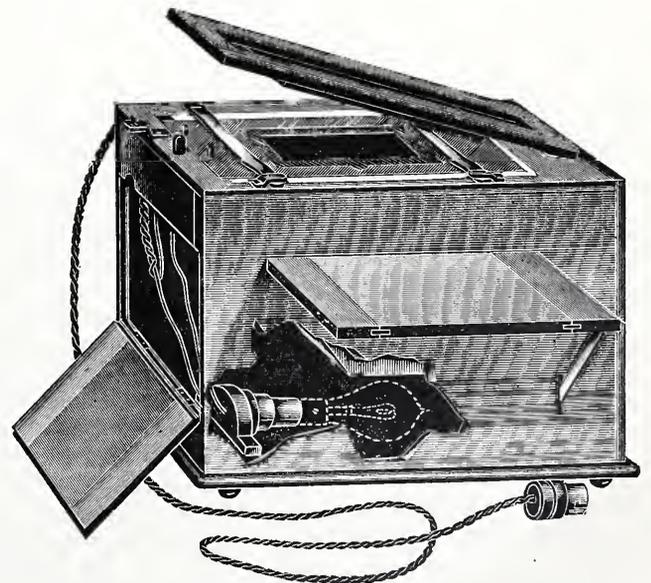
In these pieces of apparatus Messrs. Butcher provide a frame which can be used in the dark-room for taking off a number of identical prints from a negative in the ordinary way, or may be obtained as a printing machine with which exposure after exposure may be very rapidly given without the escape of any light in the dark-room.

The frame is identical in each case. In the printers it forms the top of the apparatus, two patterns of which are made, one for electric light and another for incandescent gas.

The "Klimax" frame will take a negative from 7 x 5 inches to the smallest size. As shown in the drawing, it consists of a mahogany frame, the aperture in which is filled by a piece of ground glass. On this the negative in a suitable carrier is laid, the carrier for the sensitive paper or postcard is placed over the two studs and the spring clamps brought down in order to fix both negative and print carrier. The negative is roughly placed in position when laying



it in its carrier upon the ground glass, but the final exact adjustment may be made with the springs down. Things having been thus arranged, the sensitive paper is placed in the space of the print carrier, the spring-back brought down, and an exposure made, these two operations succeeding each other very rapidly and allowing the worker to turn out a great number of prints (all identical as regards the placing of the picture) in a very short time. The price of the printing frame, complete with carriers for quarter and half-plate and with three masking gauges for the making of quarter-plate, post-



card, and half-plate prints, is 6s. 6d. Two extra sets of gauges are supplied, No. 1 to give six assorted openings quarter-plate size, and No. 2 the same number for postcard size, the price in each case being 1s.

Of the two printers we illustrate the No. 2 model fitted with electric light. It consists of a box measuring 9 x 12½ inches by 9½ inches high, the top of which, as has been said, is formed by the "Klimax" frame. The interior of the box, which is accessible by a hinged door at the front, contains an incandescent lamp, which is connected by means of a flexible cord and plug, supplied with the

printer, to any electric-light fitting. The adjustment of the negative and the printing paper is made exactly as when using the printing frame, except that as regards exposure the act of bringing down the pressure-pad upon the paper automatically switches on the light, which is switched off when the pressure is removed. When light is required for the purpose of adjusting the negative the plug seen to the left of the frame is simply pressed down. The printer, which is well made in polished mahogany, is sold for £1 5s., complete with two yards of flexible connection, plug, two negative carriers, and three printing masks, and provides a most inexpensive and effective means of postcard printing.

In the model No. 1 for incandescent gas the burner is placed outside the apparatus and a mirror is provided in order to reflect the light up through the ground-glass screen. In this case, also, the act of bringing down the pressure-board provides the illumination for the exposure, whilst also, as in the electric light model, the worker can obtain the illumination even when the pressure-board is up by actuating a stud which depresses the bye-pass of the burner. The incandescent gas model is sold at the price of £1 10s.

CATALOGUES AND TRADE NOTICES.

MESSRS. GARDNER AND CO., 36, West Nile Street, Glasgow, announce that they are closing their professional department, and have published a list of outfits, cameras, etc., to be disposed of at very considerable reductions.

PERCY J. SLATER, trade printer and enlarger, of Sawtry, Peterborough, sends us his revised list of prices for trade work of all descriptions, including carbon and platinotype enlargements, miniatures, and lantern slides. We have known of Mr. Slater for some years past, and have good reason to speak well of the quality of his work and the straightforwardness of his business methods.

BARNET SHOW-CARDS.—MESSRS. ELLIOTT AND SONS, LTD., of Park Road, Barnet, Herts, have sent us an assortment of their new season's show-cards, which, in design and arrangement, are in no way behind those of previous years, and should form an attractive addition to the dealer's window. The illustrations are printed on the various brands of papers—bromide, gaslight, self-toning, etc.—which emanate from the Barnet works, and their excellence should go far to increase the sales and popularity of this firm's specialties amongst those—if any—still unacquainted with them. An assortment of the show-cards will be sent to any dealer applying to Messrs. Elliott at the above address.

Commercial & Legal Intelligence.

A HANTS FAILURE.—The public examination was held at Portsmouth on Monday of Mrs. Florence Pattie Brown, photographic chemist, Liphook. It appeared the business was formerly carried on by debtor's husband, who died in July, 1907, when the assets were estimated at £295 and the liabilities at £602, including £335 balance of the price paid for the goodwill, etc. Since then a qualified assistant had been employed at £2 a week and board and lodging. This was too much for the amount of business done. Debtor put down her present liabilities at £535, with assets £56. The examination was concluded.

NEW COMPANIES.

FRED V. A. LLOYD, LTD. (102,477).—Registered April 8, with capital £1,500 in £1 shares, to acquire the business carried on at 15, Lord Street, Liverpool, as Fred V. A. Lloyd, and carry on the business of opticians, photographers, stereotypers, printers, etc. F. V. A. Lloyd is permanent governor director, subject to holding £600 of the shares allotted to him under purchase agreement. Remuneration £260 per annum.

FROM THE ARTICLE in last week's issue on the "Morgan System of Dry Mounting and Embossing, etc., at One Operation," a paragraph, referring to patents taken out in connection with the process, was inadvertently omitted.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, APRIL 30.

Craven Naturalists Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.

SATURDAY, MAY 1.

United Stereoscopic Society. "Storing and Indexing Negatives and Slides."
Borough Polytechnic Photographic Society. Outing: Down the Thames on Tug.
Kinning Park Co-operative Camera Club (Govan). Outing to Beith.

SUNDAY, MAY 2.

United Stereoscopic Society. Outing to Burnham Beeches.

MONDAY, MAY 3.

Kinning Park Co-operative Camera Club (Govan). Committee Meeting.
Folkestone and District Camera Club. "The Thames Valley." Geo. H. Sheaff
South London Photographic Society. "Further Notes on Architectural Photography." C. H. Oakden.

TUESDAY, MAY 4.

Royal Photographic Society. Address by F. J. Mortimer.
Bishop's Stortford Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Wimbledon and District Camera Club. Members' Evening.
Hackney Photographic Society. Affiliation Lantern Slides, 1908.
Manchester Amateur Photographic Society. "Foregrounds in Pictures." Illustrated with Sketches. G. H. B. Wheeler.

WEDNESDAY, MAY 5.

Edinburgh Photographic Society. "D. O. Hill and his Work." Francis Cairns.
Central Technical College Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Croydon Camera Club. "In the Solent—Coves Week." F. W. Hicks.

THURSDAY, MAY 6.

Blenheim Club. "The Camera and the Sea." F. J. Mortimer.
Southend Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Midlothian Photographic Association. "Carbon Printing." Douglas H. Watson.

ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held April 27, the President (Mr. J. C. S. Mummery), in the chair. It was announced that Mr. James A. Sinclair had been elected upon the Council, to fill the vacancy caused by the death of Mr. Hector Maclean.

A lecture was delivered on "The Bible of the Middle Ages," by Mr. Ernest Marriage, in which he described the carvings and sculpture, chiefly from French churches and cathedrals, depicting scenes from the Old and New Testaments. A hearty vote of thanks was accorded to Mr. Marriage.

THE PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

A MEETING of the General Committee was held at the Royal Photographic Society, 66, Russell Square, on Friday, April 23. Present Messrs. Alfred Ellis, Gordon Chase, S. H. Fry, Lang Sims, R. D. Speaight, and A. Mackie. Mr. Lang Sims (President) in the chair.

Nine applicants for membership were admitted.

The Hon. Secretary reported cases dealt with by the Association since the last committee meeting, including one case of infringement of copyright, in which compensation had been obtained, and also read letters from several members, asking advice or assistance, which were discussed and dealt with.

A letter was read from the Hon. Secretary of the Artistic Copyright Society, asking the committee to appoint a member to give evidence on photographic copyright matters before the Committee of the House of Commons appointed to consider the revision of the Berne Convention. The committee thereupon appointed Mr. Ernest Elliott. This being the first meeting of the committee after the annual general meeting, according to the rules it was necessary to elect an Hon. Treasurer and an Hon. Secretary, and Messrs. Lang Sims and Alexander Mackie having signified their willingness to serve again, were therefore re-elected.

CROYDON CAMERA CLUB.—Mr. F. J. Mortimer gave a most interesting, instructive, and highly diverting demonstration on "Bromoil" last week before a large attendance of members. With looks that belied the utterance, the lecturer first stated that he loathed lecturing and detested demonstrating. The last time he was at Croydon he talked about "water"; he was now going to chat about "oil," or rather Bromoil. Messrs. E. J. Wall and C. Welborne Pipe were, so to speak, its parents; the former originally conceived the

lea, the latter working the process out, and giving it birth about fifteen months ago. Mr. Piper's modified formula, first published in the "Photographic News," was in his (the lecturer's) opinion all the best, notwithstanding many modifications and alternative formulæ. It certainly permitted very satisfactory prints to be obtained if the instructions were closely followed; at all events it had done so in his hands, and the many pitfalls and difficulties others apparently encountered had not been personally experienced. Temperature, the quality of the initial print, the constitution of the developer and fixing bath, etc., however, opened up possibilities of going wrong.

The bromide prints must be of good quality, vigorous, correctly exposed, and developed to the full. Such a print, when looked at by transmitted light, would show plenty of silver present and a strong image. An over-exposed print, with enforced curtailment of development, naturally possessed an opposite characteristic which was not conducive to success. It followed from this that prints which took some time to bleach generally pigmented more easily than those which rapidly bleached, owing to the minimum of silver present required to be converted.

There were many varieties of bromide papers available, the "platino-matt" being generally excellent. Those with the so-called "carbon surface" and their equivalent were also good, but afforded a more shiny print. "Enammg" papers were unsuitable owing to the aggressive gloss produced. Amidol seemed to be the best developer.

Two main methods of pigmenting presented themselves. The first and the more cleanly consisted of building up the image gradually—a slow and tedious job, though the safest for the beginner. The second method which he employed might be termed "the dirty way." Here the pigment was laid on thickly, and removed where not wanted. It had the advantage of being far more expeditious, and the disadvantage of an increased tendency to accumulate hairs and dust, which necessitated their removal when the print had set.

The lecturer here proceeded to bleach, acidify, and wash some very fine studies, giving all necessary instructions as he went along. The bleached and surface-dried prints were placed on a convenient pad of his own design, and successfully pigmented. The pad, he stated, had been kept wet for months. A little formalin was added to the water used for moistening it. So far as he could see, it had no action whatever on the prints, though the contrary had been suggested.

The pigmenting of a large portrait of Dr. Mees attracted much attention, and provoked considerable comment. Without wishing to be accused of extravagant praise, in fairness it must be recorded that, judged purely as a portrait, it formed a splendid if none too kindly caricature. It depicted the doctor in profile facing a strong light, an eyeglass, apparently made of china, imparting a rigid and indignant stare in the direction of a nose heavily accentuated with (presumably) white pigment. The oil print was better than the original "bromide," and well illustrated, if it did nothing else, the effectiveness of sketchy vignetting executed by a skilled hand.

In the discussion which followed, a member mentioned that several of his prints refused to bleach, and inquired the cause. "The refusal to bleach is curious," replied the lecturer; "but never having had any failures, I am unable to assign a reason for this or other misadventure." "I used your formula," said the member, very pointedly. "Which makes it all the more extraordinary," was the genial response. No more questions on "failures" were asked.

Dr. Mees pointed out that it appeared desirable to well wash the prints after the acid bath, before immersion in the hypo solution, to avoid possible deposition of sulphur in patches, which might refuse to take the pigment. It might also be useful to formaline the prints before pigmenting to toughen the surface; this would not affect the relief. On the other hand, if a formalined print were allowed to dry, relief would not be formed on its being re-wetted.

The President, Mr. J. M. Sellors, had tried Bromoil, but had obtained no relief. Mr. Taylor complained that makers of special bromide papers for Bromoil only listed and supplied them the size of the plate, without allowing anything for the necessary margin. For the next size larger one had to pay appreciably more. Mr. Keane, on the subject of "relief," inquired whether in a portrait the sitter would be represented with a "swelled head." "It depends," said the lecturer, gazing fixedly at the questioner. In answer to another question, Mr. Mortimer said that the best way to mount an oil

print not completely dry was to cover a very stout piece of cardboard with adhesive, and drop the print on to the sticky surface. Dry-mounting should never be attempted unless the print was at least six weeks old, otherwise the picture would be transferred to the plate. Many other members joined in the discussion, which gradually assumed a contest of wit, during which the lecturer more than held his own.

In response to a very hearty vote of thanks, Mr. Mortimer said that he had much enjoyed the evening, and particularly the debate, which was quite up to the standard common report had led him to expect. Any slight misgivings he might have entertained as to the suitability of the subject for Croydon, had been quite dispelled. For one thing he was grateful—the ethics of "control" had not been raised. Discussions based thereon were profittless and interminable.

News and Notes.

ERRATUM.—In the article "Telephotography" last week, p. 322, right hand column, lines 2, 3, and 4, for "time" read "tint."

THE DEATH IS ANNOUNCED of Dr. Carl Emanuel Merck, a partner in the Darmstadt chemical factory. At the time of his death Dr. Merck was only 47 years of age.

THE LANCASHIRE AND CHESHIRE PHOTOGRAPHIC UNION.—The fourth annual excursion has been arranged to take place on June 19, when, by invitation of the photographic section of the Preston Scientific Society, that town will be the centre of the day's proceedings. The local committee and excursion leaders will meet associates and their friends at the club rooms, 119A, Fishergate, Preston, from which place all parties will start. Full particulars of the day's arrangements are now ready, and those intending to be present on the occasion should make early application for same to the secretaries of their respective societies. The hon. sec. of the Union is Mr. W. Tansley, 22, Chapel Place, Liverpool.

We regret to have to record the death of Mr. William Dobson Brigham, of 20, Esplanade, Scarborough, which took place on April 21. Mr. Brigham, who was sixty-eight years of age, commenced his business career as a wood-engraver, in the firm of Messrs. Foster and Sons, of Driffield, but the work was of too sedentary a character to suit his active temperament, to which photography appealed more strongly. His first engagement as a photographer was with the late Mr. Thos. Fall, at Bedale, with whom he stayed until shortly before the latter left Yorkshire for Baker Street. Early in 1863 Mr. Brigham opened his first studio at Pocklington, and later in the same year another in New Queen Street, Scarborough, afterwards removing to Westborough, and finally, in 1879, to the present studio on the Esplanade. Mr. Brigham's business policy was good work for good prices, and the cheap class of photography now so much in vogue in seaside towns never had any support from him. Some thirteen years ago Mr. Brigham was invalidated by a paralytic stroke, which prevented his taking any active part in the business, the management of which passed into the hands of his son, Mr. W. Foster Brigham, who will, we understand, continue to direct it.

PICTURES OF ROTHENBURG.—Among other oil and water-colour paintings, there are now being exhibited at the Fine Art Society, 148, New Bond Street, a few paintings by E. Harrison Compton of the picturesque old Bavarian town, which of late years has attracted so many artists. Mr. Compton has evidently found his subjects more among the rural surroundings of Rothenburg than in its wonderful mediæval streets. One most effective view of the fortified walls which surround the town has been obtained from a standpoint in the road which winds its way along the banks of the Tauber far below the towers of the town. Almost every one of the Rothenburg pictures exhibits beautiful effects of sunshine, which is but natural seeing that this corner of Bavaria is highly favoured in this respect. One picture of the town from the Tauber valley in particular exhibits a charming effect of evening light upon the red masonry of the walls, and any one who may be thinking of paying a visit to Rothenburg at the time of the Whitsuntide performance of the Meistertrunk will be interested in studying these works of an accomplished artist. The pictures remain on view until May 15.

Correspondence.

* * We do not undertake responsibility for the opinions expressed by our correspondents.

* * Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

REGULATION OF FLASHLIGHT PHOTOGRAPHY.

To the Editors.

Gentlemen,—The action of the police in Germany controlling flashlight exposures, which you report on, although rather drastic in the regulations imposed, would seem to be almost as necessary for adoption over here as the control of cinematographic exhibitions, judging from some of my early experiences in this work and from several accidents, arising usually from sheer ignorance, which have been recounted to me. In one case an operator, perched on a pair of steps near some inflammable decorations, boldly pushed a lighted taper held in his hand into a heap of flash powder! Strangely enough, in this, as in most cases, the damage was confined to the operator.

As the result of an accident, I believe, and possibly also on account of conditions imposed by the insurance company, a large hotel here, used for many important functions, prohibits flashlight work on the premises.

I think the authorities will, sooner or later, impose some restrictions on us, and we can hardly blame them. I would suggest that the P.P.A. investigate the various methods practically (excluding, of course, such as mentioned above), by inviting manufacturers and photographers to give demonstrations with various lamps and powders. As part of the tests, I would insist on inflammable articles, such as muslin and paper festoons, being hung at various distances above and around various quantities of each make of powder and each lamp. Having thus obtained tabulated data regarding the safest apparatus and methods, the P.P.A. could approach the authorities and insurance companies with a view to their approval and co-operation. The combined approval of the P.P.A., the Home Office, and the insurance companies would be an enormous advantage to manufacturers, as well as to the photographers using their productions.—Yours obediently,

D. BERLIN.

94, Gt. Clowes Street, Broughton, Manchester.

April 4, 1909.

SULPHIDE TONING.

To the Editors.

Gentlemen,—The only analyses I have made of the (bleached) image of a bromide print treated with the ferricyanide-bromide bleacher were done some considerable time ago, and were merely qualitative. The object was to see if any silver ferrocyanide was left in the image. I found none. I certainly do not consider that any analysis is necessary to prove the variability of the composition of the bleached image. The degree to which bromination proceeds depends on the strength of the solution and the time of action. It also depends on the brand of paper and the method of development—i.e., on the nature of the silver image. The above facts can be ascertained by merely watching the bleaching process. I certainly think it is probable that some sort of combination takes place between the unbleached and the bleached part of the image until complete bleaching is brought about.

The change of colour from black to brown is not easy to account for otherwise. I believe that some people assume that the brown image consists of a lake of silver sub-bromide and silver bromide, or a mixture of these two substances. It may be so. I personally don't think we can go properly as far as this without more evidence. The brown bleached image is not formed, so far as my experiments show, when a weak solution of bromine is used as the bleaching agent. Here, as bleaching proceeds, the image takes on a paler and paler shade of grey. The same thing applies to the action of a bichromate-bromide bleacher which has been mixed for some time, but with a freshly made up one we get a brownish image at first. With even a freshly made up bichromate-bromide bleacher, unless it be very dilute, bleaching soon goes to completion. My expressed opinion that the incomplete bleached image given by treating a bromide print with the ferricyanide-bromide bleacher consists of a lake of silver and

silver bromide is merely a summary of the views set out above. certainly don't pretend to know more than a very little about the real nature of this image.

If we bleach a bromide print for a fairly short time (say five minutes) in a fairly dilute ferricyanide-bromide bleaching solution and then, after washing, fix it, we get a faint but pretty well defined brown image. I think it is probable that this image is composed of metallic silver. When the print is again bleached and fixed the image entirely disappears. There is no reason whatever to imagine that it is not silver because of its colour. Silver images can be produced of almost any colour. It is not because the original bleached image is brown that I think that it is probable that some sort of combination between the bleached and unbleached parts of the image takes place, but because of the change from black to brown. I believe that the portion of the original silver image of a negative on bromide print, which is not silver, is a halide of silver. My experience is that the residual image, after treating a silver image with a "reducer," is entirely destroyed in the fixing bath. If a dry plate negative is bleached to apparent completeness in the ferricyanide-bromide bleacher, and then, after being washed, fixed, a very faint brownish residual image is left. This residual image, as in the case of a bromide print, can be destroyed by treating with a brominating solution and fixing. However, in the case of a negative a very faint kind of an image can be observed when the plate is wet. I believe this is merely due to the "ozobrome" effect of the bleacher on the gelatine. I regard the residual silver halide of the silver image and the residual silver of the bleached image as being the result of the protection afforded by solid solution, molecular combination, or lake formation—call it what you will—against the complete action of the developer and fixing bath in one case, and against the bleaching solution in the other.

When experimenting on residual images one must be on the look out for resinous stain effects, due to the oxidation of the phenol of the developer. Many a developing solution which gives no general stain at all, and which yields an apparently black silver image, gives quite a perceptible amount of stain image.

With regard to the keeping qualities of pure sodium sulphide, I am not inclined to modify what I have said. I find that if the purest crystalline sodium sulphide that I can buy is exposed in the form of a 1 per cent. solution in the toning dish to the air for six hours, a noticeable yellowing of the prints toned in it occurs. After twelve and twenty-four hours the effect is much more marked. I cannot see that for the amateur and fairly small scale worker, for whom I wrote the advice, there is no real prodigality in acting well on the safe side.—Yours faithfully,

R. E. BLAKE SMITH.

31, St. John's Road, Putney, S.W.

April 26, 1909.

THE EFFICIENCY OF FOCAL PLANE SHUTTERS.

To the Editors.

Gentlemen,—I have been much interested in the various letters which have recently appeared in the "B.J.," under the heading of the "Efficiency of the Focal Plane Shutter."

As there appears to be some doubt as to whether the shutter is as efficient when worked, say, three-quarters of an inch from the plate, as it is when worked directly in the focal plane, I resolved to make a practical test, and accordingly made a plate carrier which held the plate at a distance of one-eighth of an inch from the shutter, while the one in the usual slide was three-quarters of an inch from the shutter. After making a very careful and exhaustive test I say, without hesitation, that there is practically no difference in the result, as far as exposure is concerned. Given an abundance of light and working the shutter at, say, 1-1000 of a second, it is a very difficult matter indeed to tell which plate has been nearest the shutter. I believe there is a slight difference in cases of great under-exposure, and, to let you give an opinion on the matter, I enclose two plates, which are purposely under-exposed. The large plate was exposed $\frac{3}{4}$ in. from shutter, and the smaller one $\frac{1}{8}$ in. from same; same light, same plate, lens, shutter, and development all exactly alike.

I may mention the shutter was working at 1-1300 sec., and the light dull, so the plates needed considerable forcing.—Yours, etc.,

T. S. HARGREAVES.

[The difference between the two negatives is very slight. Of the two, the larger is slightly the better.—Eds. "B.J."]

Answers to Correspondents.

All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 2A, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 2A, Wellington Street, Strand, London, W.C.

For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 2A, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

E. Saville, 1, Schofield Street, Mexborough, Yorks. Photograph of Jan Hague, Champion Boxer.

Craik, 119, High Street, Deal, Kent. Seven Photographs of Wreck of S.S. "Maharatta" on Goodwin Sands.

TRUE TO SCALE PROCESS.—I should be greatly obliged if you could inform me as to where I could get a book dealing with the true to scale printing process.—B. HULLETT.

None is published. We will give a short article next week.

PHOTOGRAPH OF A CHURCH.—Amongst a set of negatives we have taken for postcard publication is the interior of a church. As the church was open, and no notice up that photography was not allowed, we did not first ask permission to take it. Since then the clergyman has said we must destroy the negative, as he had previously given permission to a photographer, with the sole right to sell the photograph of the church, and give the profits to the said church, for heating apparatus. Can he prevent us publishing this view? He says it is copyright; but we suppose he means the photographer's photograph, as the church cannot be copyright. It is a Church of England, and therefore a public church. We must add, a new screen has been recently erected, and that is why a new view is required. We should like an answer this week if possible, as our order is urgent, and we must wait for your reply.—ANXIOUS (Ipswich).

You are quite at liberty to make any use you like of the photograph. It is a case of, let us say, clerical ignorance of the law. Certainly the reverend gentleman is quite wrong in thinking he can restrain other persons from making use of photographs which they may take, and we very much doubt if he is within his rights in granting a photographer the sole right to take photographs in or of the church.

H. S. (Johannesburg).—1. The lamps are not used at all for portraiture. Although high voltages will give lamps of 700 to 1,000 candle-power, these latter are used only for projection. The cost of renewals for filaments is about 3s. to 4s. for each renewal. 2. For single figures and small groups, two tubes. If you could get renewals only from England, we should think that you would be better advised to get enclosed arc lamps, two of which would suffice for ordinary studio work, while one only is frequently used here for bust portraits.

CARBON PAPER.—Kindly inform me where I can procure a type of carbon paper called "Autopastel."—SIGMA.

The Autotype Co., 74, New Oxford Street, London, W.C.

H. P.—The method may do for quite small prints, but, as you have found out, it is erratic and of no practical use. You can buy a machine to take up to half-plate size or whole-plate at two impressions for 25s.

AUTOCHROMES.—I shall be glad if you will give me some information on the following points through the medium of the ever-welcome "B.J." I have been doing some Autochromes lately, using their method of control development, then reversing and re-developing with rodinal. I have, on the whole, been successful, except that the transparencies seem to lack brilliancy. We are told that intensification remedies that defect, but as my results

are already plenty dense enough, I cannot do that. I have carefully kept to the Lumière instructions as to length of development, so do not think that I under-develop. I want to know, then: 1. Whether I can successfully reduce and then intensify my transparencies to brighten them? 2. Formula for same. 3. Is it possible to obtain a white on these plates, such as a white background to some object, or does it only appear white by contrast with the object?—LUMIERITIS.

1. It is certainly possible to reduce and then intensify an Autochrome, but reduction should not be necessary unless you have under-exposed. You may be mistaken in supposing the results you have obtained will not bear intensification. Very slight intensification will brighten the colours without adding much to the density. 2. Use a very weak Farmer's reducer, then wash and intensify with the usual Autochrome formula. 3. It is quite possible to produce a very good white, but over-exposure must be avoided.

CARBON TROUBLE.—I am enclosing two partially developed carbon prints, that you may the better see wherein my trouble is. You will notice that, although the faces are apparently over-developed—all the delicate tints gone—the dress is still a muddy mass. The tissue was sensitised in a 2 per cent. solution of bichromate of potash for two minutes, and was quite dry in four hours afterwards. Any help you can give me will be gratefully received.—CARBONAS.

There are two causes for the trouble. One is that the tissue was not sufficiently sensitised. The other is that the tissue was very much under-exposed. The light had not penetrated the denser portions of the negatives, consequently the gelatine washed away from those parts before it could be from the others. The remedy in your case is to sensitise the tissue in, say, a 5 per cent. solution (for negatives with such contrasts as that used) for three minutes, and expose for a much longer time. You must understand that carbon tissue is much less sensitive (as compared with the silver paper in the actinometer) in a feeble light than in a strong one.

WORRIED BOOK-KEEPER.—The Tress Company issues a suitable book, we think, and Messrs. Houghtons Limited supply the convenient card-index reminder for studio appointments.

DIRECTORY.—A directory of the photographic trade, which we believe to be complete, appears in the "British Journal Almanac."

D. PALMER.—We do not know of a list which is at all complete or up-to-date.

GEO. O. STOTT.—Certainly. You can patent an accessory piece of apparatus or attachment. We imagine that any patents in the original apparatus have now expired. You had better apply to the Comptroller of Patents, Southampton Buildings, Chancery Lane, E.C., for a circular of instructions for applying for patent.

TONING P.O.P.—Would you kindly inform me of a permanent and economic method of toning large batches of P.O.P. postcards. I use the gold and sulphocyanide bath with separate fixing, but they seem to be uneven or double-toned, although I am careful to use exact proportions of solutions and keep them moving all the time.—METHODIST.

We should guess that you are using baths for too great a number of prints. Probably you would succeed better with the combined bath or with the thiomolybdate method of sulphide toning for P.O.P. (Edmund and Co.), as you appear not to be experienced in handling P.O.P.

LETTERING P.O.P. PRINTS.—Can you help me in the following?

(1) I have been asked to print by hand in large (half-inch) letters some names on P.O.P. prints. I use Chinese white, but find a difficulty in getting it applied thickly and smoothly. If too thick it will not run, and if thin it looks watery and not solid white. It falls to the bottom of the dish, and needs to be constantly stirred up. I have tried mixing a little gum in it, and find this slightly better. Is there anything else which should be used? (2) I find the pen I use—a fine Gillot—scrapes the surface of the print. Is a very stiff sable brush better to use? (3) I have sometimes to put a cloud in a print or strengthen a weak distance. What colours should one use, and how should they be mixed?—J. C. J.

(1) The Aerograph Company, 45, Holborn Viaduct, manufacture

a process "white" for use on photographic papers that should answer your purpose well. (2) Use a No. 1 red sable long-hair. A brush is a proper tool to use on a photograph. (3) The Aerograph Company's lampblack, as well as their white, cannot be improved upon for the purpose, and works well through the aerograph.

S. H. C.—1. The exposure was probably rather too long for the face, though correct for the clothes and chain. Shorter exposure or shorter development might have improved matters, but the best course with subjects presenting a long range of contrasts is to increase exposure and shorten development. Doubling the exposure and halving the time of development is a well-known device for securing clouds and sky in landscape subjects that show heavy foreground objects. 2. The permanganate solution dissolves silver, hence the disappearance of the image. To clean out developer before intensifying a very dilute solution is used, and it is only applied for a few seconds. See the original Lumière instructions. 3. It will not keep well mixed. The permanganate and acid solutions should be kept separately, and only mixed just before use. 4. Any dealer will supply a whirler, but whirling is not necessary now the frilling trouble has disappeared. 5. There should be no difficulty in seeing the sandglass if placed directly in front of the lamp. We should, however, prefer a clock. If the dish is covered and lamp is turned up to give a bright green light you can read a watch very well. 6. Celluloid varnish is the best to use, but it must be made with amyl acetate as the only solvent. If any alcohol is added the image will be destroyed.

P.O.P., ETC.—(1) Would you kindly say what causes the printer's ink sometimes coming off postcards printed from half-tone blocks? (2) What is the best way to write on P.O.P. prints? (3) Would the writing across "B.J." advertisement be written on the negative with ordinary ink?—**ECRIRE.**

(1) This "set-off" is caused by unsuitable ink or too heavy impression. (2) With a fine brush and a good opaque white. (3) The lettering was probably on the print from which the block was made.

BLUE STAIN.—We should suspect it to be due to the use of a supply of soda sulphide containing iron, or to wash water containing iron.

BACKING.—In last week's issue you advise using "backing" for plates, which backing can be kept handy in dark-room. Will you please advise the mixture you recommend, which, I presume, should become "dry" after being put on the negative back, in which case a dozen or so could be backed and stored in dark box with grooves?—**F. E. G.**

Caramel, 1 oz.; water, 5 drams; methylated spirit, 3 drams. The best brand of caramel for the purpose is the Lichtenstein, specially prepared for use as a photographic backing.

VARIOUS QUERIES.—(1) Do you consider it possible with reflected arc light to obtain results equal to good daylight pictures? (2) For an electric light studio do you consider the enclosed blue wall-paper the best shade I could use to aid exposure; at the same time I wish to use it as a background? Also, could I improve upon the green shade for canvas? (3) For a room 27ft. by 15ft., height 10ft., I believe I could just manage to obtain a full length by using a lens of 16in. focus. I suppose it would not be possible to take cabinet groups with it? However, I possess a 10in. rapid aplanat. Would you advise me to use the 16in. portrait lens up to full length cabinets and employing the 10in. aplanat for groups, or would you use a portrait lens of 13½in. focus all round? Would there be a much more pleasing effect with the 16in. portrait than with the 13½in.? Also would the 13½in. portrait cover a whole-plate?—**STUDIO LENS.**

(1) Yes, if it is used with judgment. (2) The blue paper will do quite well for the walls, but, of course, on account of the striped pattern, it would not be good as a background. We do not understand what you mean by "the green shade for canvas." (3) In a studio 27ft. long, with a 16in. focus lens, it is very close quarters for a full length cabinet picture. One of 12in. would be more convenient in use, also more suitable for groups. The most generally useful all-round lens will be the one of 13½in. focus.

GLASS FOR STUDIO.—We shall be glad if you will give us your opinion as to which is the best glass to use—plain ground or rolled—for studio purposes. The studio is situated in the garden and has a N.W. light. We are troubled a good deal with the sun, and would

like to know whether you would recommend an outside sunshade, and in what form or material. We have been using plain glass, stippled over with white paint, but find it soon becomes yellow, thus lengthening the exposure. Do you think that if we covered the plain glass with tracing paper instead of paint it would serve our purpose better?—**STUDIO GLAZING.**

Either will do, but the ground is more trouble to keep clean in towns where there is much smoke. An outside sunshade would sometimes be useful. It may be of wood or tarpaulin. The latter could be rolled up when not required and stored away during the winter months. That could not readily be done if it were woodwork. Tracing paper or tracing cloth is certainly preferable to paint on the glass, as it can easily be replaced in the event of its becoming discoloured, a thing that is unlikely with the linen.

COPYRIGHT.—As a portrait photographer thinking of going into the process block-making in a small way as a side line to help things a bit, I wish to know the following: Supposing I have a picture sent me to make a block from, and there should be a copyright in it that I was not aware of at the time, could I be held in any way responsible for making the block? I do not intend to supply prints from the blocks I should make, only to supply the block themselves.—**BLOCK MAKER.**

If you produce blocks from copyright pictures you are liable to proceedings under the Copyright Act for infringement of the copyright, even though you may be an innocent agent. The owner of a copyright picture can proceed against the maker of a block, as well as those who gave him the order for it; or against the printer of the block.

LANDSCAPE LENS.—Your valuable opinion on the following will oblige. I have a large single lens offered me for a very small sum. It is about 4in. in diameter and somewhere about 20in. focus. It bears the name "A. Ross, London." I am aware that single lenses will not give straight lines, but what I want to know is whether this lens could be used for outdoor groups—wedding parties and the like? The lens I use for that purpose is a R.R. of 15in. focus, and that does not cover the 12 x 10 plate well unless a very small stop is used, which makes it slow. Will this lens do better?—**L. E. N. S.**

The lens will do very well for the purpose, and as it is of so long a focus it will well cover a 12 x 10 plate. These lenses, as issued by the maker, have a fixed stop of about $f/15$; but you will probably find that if it were opened out to $f/11$ it would still give fair definition. It would then probably be found quicker in action than your R.R., which requires to be so much stopped down.

X. Y. Z.—If the goods were not according to order, or the same sent, you should have refused acceptance and returned them at once. As you have had them for two months, and only complained when the quarterly account was sent in, we expect you will have to pay for them in due course. That is only reasonable, as the goods were accepted without complaint.

MILLO.—Had you strictly followed the instructions you would not have met with "nothing but dismal failures." The instructions, as given, are quite right if strictly carried out, especially as regards chemical cleanliness. The two examples you send clearly show that this has not been done. The shiny marks between the plate and the film are due to dirty glass, and to that alone.

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SUMMARY.

most interesting exhibition of prints in the bromoil process by F. J. Mortimer is now being held at the house of the R.P.S. (P. 365.)

John Hall-Edwards has addressed to the Birmingham Photographic Society a vigorous plea for more adequate recognition of scientific applied photography at the Society's exhibition, and has drawn a scheme for the encouragement of workers in these directions. (P. 361.)

The Royal Photographic Society has issued its prospectus of the coming exhibition. (P. 363.)

The handbook of the Convention to be held at Canterbury from July 5 to 10, under the presidency of Mr. Snowden Ward, has been issued. (P. 357.)

The report for 1908 of the Photographic Survey of Surrey shows varied work carried out by this body. (P. 362.)

Some notes on examples of portraiture in the Royal Academy which should be of particular interest to photographers are given on page 358.

"COLOUR PHOTOGRAPHY" SUPPLEMENT.

Herr Alfred Löwy gives a formula for a safe-light for the development of the Autochrome plate. Herr Löwy recounts the satisfactory way in which the Autochrome transparency has come through these tests of permanency. (P. 37.)

Count de Dalmas gives a formula for a dry preparation from which the reversing permanganate bath may be made up. It is intended for those developing on tour. (P. 40.)

Herr Gustav Müller recommends the physical intensifier of Dr. Duhauss for the re-development of Autochromes which have become weakened in the fixing bath. The Wellington intensifier would act as well, and is easier to make up. (P. 40.)

Paper prints from screen-plate colour transparencies.—A French writer has outlined a method for preparing trichromatic prints from Autochrome plates, though the method, at present, is not practicable. (P. 35.)

An interesting account by Major-General Waterhouse of early researches on the constituents of white light appears on page 34.

A recent article in the French press suggests that a screen-plate, coated with emulsion, is to appear on the market under the name "Dioptrichrome," and made according to the Dufay patent. (P. 39.)

A combination of ozobrome with the pinatype process is suggested by Dr. Engelken for the making of three-colour prints. (P. 36.)

An account by the makers of the mode of preparation of the "Omnicolor" plate has been published. (P. 38.)

EX CATHEDRA.

The Canterbury Convention.

The handbook of the meeting of the Photographic Convention of the United Kingdom, to be held at Canterbury from July 5 to 10, under the presidency of Mr. Snowden Ward, has now been issued, and is sent to members applying to the honorary general secretary, Mr. F. A. Bridge, East Lodge, Dalston Lane, London, N.E. In the course of the week papers will be read by Mr. C. Welborne Piper, Mr. C. H. Bothamley, Captain Owen Wheeler, Mr. F. Martin Duncan, and by Mr. F. Bennett-Goldney, the Mayor of Canterbury. The excursions include a driving tour to Wingham, Wickhambreaux, and other villages, and visits to Rochester, Rye, Winchelsea, and Maidstone. Under the stimulating presidential direction of Mr. Snowden Ward the week at Canterbury is certain to be spent most enjoyably, whilst the opportunities for photography are probably greater and more varied than those of recent Conventions.

* * *

Two-Colour Effects on Bromide Paper.

In the current issue of the "Photo Era" Dr. D'Arcy Power discourses at some length on the methods he has found most practicable to give on a development paper the two-colour effects of gum-bichromate employed with two coatings. The two processes to which he gives preference are (1) toning the whole print to sepia with mercury and platinum-chloride, and then producing local toning (to a rich black) with amidol developer applied with a brush; (2) local bleaching as for the sulphide process, washing, and conversion of the partially bleached print into an ozobrome by the non-transfer or No. 1 method. Owing to the absence of metallic silver in unbleached portions no pigmented gelatine is thrown down at these points. The ozobrome is washed and dried, and the bleached area re-developed with a brush charged with amidol developer, again washed and brought into contact with a piece of ozobrome tissue of the desired second tint. Development is carried out as before, a second deposit of pigmented gelatine occurring solely over the re-developed area, and thus giving a print in any two of the colours in which the ozobrome tissues are obtainable.

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Ozobromes from Bad Bromides.

In making bromide enlargements a few failures often occur. The correct exposures perhaps do not quite hit off at the first attempt, and a little too much exposure results in a dark flat print, in which the shadow details are quite buried. Just such a print has been submitted to us for inspection, and with it we were shown an ozobrome made from the same print, but minus its defects. The shadows in the ozobrome are full of detail, the tones generally are

much lighter, and the gradation is as good as can be wished. In other words, an extremely bad bromide print has produced an excellent ozobrome. Few would attempt to make any use of such a bad print as the one shown to us, but the success attained shows that the ozobrome method of printing is much more elastic than one would be inclined to expect. We may add that much of the shadow detail in the ozobrome is quite invisible in the bromide, only the stronger details being discernible when the print is looked through against a strong light. We understand that the process employed was the ordinary ozobrome method, but we may presume that the worker took care not to leave the print and tissue too long in contact, and that he developed the result rather fully.

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The Adjustable Stereoscopic Front.

The adjustable front described in a recent article will be found in practice to have a use other than that of dealing with very near objects. If employed properly it is possible to dispense entirely with any subsequent cutting down of the prints to ensure proper trimming effects. All the adjustment usually left to be accomplished with the trimming knife can be carried out when making the negatives, so that all after-trimming can be restricted to the simple removal of the margins of the prints. To effect the adjustment in the camera, first of all make a negative, and then measure the separation between the corresponding margins of the two pictures. Note the distance, and afterwards, when making other negatives, simply adjust the front so that the corresponding images of the nearest details in the subject are separated by a slightly less distance. If the print trimming is then confined to the removal of the margins, it will be found that in the mounted print these nearest details are separated by a slightly greater distance than the print margins, which is the result that is most usually desirable. Of course, if it is desired to make any part of the subject appear to stand out in front of the mount, then the adjustment in the camera must be of just the opposite nature. That is to say, we must adjust the front so that the images of the near object are rather more widely separated than the margins of the negatives, but this is only desirable in very exceptional cases. If this method of adjusting the separation on the negatives is adopted a great deal of time will be saved in print trimming, while full size prints will always be available.

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The Scottish Salon.

The reports of the Salon at Wishaw are of a very gratifying nature: the pictorial success has been already narrated, but not a few feared the financial result owing to the short time the exhibition was open, and the departure from the large cities, but Wishaw has risen to the occasion, and shows a credit balance of nearly £12, which is exceedingly complimentary to the organising powers of the committee and Mr. Telfer the secretary. The dates for the 1910 Salon at Dundee were fixed as follows: Entries to January 10; pictures to January 19; exhibition January 29 to February 19. The venue is the Victoria Art Galleries, Dundee, and the secretary Mr. Vaness C. Baird, Broughty Ferry.

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Half-Tone Screen Rulings.

Apropos of our paragraph last week as to the selection of a half-tone block of the proper fineness for a particular class of work, we must refer to the book of "Screen Grains" just issued by the enterprising firm of photo-engravers, Messrs. Hood and Co., Ltd., of Middlesbrough. This booklet shows the effect of blocks of rulings from 55 to 175 on both art coated paper and the cheapest printing paper. This shows better than any written description the

advantage of the coarser block for the cheaper paper, and we cannot give better advice than that application made to Messrs. Hood for this booklet, which they are free to every bonâ fide business photographer on enclosure of one penny stamp. We now repeat what we said in our last issue as to half-tone work, namely, though there may not be much profit on each individual job, the photographer is likelier to retain his customers if he can handle their half-tone orders and get to know sufficient about half-tone work (which need be little) to advise on matters of style, paper, etc. There are countless instances of good new accounts being opened by photographers purely through their introducing good half-tone work, and for "good" in this sentence the buyer will not be wrong in reading "Hood."

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Two-Solution Development.

A note made in the current "Bulletin" of the Belgian Photographic Association of the advantages of using developer and alkali in separate solutions, a method which, with some occasional modifications, is frequently finding supporters. Its present advocate, M. Lacomblé, uses as his first bath a solution of adurol and sulphite only, in which he keeps the plate for about a minute, or longer if the subjects are different in contrast, and it is desired to improve the latter. The alkali bath is a 10 per cent. solution of potassium carbonate diluted with an equal volume of water and containing a little potass bromide. The method, it may be mentioned, is a useful one for beginners, as it is difficult to get negatives which err in the direction either of being too hard or too flat. And the worker who has at times put through a big batch of fairly correct exposures may find the plan of service, since the time occupied in development is a good deal less than when adopting the straightforward method. A point in regard to which a caution may be given is, to renew the alkali solution as soon as it shows signs of slowness in bringing up density.

NOTES UPON SOME ROYAL ACADEMY PORTRAITS

In the following notes we endeavour to turn the attention of photographers to a few of the portraits which we think are of educational value, or, at least, of special interest from their own point of view.

The mantle of Sargent seems to fall somewhat heavily upon most of our portrait painters, many of whom are not only doing their best in the laudable direction of acquiring his touch, which gives the quintessence of the matter in the simplest possible manner, but are also imitating the subjects of the great American. Such a powerful influence as his could not but make itself felt in portraiture, and glad we should be of it, for it has widened considerably the limits of the art. The petrified sitter, with finger to cheek, posed and settled in a way that will least induce restiveness, is seen now in works of the older methods only. To-day we have fresher and more momentary poses, with a consequent animation and vigour. In the charming and masterly "Mrs. Astor" (24) Mr. Sargent once more shows his facile powers in this direction. The lady walks rather than stands, and looks over her shoulder at us as she goes. Direct and slick as the painting is, its subtlety is felt everywhere, even to the bases of the columns that form the background. Much the same feeling is in the "Earl of Wemyss" (179), Mr. Sargent's other masterpiece this year. This picture is a commentary upon the evergreen vigour of the nonagenarian, who stands erect, regarding us with steady and powerful gaze over the heads of all the crowd before him. Seen from the opposite side of the room he appears to be a gentleman standing in the gallery

not in a frame—so absolutely convincing is the prettiness of the treatment. In the hands, which grasp gloves, umbrella, and hat, the artist has made much of his opportunity, and these members are as eloquent of force and enthusiasm as the dauntless head. When we turn to J. J. Shannon's "Francis, Dinah, and Kathleen" (80), and to J. H. F. Condon's "At the Play" (366), another group of three figures, as well as G. P. Jacomb-Hood's "Three Sisters" (11), we are reminded regretfully of Sargent's revival of the triple portrait schemes of Reynolds, which he justified so triumphantly. In the three works now before us we find only the wish and not the achievement. Mr. Condon even signs his name like Sargent does, and Mr. Shannon goes as far in imitation as to introduce rhododendrons in the right bottom corner.

Next to the Sargents, we suppose the portrait of "The Hon. David Lloyd George, M.P." (139), with which Mr. Luke Fildes scores this year, will attract most attention. It is certainly a fine work. The Chancellor sits in a cross-legged post of petrification, but with knees apart and head turned full-face to us, he seems to be engaged on a discussion of the Budget papers, one of which he holds in his hand. He is in full robes of office, and the tinting of the gold lace upon them challenges a comparison with that on the similar robes of "The Prime Minister" (147), which Mr. S. J. Solomon has seen in a much paler key of colour. There is a lurking reminiscence of Pitt in Mr. Asquith's face by a fitting coincidence. The lighting of the figure is remarkable for a charming fleckiness, which permits the head and shoulder to catch a diffused sunbeam, and all the other parts in shade to be tempered with stray suggestions of struggling light. In the same painter's "Dr. Ludwig Mond, F.R.S." (246) this happy method in lighting is seen to even better advantage. The head is again in gentle sunlight, and the play of sun and shade goes on in tender diminution over the red and grey robes. In the matter of lighting, however, the newest thing here is the altogether photographic concentration and sharpness of Frank Bramley's "Mrs. Cobbett" (10). The effect is startlingly realistic and makes one think of an amateur snap-shot, but the ensemble is most artistic; the shadow parts melt into the background, and there is no trace of hardness.

Maurice Greiffenhagen gives us one of the most charming portraits of the year in his head and bust of "Mrs. Greiffenhagen" (60). This is a delightful harmony in grey and carnation, with all the seductions of an early Victorian silk bodice and large hat. The pose gives a pretty tilt of the head with the hands lying folded in the lap. The background is very dark. "Lady Georgina Home Drummond" (126) by J. Seymour Lucas, and "Miss Maude Valérie White" (196) by Florence K. Upton, are each represented as playing pianos, and in profile. This position gives a certain grace to the figure, and disposes the hands and arms most effectively. Both these portraits are successful, that of the well-known song writer showing the figure in smaller scale and admitting more accessories, which are an artistic help in this case.

Accessories are a stumbling-block here, as in the more humble photographic exhibitions. Not everyone knows exactly how much to insist upon them and how much to let them go. Sir E. J. Poynter's works are overloaded with them, and both in the unfortunate "Duke of Northumberland" (119) and in "E. H. Pember, Esq., K.C." (217) one feels that the President is more at ease with still-life than with portraiture. There are one or two things here that much resemble the photographic "oil-enlargements" of commerce—not in point of merit, we should add, but in the manner of attack. Oak chairs and clothing are here and there painted with such laborious realism as to suggest photography rather than art. The heads of

the sitters suffer in consequence, in spite of their qualities and character.

In the matter of character we feel that Harold Speed's portrait of "Rt. Hon. John Burns, M.P." (328) is a little unnecessarily brutal. Those of Sir H. von Herkomer and of Arthur S. Cope are, as usual, well equipped with character and personality. The title "Mearbeck Moor, Yorkshire" (431) given by Geo. W. Lambert to his characteristic group, is, of course, a misnomer. It is a finely designed portrait group of excellent pattern—due in great measure to the obvious plan of lifting all the figures against the sky. This is a trick which is fast becoming the vogue. The present instance combines a gentleman seated, a lady standing and holding the bridle of a horse, and, as lesser sitters, two dogs and a litter of game. The figures are rich and full in tone, and the work is fine, though a little less interesting than other works by Mr. Lambert which we have dealt with on former occasions. The same sky background is seen in Chas. Sims's airy life-size figure of "Mr. Harold Philips" (435) in green draperies and gauzy scarf. The skyline in this case is at the figure's foot. It comes a little higher in the landscape background to "Mr. Charles Howard" (399) by A. S. Cope—a three-quarter figure, but utterly unlike the traditional portrait with the landscape dimly suggested. This one is in full bright tones and naturalistic to boot.

We must not leave this notice without referring to a delightful work by Harold Knight, "The Letter" (692). This shows a lady standing in the atmospheric half light of a room near one or two furniture accessories. In every respect this accomplished work is satisfactory. It is Whistlerian in motive, but gets to the realisation of which Whistler fought shy. One more fine work, John M. Aiken's "Chas. Stewart, Esq." (729) demands notice. It is simplicity itself, in pose and in treatment. The figure stands with the right hand touching a table, on which is a little vase of flowers. All the right side, the arm and the flowers are in a low tone against a background of exquisite green. The result of this arrangement is a fine "pattern" in design. The head is solidly modelled, and has much character.

Amongst the miniatures we are struck by an excellent likeness of her husband, the well-known photographer, of Bond Street (986), by Mrs. Alice L. Speaight, a worker of wonderfully minute and tender touch, who also shows "Penrhyn, son of L. Godfrey Turner, Esq." (1023), a boy in a cricketer's suit. Both these works are broad, in spite of their minuteness, and the former has a well-managed interior as background. Whilst we are on the subject of photographic notables, we may mention a portrait by F. C. Tilney, whose name our readers know. This is "Miss R." (698), and is painted as a home portrait as opposed to the usual studio arrangement and lighting.

CURRENT COPYRIGHT MATTERS.

"Sharland's New Zealand Photographer," the only local organ of photographers in the Dominion, gives publicity in its last issue to certain grievances of which those practising photography in the colony may quite justifiably complain. We learn that the protection accorded to photographers by the Government is provided by three separate Acts, viz., the Fine Arts Copyright Act of 1877, the Amendment Act of 1879, and the Photographers' Copyright Act of 1896. The provisions of the first two of these Acts, so far as may be judged from the quotations in our contemporary, are those in the Copyright Act of 1862. This latter, it is always understood, applies in all the Dominions of the British Empire, and we must confess to being in

the dark as to the reason for such special enactments by the New Zealand Government. The third Act, however, embodies the result of an appeal made to the New Zealand Parliament in 1896 in order to enable photographers to obtain the benefits of copyright in certain photographs without the need of registration. The clause of the Act granting these facilities is as follows:—

"The protection of the copyright law shall, in respect of photographs other than portraits of persons or groups of persons or photographs of any subject, for the taking of which valuable consideration has been given, apply in all respects as if such photographs had been duly registered and protected under such law in favour of the person or firm taking or producing such photographs, for a period of five years from the date of the first taking the same, if the word 'Protected,' followed by the name of the person or firm taking such photographs, and the true date of such taking are made part of the original plate, and clearly appear in each reproduction thereof."

It will thus be seen that except in the case of portraits paid for in the ordinary course, marking of copies is legalised as a substitute for registration, and thus puts the photographer in a stronger position when dealing in rights for the reproduction of his photographs. Why so long a period as five years is thought advisable we cannot quite understand. We should have thought that three months would have been quite long enough a time in which a photographer could make use of a topical subject and then register or not as he deemed advisable.

As regards the cost of registration our friends in the Dominion appear to have very legitimate ground for protest. It appears that the present Registrar of Copyright interprets the Act of 1877 to order the compulsory pre-payment of fees for both registration and certificate, as he requires that this amount (of seven shillings and sixpence) be paid before registration can be effected. Many photographers who are desirous of securing the protection of copyright are unable to pay a fee which in most cases is quite prohibitive, and it would certainly seem that in New Zealand, where legislation is usually supposed to proceed on more democratic lines, the cost of registration should certainly not exceed that in England, where payment of one shilling for registration and five shillings for a certificate is all that is demanded at Stationers' Hall. The photographers in the Dominion rightly draw attention to the anomaly of the present regulations under which the fee deemed sufficient for the registration of the dramatic copyright in a play is only sixpence.

While agitation by photographers in the Antipodes is thus seen to be proving necessary to secure for them equitable treatment as regards copyright, photographers in the United States, chiefly through the tireless energy of Mr. B. J. Falk, have secured clauses in a Bill (which becomes law on the forthcoming first day of July), the effect of which will be to improve in some degree the unsatisfactory state of things which has prevailed in the past as to reproduction of photographs in newspapers, though still leaving photographers very much at a disadvantage compared with illustrators by other methods. Without de-

tailing the formalities to be observed in securing copyright which includes marking of copies with the sign (c.), we may draw attention to clause 25 of the American Act, viz that dealing with penalties for infringement:—

SEC. 25. That if any person shall infringe the copyright in any work protected under the copyright laws of the United States such person shall be liable:—

(a) To an injunction restraining such infringement;
 (b) To pay to the copyright proprietor such damages as the copyright proprietor may have suffered due to the infringement, as well as all the profits which the infringer shall have made from such infringement, and in proving profits the plaintiff shall be required to prove sales and the defendant shall be required to prove every element of cost which he claims, or in lieu of actual damages and profits such damages as to the court shall appear to be just, and in assessing such damages the court may, in its discretion, allow the amounts as hereinafter stated, *but in the case of a newspaper reproduction of a copyrighted photograph such damages shall not exceed the sum of two hundred dollars nor be less than the sum of fifty dollars* and such damages shall in no other case exceed the sum of five thousand dollars nor be less than the sum of two hundred and fifty dollars, and shall not be regarded as a penalty.

Mr. Falk, who has taken on his own shoulders the burden of pressing for a full recognition of photographers' rights in the illustrative matter of which they are such important producers, writes to the "Bulletin of Photography":—

"I am still very much depressed by reason of the cowardly, but up to now successful, trick by which photography was so unjustly discriminated against at the very last moment. The fair result of four years' patient fighting was overthrown by the unscrupulous methods, backed by the power, of the newspapers.

"It will now be our duty to get busy and acquaint photographers all over the country with the facts, so that they may earnestly urge upon their Congressmen the injustice of that portion of the new statute which denies to photographers equal protection with other producing classes. By this I mean that, whereas copyrighted works in all other classes are given uniform protection, photographs as a class are singled out and this minimum and insufficient protection afforded them. There have been and there will be many cases where photographers could not be compensated in actual damage by the maximum of \$200 allowed under the new law, by reason of piracies by the newspapers of photographs of important things or places, the taking of which often require an expenditure of large sums."

The photographers in the States have very great interests against them in the large newspaper concerns, and they may perhaps derive some consolation that the present Bill is an improvement on the unsatisfactory conditions which preceded it, though unfortunately it fails to give the full recognition which photography, as the creator practically of illustrated journalism, should have.

THE great difficulties in "genuine" outdoor portrait work (writes J. M. B. in the "Pall Mall Gazette") are the lighting of the sitter and the treatment of the background. Sunlight requires skilled and careful treatment, and should usually be avoided, unless you are making a special point of the effective rendering of sunshine in the picture. This sunshine portraiture is difficult, but one sees it occasionally very well done, and there is plenty of room for keen experimental work in this direction. The avoidance of an overwhelming excess of top-light is, generally speaking, the problem to

be solved in ordinary work, and it is well to bear in mind that the sky should never form the background to the sitter's face, which will inevitably, by force of contrast, be rendered as unnaturally dark. This brings us to the question of the background. It is possible, of course, to pose your sitter close up against an ivy-covered wall, and get everything sharp; but the result is terrible. It is no better if the sitter is moved forward, and the background represented as a mass of confused blurs. In all pictorial work incongruity is an absolutely fatal defect.

A SCHEME FOR INCREASING INTEREST IN SCIENTIFIC AND APPLIED PHOTOGRAPHY.

[Mention was made in our columns a few weeks ago of Dr. Hall-Edwards's suggestions to the Birmingham Photographic Society for creating greater interest in the more scientific and utilitarian branches of photography. A verbatim report of his suggested scheme has now reached us, and is reprinted below. Though addressed to the members of his own society, Dr. Hall-Edwards's views will surely be read by others desirous of seeing the important applications of photography take the place they deserve at leading exhibitions.—Eds. "B.J."]

DURING the last few years the interest in photography, as evinced by the results of our photographic exhibitions, has shown a tendency to decrease, due to many causes, not the least important being the general depression in trade. The total number of photographers, I am informed, has not sensibly diminished, but the amount individually spent upon the hobby has decreased. Our president, in his address delivered at the opening of our last exhibition, stated that if photography is to be practised successfully it must be taken seriously. The followers of the "black art" are now so numerous that we shall be safe in assuming that one out of every ten persons is versed in the use of a camera. That few of them take the matter seriously is shown by the fact that in a large city like Birmingham our principal photographic society only contains 150 members, and that even amongst these less than half can be numbered amongst the enthusiasts. The greater portion of so-called photographers are not photographers at all, but are merely "button pushers," who leave somebody else to do the rest. Their knowledge of the art is nil, and, not taking the matter seriously, they never reach that point of interest which ends in devotion, and engenders the keen interest and amount of application necessary to qualify them as true disciples of the art. Whilst public exhibitions of the best photography can give us have done much to improve technique and encourage the love of art, they have also played a part in producing fear in the minds of the weaklings, and, to an extent, have put a brake upon the wheels of progress. Many would-be photographers are deterred from entering the lists of competition by the fear that they will never attain the technical knowledge necessary to enable them to compete with the older and well-known workers. They therefore give up in despair a hobby which, had they taken seriously, would have been an everlasting blessing to themselves and a pleasure to their friends. With the improved methods and apparatus at our command, a successful and serious photographer is enabled to produce pictures which, if he be an artist, may be endowed with individuality, well-nigh approaching that which can be attained in the higher branches of art. An enthusiastic judge of photographs can pick out the works of our best known picture-makers with a degree of accuracy which a few years back would have been thought impossible, showing that if success is to be attained unlimited thought and application must be forthcoming. The time and patience necessary are not obtainable in but a few instances, and many have given up a hobby in which they would have attained success from the fear of their inability to reach the first rank. The existence of cranks and faddists has also played a part detrimental to the best interests of our art, but, notwithstanding these minor drawbacks, there exists such an immense field open to us that there is good work to be done by all photographers who have the energy and perseverance to apply their art in useful channels. The art of picture-making appears to have reached something approaching a dead level, and, granting that the interest in it is not declining as far as the workers themselves are concerned, there is evidence to show that the public interest is not so great as it was a few years back. When some sixteen or eighteen years back photographic competitions were first inaugurated, photographs having any artistic merit were so uncommon that few of the general public had any conception of the capabilities of the art. The offering of awards in open competition gave the necessary stimulus to increased efforts, and the result is seen in our exhibitions of to-day. Our parent society, the "Royal Photographic Society," and several others, have given up making awards, it being now thought sufficient honour to have one's pictures hung upon their walls. The reason for this is, to a great extent, due to the extreme difficulty of picking out the best pictures, which difficulty has been rendered greater by faddist judges and irresponsible critics. For years I have deeply deplored that so much photographic energy has been wasted in achieving so little, also the fact that the scientific and applied branches of our art have been neglected.

It has occurred to me that what was done for pictorial photography a few years back may perhaps be done for the more useful branches now, and with this end in view I wish to suggest a scheme for the furtherance of interest in this direction. Although I am aware that there are many who object to the offering of awards, I have learnt from experience that, with the greater majority, such a proceeding acts as a stimulus and renders them more keen and ready to work. The scientific applications of photography are by far the most important, and increased interest in these applications is certain to produce useful results. There is not a branch of science, art, or manufacture in which photography cannot in some way be employed, and its achievements in these directions have already constituted it one of the most useful servants of mankind. Now although it is impossible to make every photographer an investigator, it is possible for everyone possessed of a good camera to help us in gaining knowledge, and to help investigators in achieving their ends.

My scheme consists in the offering of medals and certificates in certain classes of scientific and applied photography, the results of which are to be exhibited at our next annual exhibition. With this end in view I have issued a list of suggested classes, which, together with an explanatory letter, has been sent to a few of our eminent scientific men, and to many firms upon whose very existence the practice of photography depends. On nearly all hands my suggestions have been received with enthusiasm, and I have received a number of letters and offers of monetary help which enable me to offer to you the scheme, the awards for which have already been promised. Amongst the various persons I have approached is our late president (the discoverer of dry-plate photography), Dr. Hill Norris, who writes: "I am in receipt of the circular letter you kindly sent me, and wish to say how sincerely I sympathise with your efforts to organise, and direct into definite channels and aims, the comparatively wasted energies of the numerous photographic societies dotted over Great Britain, and to consolidate these into a living force capable of making itself felt in connection with advancing science, sociology, trade, and commerce. In the old days the proceedings of photographic societies were very much more varied and interesting than they are to-day, for then men were engaged in calculating curves, grinding lenses, inventing new cameras, and mechanical devices for shutters, etc., etc., and ransacking chemistry for the purpose of finding new processes. We have now, however, arrived at the 'press the button' age, when everything is done for us and very little by us, and as a consequence we are becoming emasculated, and it seems that unless the societies can compass a new path they will soon become extinct, for it is now plain that they cannot be sustained by artistic interest only. As the handmaid of science, photography has more than justified the hopes of its most enthusiastic devotees. What, indeed, could be more encouraging than the recent avowal of Professor Ball that dry-plate photography has done as much for astronomy as the telescope? I repeat that I am entirely at one with you in your endeavours to make the 'black art' more subservient to progress."

Mr. Willoughby Ellis, the president of the Birmingham Natural History and Philosophical Society, writes: "I regret that I have not expressed my admiration of the scheme to promote useful photography. I feel that science in general, and natural history in particular, would benefit by a system of photographic records, and if you will permit it, I shall be glad to personally contribute one of the medals."

Mr. Ellis also promises to bring the matter before his society, who, he is confident, will support the scheme by lending material and in every other way possible. The following firms have written me supporting the scheme, and have each kindly offered to subscribe a guinea towards carrying it out, should the society be willing to accept it:—

Messrs. Southall Bros. and Barclay, Messrs. Watson and Sons, Messrs. Barker Bros., Ltd., Mr. C. S. Baynton, Mr. George Stanley

(Bingley Hall), Messrs. J. H. Whitlock and Sons, and Messrs. Wellington and Ward.

The following firms have promised half a guinea:—Messrs. James Lucking and Co. and Messrs. Aldis Bros.

The following have offered me prizes, which I have neither accepted nor refused, and which will be left in the hands of the Council of the society to deal with.

Messrs. Burroughes and Wellcome offer a guinea for the best technical photograph from a negative produced by "tabloid" photographic chemicals.

Messrs. Hurman, Ltd., offer a kodak camera.

Messrs. Dawbarn and Ward, Ltd., offer a couple of books as a prize in Class I. of applied photography.

I have sent out a number of other letters, to which I have not as yet received answers, and I shall hope, within a week or two's time, to offer you sufficient money to carry out the scheme without drawing upon the funds of the society.

With an apology for bringing forward an incomplete scheme, the following is the list of classes I have suggested to those whom I have so far approached on the subject:—

SCIENTIFIC.

1. Prints or lantern slides illustrating the life history of a bird, animal, fish, or insect.
2. Photographs or lantern slides illustrating the life history of a plant.
3. Prints illustrating the natural history of a back garden.
4. Tele-photographs.
5. Photo-micrographs.
6. Radiographs (X-rays, radium, and other radio-active substances).
7. Geological photographs.
8. Prints illustrating the capabilities of various processes.
9. Various scientific applications of photography.

APPLIED PHOTOGRAPHY.

1. Set of photographs illustrating camp life, military manœuvres, etc., to be used for recruiting purposes.
2. Photographs illustrating the various processes a manufactured article passes through in its making.
3. Best set of photographs of a factory, workshop, bakehouse, dairy, brewery, electric light station, fire station, tramway depot, gasworks, sewage farm, etc., etc.
4. Best photograph suitable for advertising purposes.
5. Prints suitable for illustrating a trade catalogue or price list.
6. Best set of lantern slides illustrating life in our streets.

It is proposed to offer a bronze plaque or medal and certificates in each class, and it is hoped that the stimulus thus given will help to divert wasted energy into useful channels, and at the same time increase the interest in our annual exhibition.

In the event of your accepting this my scheme, I beg to suggest that a special plaque or medal shall be struck, and special certificates designed. That the judging of the various classes shall be performed by experts in the particular branches of science indicated. That all pictures shall be exhibited and no selection made, and that the prizes be awarded from the point of view of scientific and educational value rather than from pictorial and technical merit, although these latter qualifications, granting that other things are equal, shall not be ignored. That, without in any way detracting from the artistic value of our next exhibition; the scientific exhibits shall be given due prominence, and that every exhibit sent in shall be hung. I would further suggest that a circular be drawn up, calling attention to the scheme, and that it be circulated amongst the scientific and photographic societies throughout the world. The many details which must necessarily be considered I leave entirely, with every confidence, in the hands of our council, and I trust that in the event of your accepting my scheme the Birmingham Photographic Society may gain more than kudos for initiating a movement which I trust will be followed by others. Hitherto (not even excepting the Royal Photographic Society) the scientific and applied branches of photography have not received that amount of respect which their importance warrants, and, in conclusion, I trust that these branches of our art may be given full play, and that the exhibits will not, as hitherto, be relegated to dark corners and to inaccessible positions.

JOHN HALL-EDWARDS.

PHOTOGRAPHIC SURVEY AND RECORD OF SURREY

REPORT OF THE COUNCIL FOR 1908.

DURING the past year 456 photographs have been received and recorded. This is a decrease of 129 on those sent in in 1907, but there has been received a splendid collection of some 350 prints (not included in the above total) given by Miss Gertrude Jekyll of domestic appliances, old industries and customs, which have been used to illustrate her delightful book, "Old West Surrey." These prints will be carefully mounted and added to the collection during the current year. The 456 prints consist of:—

Architecture	259
Art and literature	39
Anthropology and antiquities	19
Geology	1
Natural history	24
Topography and passing events	114
	456
Total brought forward from last year.....	2,925
Total of prints in Surrey	3,381

The following societies are represented among the contributors of prints and lantern slides:—The Battersea Field Club, the Betchley and Nutfield Camera Club, the Croydon Camera Club, the Croydon Natural History and Scientific Society, the Haslemere Natural History Society, the South Norwood Photographic Society, the Surrey Archæological Society, the Sutton Photographic Club, the Waddon Camera Club.

We have again to thank the following professional photographers for help in the matter of photographs received:—Messrs. Bender and Lewis, French and Co., and Mr. R. W. Robinson.

Special thanks are again due to the Platinotype Co. for making number of prints from negatives without charge, also to Messrs. Elliott and Sons, Limited, for making enlargements from negatives without charge.

The Council have for some time past pursued the policy of allowing the loan of photographs from the survey collection at exhibition in the county with a view to making the work more widely known and thus awakening interest and enlisting support.

It is feared, however, that the wear on the prints thus lent will be detrimental to their keeping qualities, and for this reason, as all that so far as possible it is desirable that the central collection should at all times be at the disposal of consultants in a complete state, it has been decided to form a duplicate set of prints, selected as typical, for the purpose of loan and exhibit; some members are kindly responding to the request of the Council, and it is hoped that others who have not already done so, will try and send us prints, so that this collection may be completed at an early date.

Upon receiving an invitation from the National Photographic Record Association to co-operate in sending to the "Record Section" of the International Photographic Exhibition at Dresden this year, request made to the members by the Council for assistance was met in a most cordial manner; and a collection of prints—typical of the work of the survey—has been duly sent.

An exhibition of over 700 prints took place at the Cuming Museum, Southwark, from July 15 to the end of September. Some 10,000 persons attended the exhibition, which was much appreciated. An excursion to Guildford took place on Saturday, May 30, when over twenty members and friends attended, including representatives of nine of the affiliated societies. The party on meeting at Guildford Station broke up into groups. Many of the principal objects of architectural and historical importance were photographed in and around the town, while several of the party went to St. Martha's, Shalford, and The Chantries. So far some 40 prints have been received from the 120 exposures made, and several members have intimated that their prints will be sent in in due course.

The third annual photographic visitation, conducted by the late Mr. Hector Maclean, F.R.P.S., took place on June 27, when the party photographed the ruins of Betchworth Castle, Leigh Place (an historical moated house), and More Place, Betchworth. During the day several other records were made at Leigh and other places. The prints resulting number about 40.

Three vacancies occur and hon. secretaries are required for the architectural, topography and passing events and photography sec-

18. Members willing to undertake these duties are requested to send their names to the hon. general or survey secretary.

SECTIONAL REPORTS.

Architecture.—The prints that have been sent into this section during the past year number 259. Ecclesiastical subjects number 100 prints. Twenty-five of these are from rubbings of brasses, which illustrate what valuable work can be done in this direction.

Seventy prints illustrate some of our finest residences in the county, viz., Smallfield Place, Leigh Place, More Place, Pendell Court, Pendell House, Chilworth Manor, Bletchingley Place, and Pirley House. Of farm houses, cottages, and public buildings 75 prints have been sent in.

Some extremely useful work has been done by a member during the year, illustrating the bridges over the Thames, some 20 prints being sent in; a like number of prints will shortly be received to complete the series.

Another member has done some good work amongst the windmills and other mills in the east of the county, 23 prints being received. The old Surrey windmills are fast disappearing, as well as the watermills that may be found dotted over the county, and their sites should be recorded.

Three good prints of Betchworth Castle have been received. Farnham Castle has yet to be done, and it is hoped that some member will undertake this at an early date.

A word may again be said here about the details of architectural work. The practice is to record the general and broader features of our domestic work, but details are often neglected. This may be to some extent due to the lack of suitable apparatus.

Art and Literature.—During the past year 39 prints have been received for this section, classified as under:—

Paintings representing Surrey scenes by Surrey artists	18
Paintings not representing Surrey scenes, but by Surrey artists	7
Carvings by Surrey artists	1
Artwork in metals	1
Portraits of Surrey men	2
Literature	2
Maps and plans	8
	—
	39

In addition to the above we were able, by the courtesy of the Ewell Parish Council, to obtain copies of several very interesting entries from the books in their possession which will be placed in the collection later on.

Antiquities and Anthropology.—Nineteen prints have been received during the year, as against 36 in 1907.

The principal subjects are views of the prehistoric camps at Waterham and Godstone, and of barrows at Reigate and Oxted.

In view of the large number of antiquarian objects in the county, it is to be hoped that the prints sent in to this section will be greatly increased in future. Many antiquarian objects can be photographed at times of the year when photographers are not occupied with outdoor subjects.

The attention of members should be directed to recording customs and occupations which are dying out.

Geology.—The work of members in furtherance of this section during the past year has been almost negligible, only one photograph

—Fuller's Earth Pits at Nutfield—having been added to the collection. As in this county special excursions for geological photography could hardly be organised, the secretary suggests that some section or noteworthy physical feature might be included in the programme when outings are undertaken. Even if the subsoil was not exposed the character of the vegetation on the various formations or soils might be recorded. This has been recently advocated from the agricultural standpoint by the Lawes Agricultural Trust in a letter which was written to the secretary last year by Mr. E. J. Russell, of the Rothamsted Experimental Station.

Natural History.—Of the 24 natural history subjects that have been sent in during the year, not much work seems to have been attempted or done.

The subjects on the whole are of a somewhat mixed order, the most interesting being a series of conifer fruit specimens from Kew Gardens, the remainder consisting of zoological records. There is no intention of suggesting that the odd print sent in from time to time is of no value: it may be of the utmost use, and may suggest to

others directions in which they may be of considerable help, especially to those in want of subjects to work at. There are numerous studies of this sort awaiting the consideration of the more energetic photographers. The present number sent in is five in excess of the previous year, but considering the wide subject and the continual chances which even the most casual worker must meet with, much more material should find its way into the section.

Topography and Passing Events.—114 prints have been received during the year, being four less than in 1907. Some interesting records of public functions have been added.

Some more prints of Mitcham Fair have been received, while one or two prints of Bletchingley One-day Fair have been sent in.

The interesting and fast declining industry of the rope walk has been recorded, as also the Toll Gate at Dulwich, still in use.

We are in want of further prints of the Shrove Tuesday football game at Dorking, and of the old practice of throwing dice for maids' money at Guildford.

Photography.—The following events of the year deserve mention:

A marked reduction in the price of platinum paper has taken place, also the introduction of a new make of platinotype paper which may not improbably add considerably to the value of the records accumulated by the society. The paper in question is known as "Black Japine Platinotype"; the particular qualities which it possesses are that, like "Brown Japine," a larger amount of detail is visible than in the case of the ordinary make of platinotype; moreover, the image being black instead of brown, it is more strongly defined than in the case of "Brown Japine."

Another printing process which has come to the front during the current year is "Ensyna," a silver phosphate paper which possesses—from the record point of view—what seem to be distinct advantages over P.O.P. or possibly over bromide papers. It gives us a print by a few seconds' or minutes' exposure to a gas burner, and may be finished and mounted within six minutes. Its latitude of exposure is enormous, so that absolutely useless prints should be few or none. It is claimed that the image (which results from "physical" development) is entirely of pure silver and is nearly as stable as that of platinotype. The paper is very easy to use, and members are advised to keep a supply by them so that during spare moments prints may be made which, failing platinotype or carbon, might be contributed to the collection.

A third process which has come to the front in 1908 is that known as the "Bromoil" process. This should be quite permanent. Its particular advantage is that in some cases by the skilful use of inking brushes it is possible to bring out portions of a negative so that details in a record which might otherwise be invisible are brought to light.

THE ROYAL PHOTOGRAPHIC SOCIETY'S EXHIBITION.

THE prospectus of the forthcoming fifty-fourth exhibition of the Royal Photographic Society has just been published, and is obtainable, together with the necessary entry forms, from the Secretary of the Society, Mr. J. McIntosh, 66, Russell Square, London, W.C.

The exhibition will be held this year from September 23 to October 30 daily, from 10 a.m. to 6 p.m.

On three evenings of the week—Monday, Thursday, and Saturday—it will also be open from 7 p.m. to 10 p.m.

The three sections in which no charges are made for space are:—

- I. Pictorial Photography.
- II. Colour Photography.
- III. Scientific and Technical Photography.

In Sections III. and IV.—"Professional and Commercial Photography" and "Photographic Apparatus and Material"—charges will be made as before.

The names of members of the selecting committees in the Sections I., II., and III. were given in our last issue.

Exhibitors in Sections I., II., and III. must fill up the entry form and enclose it with the exhibits. Exhibits sent by carrier must be addressed to the society's agents, Messrs. Bradley and Co., 81, Charlotte Street, Fitzroy Square, W., and must be delivered, carriage paid, on or before Wednesday, September 1. Exhibits delivered by hand must be presented, unpacked, at 81, Charlotte Street, Fitzroy Square, W., on Thursday, September 2, between 10 a.m. and 6 p.m., after which hour and date no exhibit can be received.

All photographs, except lantern slides (and transparencies in

Section II.), must be framed. Each photograph in Section I. must be separately framed. A label bearing the name and address of the exhibitor, with the title or description of the photograph, together with a number corresponding with that upon the entry form, must be affixed to the back of every frame, and a tie-on label giving the same information must be attached to the back of every frame in such a manner as to hang over in front of the picture. The front of the frame, the picture, or the mount may bear the name of the exhibitor and the title of the picture, and these only. The fastening nails must not project, and no plates, rings, or screw-eyes may be affixed to the frames.

Foreign and colonial exhibitors may send photographs unframed. They must, however, be mounted. The society will provide frames, without charge, for accepted photographs.

Properly made wooden packing-cases will be stored by the society's agents. For purposes of identification each case should have the owner's name written or painted legibly on the woodwork. No other packing material will be preserved.

The selecting committees will make no distinction between members and non-members of the society, nor between amateurs and professionals. The committees have power to accept or refuse any work, and exhibitors will be notified of acceptance or non-acceptance as soon as possible after the selection has been completed.

Lantern slides will be suitably displayed by the society. The exhibition of lantern slides at the evening displays during the exhibition will not debar them from future acceptance.

In the pictorial section no exhibitor will be allowed to submit for selection more than six photographs, and these may be by any process.

Photographs already shown at any public exhibition within the London postal district will not be eligible for admission.

No photograph will be eligible for admission unless the exhibitor shall have subscribed to the declaration on the entry form that the work is entirely his own.

The Colour Section will comprise examples of colour photography, both transparencies—either by screen-plate processes, such as the autochrome, or by combinations of coloured positives—and of prints upon paper, including the three-colour and bleach-out processes.

Transparencies must be protected by a cover glass and bound round the edges in the same manner as lantern slides. They must not be framed, but must have the number, title, and author's name legibly inscribed on the mask or binding. These transparencies will not be shown in the lantern, except by arrangement with the author.

The Scientific and Technical section will comprise examples of work shown for its technical qualities and apparatus used in photographic investigation, e.g. :—

Nature photography, record photography, and photography as applied to industrial and educational purposes, astronomy, meteorology, spectroscopy, geology, surveying and engineering, medicine and surgery, Röntgen rays, microscopy, telephotography, military photography, and artificial light photography, recording instruments.

Transparencies, stereoscopic prints and slides, lantern slides.

New processes, general work.

This section will also include all exhibits relating to or illustrating any process of photo-mechanical reproduction—viz., photogravure, line and half-tone photo-engraving, photo-lithography, collotype, photo-zincography, Woodburytype, polychromatic printing, etc.

Exhibits may be excluded unless the points of special technical or scientific interest are distinctly stated on the entry form. Any special method of display required for an exhibit must be undertaken and provided by the exhibitor at his own expense.

Apparatus used in photography or in photographic research may, if necessary, be accepted for a shorter period than the whole duration of the exhibition.

In Section IV.—“Professional Photography”—applications for space should be made by letter not later than Saturday, July 10. The designs for all decorations, displayed signs, notice-boards, etc., must be submitted to the Organising Committee for their approval. Orders for photographs may be taken at the exhibition, but no delivery there will be allowed. Stationery cases for trade cards may be placed beneath the exhibits, but must not be obtrusive in character. No exhibitor will be permitted to transfer or sublet any part of the space allotted to him, and all exhibits will be subject to

the approval of the Organising Committee. A list or description of the exhibits to be shown in this section must be in the secretary's possession not later than Thursday, September 9, if it is desired that particulars shall appear in the catalogue.

The charge for wall space will be 5s. per foot-run. Further particulars and plans may be obtained from the Secretary.

The Central Hall will be reserved for exhibits of apparatus and material (Section V.). Floor space will be let for the erection of stalls. Applications for space should be made by letter not later than Saturday, July 10. Stallholders must provide all tables, stands, counters, show-cases, etc. The designs for all structures, decorations, displayed signs, notice-boards, etc., must be submitted to the Organising Committee for their approval. Attendance, if necessary, must be provided by the exhibitors. Catalogues, circulars, and price-lists may be distributed only from the stalls. Any special lighting required for the stalls must be arranged for by the exhibitor at his own expense, and the work must be done by the electrician usually employed by the New Gallery Company, Limited. The charge for the current consumed will be payable to the Royal Photographic Society, and each stallholder must have a meter fitted at his own expense. No exhibitor will be permitted to transfer or sublet any part of the space allotted him, and no substance of a dangerous nature will be allowed upon the premises. A list or description of the exhibits to be shown in this section must be in the secretary's possession not later than Thursday, September 9, if it be desired that particulars shall appear in the catalogue.

Photo-Mechanical Notes.

“True to Scale Process.”

This process, which has several different names, according to the firms exploiting it, is one by which a few copies (a maximum of about 25) can be obtained rapidly in permanent printers' ink and without any distortion of size. The process is so far only used for architects' and engineers' plans, and diagrams for patent specifications, &c. These are made in the first place in good black ink on tracing paper or linen, and then exposed on to a piece of ordinary ferro-prussiate paper, to make a “blue print.” The print is not developed but immediately laid down dry on to a “graph,” or jelly, thinly spread on a sheet of glass or zinc. The print is just pressed into contact all over and then directly pulled away. The jelly is now rolled over with a good letterpress ink, by means of a composition roller. The ink will take only on the lines. A piece of paper is now laid on the jelly and rolled over evenly with a light roller, and on lifting will carry the impression of the plan. It is now necessary to ink up again before another copy can be taken. If the work is done on a considerable scale it is convenient to arrange a press for the printing.

The difficulty of the process consists in getting the jelly of the right composition. All the firms working the process have their own pet formulæ, and some of them sell the composition at so much per pound. Here are two formulæ that are said to answer well. Dissolve :—

Glue	8 ozs.
Water, to make	16 ozs.
Add :—	
Gelatine (dissolved in water to make 2 ozs.) ...	1 oz.
Ferrous sulphate	$\frac{1}{2}$ oz.
Glycerine	$\frac{1}{2}$ oz.

The second is :—

Gelatine (Coignet's, 1s. lb.)	1 lb.
Water	4 $\frac{1}{2}$ pints.
Size powder	1 lb.
Iron alum (ferric ammonium sulphate)	1 $\frac{1}{2}$ oz.
Water	1 pint.

Dissolve the gelatine in the water, then add the size powder. Dissolve the alum in the water, then add to the glue solution gradually, stirring all the time. If the “graph” smells unpleasantly, a little of cloves may be added.

The composition is melted by standing in hot water and then poured on to the slab for printing as soon as it has set, as described above. After use it can be remelted and used again, but a little new composition should always be added. It will be seen that the process is quick, easy, and cheap.

where only a few copies are required, and those not of relative quality, it has much to recommend it. Where, however, quantities exist for working lithography, then the Vandyke process of the same class of work is superior, because the number of copies obtainable is practically unlimited, and each of them should be perfect. But the production of the first few prints will be more expensive and take somewhat longer than by the "True-to-Scale" process.

Technical Photography at Bolt Court School.

On Wednesday evenings during the summer term a class is held at the L.C.C. School of Photo-engraving for those operators having technical photography to undertake. The course comprises instruction in the shape of lecture demonstrations, as well as practical work of the most varied nature, for the technical photographer is called upon to photograph anything and everything. The practical work made still more "actual" by the class meeting every Saturday afternoon and going to photograph buildings (exteriors and interiors), trees, machinery, pictures in galleries, and so on. The class is successful, and the students enthusiastic. Those interested should write to 6, Bolt Court, for a syllabus.

PHOTO-MECHANICAL PATENTS.

The following patents have been applied for:—
REPEAT DESIGNS.—No. 9,774. Improvements relating to the production of repeat designs for photo-mechanical originals. Eduard Mertens, 322, High Holborn, London.
INTAGLIO PRINTING.—No. 9,775. Improvements relating to intaglio printing by means of endless metal bands. Eduard Mertens, 322, High Holborn, London.

Exhibitions.

EXHIBITIONS IN THE "BROMOIL" PROCESS BY MR. F. J. MORTIMER AT THE R.P.S.

At the announcement of an exhibition of works in a process which the exhibitor has made his own, so to speak, and to which he has devoted much propaganda as well as individual experiment, one might be excused for harbouring high expectations. The galleries of the Royal Photographic Society present an undoubted appearance of strong and individual work at the first glance, but a critical examination of the pictures does not keep pace with the level of expectation. We do not believe for a moment that this is due to any falling off in artistic feeling in Mr. Mortimer, nor to any shortcomings in the Bromoil process. We think it due largely to over-expectation in the visitor. Mr. Mortimer's name has been so indissolubly bound up with the method that we have been led to regard him as its arch-exponent. There is another fact that mitigates against the success of his group of portraits, and that is that an irrevocable accident caused many of them to be unfit for exhibition at the eleventh hour, and they had to be replaced by hasty duplicates vignettted or devoid of more than a fringe of ink by way of background. What these first and spoilt portraits were like may be seen from Nos. 26 and 28—portraits of Furley, Esq., and F. C. Tilney, Esq., which were saved from disaster. These two are undoubtedly the best of the portraits. They have length, subtlety, and refinement of handling, qualities which are sought in the stop-gaps. Particularly fine is the portrait of Mr. Percy Lewis, in pose, character, and expression. The process has no charm of photographic character, and has imported a quality of its own to boot, and this is what it should do if it is to stay with us. There is also "A Portrait Sketch" (31) in red chalk—a very interesting full-length of a lady, which deserves a better place than it received between two windows. Amongst the Dutch pictures we consider "The Mill on the Dyke" far and away the best. It has a fine sky and more convincing qualities than many pictures here. We are disposed to think that the exhibitor, in his eagerness to show the power and capacity of the process, has too often sacrificed truth of tone values for the sake of adventitious strength of tone, which, after all, is nothing intrinsically, and only of account relatively. "Painting the Boat" (5) is another example wherein the values are more faithfully kept, and it

is more admired than others on this account. The sacrifice of tone values to any end in pictorial work is not only an artistic sin, it is a folly; for people who are absolutely uninitiated appreciate their preservation, and are quickly convinced of truth, although they cannot tell why. It must not be denied that the trick—for, after all, it is nothing more—of playing with the printing ink may result in chaos which is at times most artistic. For example, "The Stream in the Wood" (46) may be described as a muddle, but it is a muddle with a message. It is a romantic puzzle—it holds one. We were drawn to it strongly, and were only too disappointed to find that its title gave the lie to all our imaginative construing of its poetry.

The landscapes we have marked as the finest are: "The Butter Market, Middleburg" (7), "The Fish Market, Middleburg" (13), "A Bruges Canal" (51), "Waterloo Bridge" (53), and "The Figure Head" (54), the last two being excellent.

BARRHEAD AND DISTRICT AMATEUR ART CLUB.

THE sixth annual exhibition of the Barrhead and District Art Club presented a goodly exhibition. Mr. A. W. Hill judged. In the open class, "Rest," by Peter Mitchell, Langside, gained the plaque, certificates going to John Baird (Glasgow), Robert Ure (Pollokshields), and J. Currie (Glasgow). In the panel class (open), three pictures from each exhibitor, the silver plaque went to "The Trespasser," "A Highland By-way," and "Into the Sunshine," by W. C. S. Ferguson (Glasgow); bronze plaque to R. Murray (Barrhead); and certificate to Robert E. Glasgow (Paisley). Robert Ure (Pollokshields) gained the plaque in the Federation class with "A Hillside Farm"; certificates to J. Harvie (Glasgow) and R. Murray (Barrhead). In the members' classes, plaques were gained by Archibald Ferguson, R. Murray, Mrs. Hutcheson, William S. Maclachlan, and Thomas Whelan; certificates by R. Murray (5) Hugh Mason, and Mrs. Hutcheson. An invitation class contained some representative pictures by J. M. Whitehead (Alva) and A. W. Hill (Shotts).

MIDLOTHIAN CAMERA CLUB.

The second annual exhibition was held in the Synod Hall, Edinburgh, when over 300 pictures were entered. In the open portraits and figure studies, Robert Ure (Pollokshields) with "St. Kildean Mother and Child," and Alexander H. Allan (Edinburgh), with "Old Ann," gained plaques. Other excellent entries in this class were fine "oil" portraits by John Moffat (Edinburgh). These showed well the suitability of this process for professional work; fine texture and an entire absence of the *outré*. E. Drummond Young and E. R. Yerbury were both well represented.

In the open landscape and seascape the plaques were awarded to Dan Dunlop (Motherwell), "The Salmon Fishers' Return," a fine open-air picture, redolent of life and technically a good carbon; and "A Highland Strath," an effective composition, with glorious cloudscape, by Edward Drummond Young (Edinburgh). J. M. Whitehead (Alva) had a splendid representation of his work in this class.

In the Federation class, "A Hillside Farm," by Robert Ure (Pollokshields), and "A Winding Path," by James M. Marcus (Kirkcaldy), gained plaques.

In the colour work, "Fruit," a three-colour carbon of fine quality, by J. Riley (Dundee), and "Roses," an autochrome by E. L. Brown (Edinburgh) were awarded plaques.

The members' classes filled up well, and much meritorious work was shown. R. B. Penman had the distinction of gaining two plaques; others were gained by Thomas Farmer, George Malcolm, and R. Glode Guyer. Mr. Robert Burns, A.R.S.A., was sole judge.

An interesting item was an exhibit, kindly lent by Miss Keith, of paper negatives of old Edinburgh, taken fifty years ago by the late Dr. Thomas Keith; while another popular item was the exhibit of colour photography by Dr. Inglis Clark, embracing autochromes, "Thames" plate, and three-colour carbon work.

The catalogue, with its sixteen half-tone reproductions of exhibits and frontispiece portrait of the president, Dr. Drinkwater, deserves a special meed of praise.

PICTURES OF ANIMAL LIFE.—The publisher of "Lebensbilder aus der Tierwelt," Herr R. Voigtlander, Leipsic, has just issued a booklet of press and personal opinions of the two illustrated volumes which we recently reviewed in these columns.

Patent News.

Process patents—applications and specifications—are treated in "Photo Mechanical Notes."

The following applications for patents have been received between April 19 and April 24:—

PLASTIC REPRODUCTION.—No. 9,197. Process for plastic reproduction of any solid objects. Willy Alfred Carl Selke, 65, Nürnberger Strasse, Berlin, W., 50.

CINEMATOGRAPHS.—No. 9,262. Improvements in films or strips for moving-picture machines. Rotary Photographic Company, Ltd., and Ferdinand von Madaler, 55, Chancery Lane, London.

LANTERN SLIDES.—Improvements in and relating to binding devices particularly applicable to lantern slides and the like. Harold Waring Atkinson and Ernest Cuthbert Atkinson, 1, Queen Victoria Street, London.

STEREOSCOPES.—No. 9,328. Improvements relating to periscopes, stereoscopes, and other optical instruments. Hugh Lancelot Aldis, Arthur Cyril Webb Aldis, and Improved Periscope, Ltd., 18, Southampton Buildings, London.

CINEMATOGRAPH-GRAMAPHONE.—No. 9,419. Device for indicating variations from synchronism in speed between a cinematograph and a gramophone when working in conjunction. Frederick Mayer and Arthur Edward Jones, trading as J. Bonn and Co., 97, New Oxford Street, London.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

SCREEN-PLATES FOR COLOUR PHOTOGRAPHY.—No. 20,111. 1908 (October 21, 1907). The improved plate is of the kind wherein the three colours are on one plate, being carried on a colour support of gelatine or other appropriate substance, on which they are distributed in the form of lines, squares, etc., and all lie in the same plane on the support, the tints being all carried in the same vehicle. A fatty ink is used to protect one colour from superposition by another.

The plate is obtained by the colouring and successive chemical decolorations of a colour support, alternated with impressions of fatty ink: on support, the ink impressions being finally destroyed.

The process is as follows:—1. On a plate of glass or other transparent support, film, etc., a thin coat of gelatine is spread and is then tinted with one of three colours, which three colours are, say, orange, violet, and green.

2. The plate being uniformly tinted violet, for example, a series of parallel lines are printed or drawn on the tinted surface with fatty ink, the lines covering about a third of the surface of the plate.

3. The colour in the parts not covered by the fatty ink is then destroyed by means of a suitable chemical agent, which would vary according to the colouring substance used, and the parts which have been decoloured are then coloured with one of the two other colours, orange, for example. The plate now carries violet lines covered with the lines of fatty ink, comprising about a third of the surface, and uncovered orange lines occupying the rest of the surface.

4. A further series of parallel lines, crossing the first at right angles or at any other angle, are then printed or drawn on the plate with fatty ink, the spaces between the lines being approximately equal to the thickness of the lines.

5. The colour (orange) in the rectangles, squares, or parallelograms, limited by the two series of lines, is then destroyed, and these are then tinted with the third colour, green, in the example cited.

The plate now carries continuous violet lines covered by the series of lines of fatty ink, and between these lines orange parallelograms covered by the series of lines of fatty ink, these parallelograms alternating with green parallelograms which are not covered with ink.

6. The lines of fatty ink are then destroyed by washing with benzole or any other solvent of printing ink, the lines being removed without affecting the colours which they cover. The plate thus obtained is then covered with a sensitised emulsion.

It must be understood that the impressions of fatty ink need not be strictly straight lines; they may be composed of curved or broken lines, of dots or figurations of any kind, with the sole condition that the coloured surfaces which they protect are in proper relation and properly distributed with regard to the remaining colour colours. Each colour should occupy about a third of the total surface, but this proportion can be varied according to the composition and nature of the colours.

The colouring solutions used can be of any kind provided they are capable of colouring the gelatine support, by simple immersion of the support therein; for instance, as an example of colouring substances, erythrosine, chrysophenine, and diamine may be used and as decolorants bromine or chlorine water, oxygenised water, alkaline persulphates, hydro-sulphite of soda, or bisulphite of soda may be used.

The gelatine is coloured by simple impregnation, it not being necessary that the gelatine is dyed by chemical action, which, however, would not cause any inconvenience.

It can be seen that the colours on the finished plate all lie in the same plane, and that the three colours are dissolved in the same vehicle. Société Anonyme A. Lumière et ses Fils, 21, Rue St Victor, Lyons, France.

MOUNTS.—No. 11,225. 1908 (May 23, 1908). Upon a cardboard of suitable size a margin equal to the required framing is set off and cut sufficiently deep to allow for it being turned over and secured by glue nails, or any convenient method, to the general surface. The corners, being cut off at an angle of 45 degrees through the points of intersection of the marginal lines, will form the mitres, or they may be cut off in any other way that occasion may suggest. In the event of a shaped outline being required on some of the sides, these may require distinct additions to make up thickness equal to the turned-down straight sides; or these shaped edges may be left in the single thickness, and the straight sides only turned down. Thomas Smith Jacob, Hereford House, South end Green, Hampstead, N.W.

PROJECTION LANTERNS.—No. 26,789. 1908 (December 10, 1908). The invention relates to projection apparatus, adapted for both opaque and transparent objects.

Two objective lenses are used, one for opaque work and one for transparent. The former objective is arranged vertically, and is situated directly over the table on which the opaque object is placed. The rays from the illuminated opaque object pass vertically through the lens and are reflected by a mirror into a horizontal direction and thrown on to the screen. The objective for the transparent work is arranged horizontally and is directed towards the screen, and a mirror is used to reflect the beam of light emanating from the lamp into the horizontal objective. The mirror is made capable of adjustment, so that when it is desired to use the device for opaque projection work, the mirror can be removed entirely from the beam of light emanating from the source of illumination, to permit the light to be directed on to the opaque object. Emory Walter Goodrich, No. 123, Walnut Street, Somerville, Mass., U.S.A.

GLASS-PLATE CINEMATOGRAPH.—No. 7,306. 1908 (April 2, 1907). The claim is for:—

"Photographic plates for use in microcinematograph apparatus, on which the pictures are arranged in concentric-circles or spiral lines, characterised in that for every single picture there is a separate lens rigidly connected with the plate."

These plates have a number of lenses, moulded in a transparent substance such as glass or celluloid, attached to one face of the plate, whilst the other face is coated with a suitable emulsion to receive a corresponding number of photographic impressions. Frederic De Mare, 122, Boulevard Leopold II., Brussels.

New Trade Names.

FLATOLIN.—No. 310,738. Chemical substances used in manufactures, photography, or philosophical research, and anti-corrosives. Thos. Fewster and Son, Ltd., 44, Sykes Street, Hull, Yorks, varnish, paint, and colour manufacturers. February 23, 1909.

WINGARDH AND CO. (DEVICE).—No. 310,802. Photographic printing-out paper. The firm trading as Wingardh and Co., 27, Clement's Lane, London, E.C., photographic material manufacturers. February 25, 1909.

Analecta.

Extracts from our weekly and monthly contemporaries.

Mounting Prints Without Mountant.

In an article describing his methods of mounting in "The Amateur Photographer and Photographic News" for May 4, Mr. D. C. Henry says: "My first idea is to make the print mount itself, so to speak. This method can only be used with gelatine papers. The print should be trimmed about an inch larger each way than the picture is required to be. In the centre of a suitable mount cut an opening the size of the picture. Damp the back of the mount with a sponge and lay it on its face on a sheet of glass. Wet the print and squeegee it on to the back of the mount, so that the required part shows through the opening. Let it dry under pressure, when the print will be found fixed to the back of the mount. The picture becomes neatly framed by the cut-out.

"If you prefer to mount your prints dry, cut an opening in the mount, as above; place the print face downwards over the opening, and fix it there with an adhesive luggage-label stuck over the back. I find this a useful method when I am in a hurry."

Photography, Art.

The interest in a photograph (writes the "Photographic Monthly") is a living interest until—until the print is dry on its mount. This interest is the photographic interest. The interest in a picture is perennial. A picture may be photographic. Its interest is not, and will not die at mounting. If your mounted print interests you day after day and it is always fresh, and if that interest is not extrinsic, such as a record, then this print came of your love—never mind pictorial intention—and you have created a picture. It is not Art.

If, however, you can, looking back, trace each step of the structure that produced the permanently pleasing print; and if you can, thereafter, use such steps with *intention* bringing up as needed, optics, brushes, photographics, Globe-polish, chemistry, anything on earth, and if you *arrive*—never mind photography—you have created a picture with intention. That is true Art. It is not Photography. Let this be clear and we are rid of much unnecessary controversy and its animus. The photographer and the picture-maker have an overlap—an overlap, not a junction.

New Books.

"Practical Guide to the Art of Tinting and Hand-painting." By an Expert. Manchester: Oriental Art and Publishing Company. 1s. nett.

This is a manual of instruction in the colouring of photographs by means of dry colours supplied by the publishers, and also by Messrs. Blinkhorn Brothers, 79, Upper Brook Street, C.-on-M., Manchester. The directions go minutely into details of colouring portrait photographs, in addition to landscapes, and are everywhere practical and to the point. A small supply of each of six colours is included with the volume, which is sent post free by Messrs. Blinkhorn for 1s. 2d.

"The Red Book, 1909-10." Issued by the Affiliation of Photographic Societies.

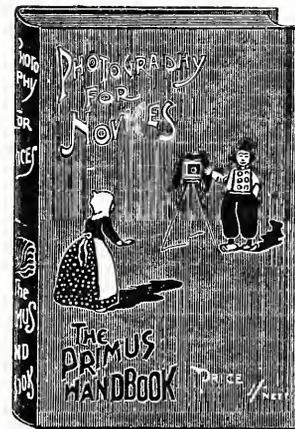
The most important announcement in the new issue of the "Red Book" is that of the addition of Kew Gardens to the list of places where the "Red Book" serves as a permit to photograph (p. 11). The fact, however, is not indicated under "Kew Gardens" on p. 52. In the list of "Consuls" now published we get the first quantitative account of the proposed scheme under which the Affiliation aims at organising an interchange system of giving and obtaining photographic information as to a particular district. The "Consuls" to whom these duties are delegated number eighty, representing as many affiliated societies. Of this number only fifteen reside in towns which may be said to be places in which a photographer would take a holiday. The most active photographic societies, we are not surprised to find, stand aloof from this scheme. Apparently the Liverpool A.P.A., the Manchester A.P.S.,

and the Southampton C.C.—to name three of the most "live" photographic societies in the country—perceive the futility of a scheme which in the first place is limited by the comparatively small number of places where there is an affiliated society, and, secondly, tends to put a premium on laziness. If the Affiliation Executive would devote its own energy and ability and enlist also the aid of its "Consuls" in limiting the so-called "Gazetteer" (which now runs to twenty pages) to information as to the quarters to which application to photograph in certain places must be made, it would be rendering a real service, and would be offering a further inducement to photographers at present not sharing in the many advantages of affiliation.

The "Red Book" contains, as before, lists of lectures available for affiliated societies, particulars of competitions, and exhibition rules approved by a number of judges. The last twelve pages are devoted to a series of tables of weights and measures, optical formulæ, plate speeds, and prescriptions for developers and other photographic solutions. Some revision appears to be necessary here. On p. 81 the number of cubic centimetres in one fluid ounce is given as 29.57, instead of 28.41, and the number of fluid ounces per litre as 33.8, instead of 35.20. "Litres into pints" should be 1.75, not 1.69, and some of the abbreviations used in the formulæ section, such as "potass carbon," "potass permang.," could do with amplification.

"Photography for Novices." By Rev. F. C. Lambert, M.A. London: W. Butcher and Sons. 1s. nett.

This new edition of Messrs. Butcher's well-known manual for beginners has been rewritten throughout by the Rev. F. C. Lambert, who in agreeable conversational style introduces the reader very simply to the practical methods of photography. He discusses the choice of a camera in regard to the expenditure of a fixed sum. The necessary outfit for the dark-room is similarly the subject of



consideration. The making of negatives and their after-improvement occupies a fair proportion of the volume, and gives the most approved methods. In the later chapters the author deals with printing processes—he includes oil and bromoil—with stereoscopic photography, lantern slides, enlarging, and, lastly, with the requirements of pictorial photography. The volume is very well printed and illustrated, and is provided with an attractive cover of green linen.

CULLEN AND KIRKCUDBRIGHT.—The attractions of these two Scottish towns—one in the north and the other in the south of the country—are described in two booklets produced and published by the St. Catherine Press, Ltd., 8, York Buildings, Adelphi, London, W.C., on behalf of the respective town councils. Both booklets are well illustrated, and impart just about enough information as to the places. Photographers in towns or districts offering attractions to the tourist or holiday-maker might find it to their advantage to bring such advertising as this before the notice of their own municipal authorities.

"MORE ORTHOCHROMATISM."—Messrs. Wratten and Wainwright have issued under this title a sequel to their booklet, "Real Orthochromatism," which latter, it will be remembered, gives a useful elementary introduction to the theory of orthochromatic plates and screens. The new booklet goes more thoroughly into the theory of

the process, and forms a useful supplementary aid to the reading of Dr. Mees's "Photography of Coloured Objects" recently published by Messrs. Wratten. The "More Orthochromatism" is sent post free on application.

"METEOROLOGICAL OBSERVATIONS."—The report for 1908 of the Stonyhurst College Observatory, compiled by the Director, the Rev. Father Sidgreaves, F.R.A.S., has been published by Messrs. Philip, South Castle Street, Liverpool. It gives the meteorological and other measurements made in the course of last year.

New Apparatus, &c.

"SANDUC" PRISM BINOCULARS.—Messrs. Staley have just introduced a series of prism binoculars of high quality at very popular prices. The A Model giving a six times magnification is a very useful field-glass for general purposes, and not too powerful for the theatre. There is ready adjustment for the distance between the user's eyes which can be set on a scale, and means are also provided for adjustment of the focus for each eye separately. The price of a glass of this power is £4 10s., its weight is 14 oz. Other sizes of Model A give magnifications of nine and twelve times, whilst still other models are supplied for marine and army work. A booklet descriptive of the instrument is just issued by Messrs. Staley, and is obtainable from them at 19, Thavies Inn, Holborn Circus, E.C.

New Materials, &c.

V.R. (Very Rough) Ilford Bromide Paper. Made by Ilford, Limited, Ilford, London, E.

This new product of the Ilford factory is a paper of surface considerably rougher than that of "Rough" papers issued by Messrs. Ilford, Ltd., for some years past. The roughness of "V.R." is that caused by a number of somewhat large shallow depressions rather than by deeper point areas. This bald statement, we know, gives a poor notion of the surface, but descriptions of the superficial figure of a paper are admittedly difficult, and if we use cold words of technical explanation it is to point out that in their new paper the makers have produced a distinctive product. The result, we would hasten to add, is a paper giving prints of a most pleasing surface, not one, of course, for small contact work, but for enlargements and prints of moderate size, particularly if of strong contrasts. We used the amidol developer and found the paper to work with great cleanness and purity, and to develop quickly. It is best to soak any paper of this class in water before developing, and doing this for the time of half a minute we found not a single instance of pinhole spots. The paper, which is of the Ilford platinum-matt bromide, and of the price of any of the maker's bromide papers, is worthy to rank with the many other Ilford manufactures used and esteemed wherever photography is practised.

The Lumière "Film Block." Sold by the Lumière N.A. Company, 89, Great Russell Street, London, W.C.

In this packet of twelve films for daylight changing, the Lumière Co. would seem to have reached the limit in compactness. The block measures 5 by 3½ by ½ inch, and is used in an adapter. Separating papers are used between the films. The latter themselves are coated each with an opaque film, which forms both an anti-halation backing and a perfect protection of the film behind. The act of changing the films is simply to pull out one by one the tabs projecting from the block. The last tab pulls down an opaque paper shutter and allows the block to be removed from the adapter.

In development the opaque backing film floats off in one piece, and the film is then treated exactly in the same way as ordinary roll film. As regards the quality of the results obtainable with the film block, it is sufficient to say that the emulsion is that of the Lumière plates, and is of high rapidity and affords excellent negatives. The price of the film block in quarter-plate size is 3s.

"SCIENCE GOSSIP."—Mr. E. Kay Robinson has commenced the re-issue, in a completely revised form, of this nature paper, which is now issued monthly at 4d., and contains nearly sixty pages of notes and articles of interest to students of outdoor life. "Science Gossip" is edited and published from 2 and 4, Tudor Street, London, E.C.

CATALOGUES AND TRADE NOTICES.

SIBYL CAMERAS.—Messrs. Newman and Guardia have issued a new list describing all the forms of "Sibyl" camera now made, including the double extension De Luxe pattern reviewed in our issue March 26 last. The list is worth perusal, as it contains all abridged particulars of the firm's other cameras.

BOOTS' PHOTOGRAPHIC LIST.—The price list of the photographic requisites supplied by Messrs. Boots, Limited, at their 350 branch is a book of 290 pages, thirty of which are literary matter dealing chiefly with modern printing processes. The catalogue gives a very complete description of requisites for amateur photography. It contains a frontispiece on Wellington "Enammo" bromide.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, MAY 7.

Long Eaton Camera Club. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.

SATURDAY, MAY 8.

Edinburgh Photographic Society. Ramble to West Linton.
Hackney Photographic Society. Outing to Kew Gardens.

MONDAY, MAY 10.

Cripplegate Photographic Society. Rummage Sale.
Walsall Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.

TUESDAY, MAY 11.

Royal Photographic Society. "The Way we Look at Things." H. O. Mummery.
Hackney Photographic Society. "Wells—An Idyllic Minister." E. W. Harvey Pipe.
Doncaster Camera Club. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Kinning Park Co-operative Camera Club (Govan). Club Meeting.

WEDNESDAY, MAY 12.

Croydon Camera Club. House Exhibition.
Bourneville Camera Club. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
South Suburban Photographic Society. Discussion: "The Camera in the Field."

THURSDAY, MAY 13.

North-West London Photographic Society. Debate. Rectilinear v. Anastigmat, etc.
West Bromwich Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Handsworth Photographic Society. Exhibition of Photographs by Members of Societies Affiliated with the Royal Photographic Society; and Lecture thereon by Walter J. Morgan.

ROYAL PHOTOGRAPHIC SOCIETY

MEETING held Tuesday, May 4, the president (Mr. J. C. S. Mummery) in the chair.

In introduction of the collection of prints in the Bromoil process which he is showing at the house of the society, and reviewed on another page, an address was given by Mr. F. J. Mortimer. The address was of the shortest, and, as the lecturer remarked, constituted a record in this respect at the R.P.S. But Mr. Mortimer, cunning man, knew that when art is the subject at Russell Square, and particularly when the theme is the legitimacy of hand-work or control in making photographic pictures, there is no need for the lecturer to say very much. He can be quite sure that the evening will be fully, though perhaps unprofitably, employed in discussion of this time-worn theme. However, in the few remarks he made Mr. Mortimer put forward a strong plea for control by the photographer's hand. Ninety-five per cent., he said, of photographs shown at the exhibition were controlled in some way or another, and he thought that a worker should have as much credit for carrying out his artistic aims with pigment and brush on a bleached print as if he spent a week-end in getting his result in the negative. While he held that the means justified the end, he thought a caution was necessary as to mixing processes. Touches put on the print, say with an air-brush, or by other means, frequently made themselves evident by the difference in texture, and the combination of one printing process with another was liable to give rise to artistic mistakes of this kind.

Mr. E. T. Holding said that while they had heard a good deal of late as to the individualism which the oil and bromoil processes enabled the photographer to impart to his work, he was struck by the fact that in almost every case that imparted quality took the form of intense gloom. Many of the results which he had seen by this process led him to believe that they represented pictorial photography at its worst.

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ev. F. C. Lambert, M.A., said that the aim of all using such processes was to give a reflection of their own individuality. The end and substance of all such art was selection, at whatever stage was made. The scientific adjustment of the photographer's materials to laboratory standards was not likely to improve this selection, and he would instance in this connection the making of a photograph of a field of corn in which were red poppies. Orthographically the corn field might be brighter, and the plate adjusted to photograph the spectrum correctly would so render it, whereas the artist would paint the poppies as the brighter.

Dr. C. E. K. Mees rose to say that nothing except such a statement could have induced him to intrude on the discussion of an art subject, when the facts were not as stated. A colour sensitive plate adjusted by means of a filter, so as to render parts of the spectrum correctly regarding intensity as seen by the eye, would do the same in the case of a natural scene.

Dr. P. Bale Rider thought that the lecturer's reference to the older processes suggested that these latter were inadequate for the purposes of pictorial photography, whereas the inability of the photographer to make use of them was due only, he thought, to his incompleteness of them.

Dr. C. H. Hewitt, in comparing the older printing processes with the modern, said that, after all, the problem for the photographer was to reproduce by any means not a record, but a "correct illusion" giving his own opinion of the subject.

Dr. Evershed had visited an exhibition of photographs in company with an artist, who in every instance preferred the controlled print to the uncontrolled. He thought that the speed with which prints could be made would prove bad for pictorial photography.

Dr. W. Thomas, in the course of describing what he considered the ideal process for control, let fall a hint or two as to the making of Mortimer's exhibition, from which it was gathered that the exhibitor had produced the greater portion of the prints on the walls working continuously for two days and nights with a pigmentation in each hand.

Dr. M. Arbuthnot thought that, after all, the printing process was the important thing; he would not extol any one printing method as being for universal use. He thought the process should be selected to give the effect required.

Dr. Furley Lewis expressed his appreciation of the wide range of subjects dealt with by Mr. Mortimer in bromoil.

A technical query from Mr. H. H. O'Farrell regarding a portrait of Dr. Mees brought the discussion to a close, and the brief replies to the reader of the paper concluded an evening which, like many others devoted to art topics, occupied the audience to a late hour.

SOUTH SUBURBAN PHOTOGRAPHIC SOCIETY.—The second annual meeting of this society was held at Plough Hall, Lewisham, on Wednesday evening, Mr. P. R. Salmon, F.R.P.S., presiding, and about thirty members being present. After formal business the hon. secretary made a statement as to the position of the society. During the year they had lost thirty members by resignations and removals, and were struck off for non-payment of subscriptions, and sixteen had been elected, leaving the present membership 144. Although subscriptions amounting to £11 15s. were outstanding, and other sums amounting to £3 12s. were also coming in, the treasurer, after paying accounts due on March 31, had a cash balance of £4 19s. 7d. in hand, and, allowing for a proportion of accounts not yet paid or presented, there was an estimated surplus of about £10 10s. Together thirty-four indoor meetings and eighteen outings took place during the year. Greater attention was to be given in the coming year to the interests of beginners. The usual indoor meetings and outings had also been arranged for the summer, and a competition for two prizes of 10s. and 5s. value (offered by the president, Mr. F. J. Mortimer, editor of the *Amateur Photographer*) was also announced. While regretting that there had been so many resignations, it was pointed out that most of these were members who merely subscribed in the first instance to give the society a boost. As against the reduction in numbers, the society were to be congratulated on the greater unity of purpose animating its members, and the keener interest that was taken in the proceedings. Mr. Mortimer was unanimously re-elected president; Major E. F. Bates, M.P., Canon Barnes-Lawrence, Canon Hough, the Rev. I. Swinnerton, and Messrs. A. Haddon, P. R. Salmon, and C. Athrope Somerville were elected vice-presidents. The following

were also elected: Mr. P. B. Dannatt, A.R.I.B.A., hon. lanternist; Mr. J. Nixon, hon. secretary and treasurer; Mr. F. J. Wills, hon. secretary for portfolio; Messrs. A. E. Bache and F. N. Palmer, assistant secretaries; and a committee of twelve, consisting of Messrs. J. F. Ashby, A. E. Bache, H. J. Blane, G. J. Carr, W. C. Chaffey, P. C. Cornford, P. T. Edwards, W. V. Goulstone, E. R. Housdon, F. N. Palmer, T. H. Richardson, and F. W. Rogers.

It should further be added that the South Suburban Photographic Society has arranged to hold a series of outings during the summer months, specially designed to assist beginners. A small committee of "old photographic hands," with Mr. P. C. Cornford as secretary, has undertaken to look after the interests of the beginners in connection with the programme. These will attend the outings in question and offer practical hints and suggestions on selection of subject, pointing out on the ground glass the elementary principles of picture-making and advising generally on matters of exposure, lighting, etc. The first of these special outings will be held on the afternoon of Saturday, May 15, at St. Paul's Cray, and a general invitation is extended to any non-members desiring friendly assistance in the direction indicated. The society covers the three boroughs of Lewisham, Deptford, and Greenwich, and meets at Plough Hall, in High Street, Lewisham, near the Obelisk. The hon. secretary is Mr. John Nixon, Rydal, Ingleside Grove, Blackheath.

CROYDON CAMERA CLUB.—Mr. F. J. Terry gave a demonstration on the "oil" process last week, and an interesting and extremely animated evening was spent. The lecturer insisted on a good negative to start with, reasonably free from fog, and of fair, but not possessing extreme, contrasts. Oil-printing papers were many, those made by the Autotype Company had worked well in his hands, the latest (No. 3) being, perhaps, the easiest to deal with; it was eminently suitable for a beginner. He strongly advocated the employment of a spirit sensitiser, applied with a brush. Printing should be carried to such a point that details in the high-lights just became visible, and progress should be examined by artificial light or very subdued daylight. A close estimate of the correctness of printing, or otherwise, might be formed when the print was being soaked. At the period of highest relief stain should just be visible in the deepest shadows. In most cases it was necessary to dry the initial print and thus toughen the gelatine prior to pigmentation. The pigments sold for the purpose varied in consistency; the Rawlins pigments were adjusted to be used as they came from the tube; others—for instance, Sinclair's—required dilution with a medium. Roberson's medium was generally employed, but had a distinct tendency to dry with inconvenient rapidity. He preferred "skew-top" hogs'-hair brushes, which were much cheaper than those usually recommended. Several oil prints were pigmented by the lecturer, and, considering the rapidity with which he worked, very creditable results were obtained. At the conclusion of the demonstration the storm burst.

Mr. H. P. C. Harpur, in tones of virtuous indignation, inquired whether this hopping, skipping, and "Waltz-me-round-once-again-Willie" process, outside Bedlam, could be termed "photographic," and without waiting for an answer emphatically declared the contrary. The speaker, however, soon found he had occupied an utterly indefensible position, for past misdeeds in the shape of extensive alterations to negatives, by means of local reduction, knife, and pencil, were brought home to him. Other members with cleaner records resumed the attack, but fell out so nicely between themselves that little advantage was gained. Dr. Mees inquired where all this sort of thing was going to stop, and plaintively asked if anyone could define the permissible limits of "control." Mr. E. A. Salt said that the last question was one which no one in the room could possibly answer; it involved "good taste" and an eternal sense of the fitness of things. He gladly welcomed a process whose characteristics could not be represented by letters of the Greek alphabet, and which was not susceptible to blackboard explanations.

Mr. F. W. Hicks very much doubted whether some foremost workers gave away all their secrets. A good deal seemed to depend upon the quality of the pigment employed. The president, Mr. J. M. Sellors, observed that a variety of pigments had been tried. He agreed with the lecturer that a spirit sensitiser was the best; to apply it a "Blanchard" brush was to be recommended. Dr. Mees said that he knew one worker who certainly did not impart all the

information he might. This illustrated one difference between science and art. The oil process was admittedly only a modification of collotype, and this being so, he was at a loss to understand why collotype inks or pigments were not used. To attempt to work collotype with lithographic ink would lead to disaster. Mr. W. H. Smith agreed. Speaking without any practical knowledge of the process demonstrated, an oily ink such as that used for collotype would seem to be the right one to employ.

Mr. R. Compton, in proposing a vote of thanks—which was carried with the utmost heartiness—narrated how a budding artist displayed a first attempt in oil-printing to a sympathetic spouse, with the proud remark: "That is my own, alone I did it!" "Very likely, my dear, I don't doubt it," gently remonstrated his wife, "but it was very reckless to remove your porous plaster without the doctor's permission."

Commercial & Legal Intelligence

LEGAL NOTICES.—At the Gloucester County Court last week Henry Charles Morse, photographer, Longlevens, near Gloucester, applied through Mr. Barry-Lewis for an administration order. He owed £35 16s. 7d., and offered 10s. in the pound at 7s. 6d. a month.—Granted.

NEW COMPANIES.

PARK'S PRESS PHOTOGRAPHIC AGENCY, LIMITED (102,560).—Private company. Registered April 17th, with a capital of £200 in £1 shares, to carry on the business of general and press Photographers, etc., and to adopt an agreement for the acquisition of the assets of C. H. Park. Table "A" mainly applies. Registered by Turner and Evans, 10 and 11, Walbrook, E.C.

News and Notes.

BALHAM CAMERA CLUB.—The headquarters have been removed to 141, Balham Hill, S.W. Full particulars of fixtures for May and June can be obtained on application to the hon. sec., Mr. F. Beard, 4, Chetwode Road, Trinity Road, Upper Tooting, S.W.

MESSRS. BLINKHORN BROS., 79, Upper Brook Street, C.-on-M., Manchester, have recently rebuilt part of their premises, and have added to their enlarging business that of importers of picture mouldings, in which line they are now open to deal with the trade.

THE LATE ROMAIN TALBOT.—We are sorry to record the death of Herr Romain Talbot, of Berlin, the oldest member of the photographic trade in Germany. The deceased gentleman had been in business for fifty-four years, and had taken a leading part in the introduction and exploitation of photographic materials in Germany. At the time of his death, which took place on April 20, he was 82 years of age.

CANVASSER SENTENCED.—At the Saltash Police Court last week A. Percy, alias A. B. Pearce and A. Evans, was brought up in custody charged with obtaining 2s. from William Coombes, of St. Stephen's, on March 19.

The evidence showed that defendant and another man went to the prosecutor's house and asked that he (defendant) might take his photograph. The offer was accepted, prosecutor, his wife, and his son being taken in a group. Defendant said it was the custom to pay in advance, and that if the 2s. was paid he would get his commission. The money was paid, but the postcard and a cabinet photograph promised in a few days had not been delivered.

Defendant said the photograph was taken by a colleague, and that he did not promise the pictures in a given time. The negatives were at his residence in Plymouth. He had done £20 worth of work at Looe. Prosecutor could have the proofs, or he would refund the money.

The Bench considered there had been false pretences, and inflicted a fine of 10s. and 18s. costs, and ordered him to refund the 2s. to Coombes.

A BARGAIN SALE AT GRIFFIN'S.—Messrs. John J. Griffin and Sons, Ltd., Kingsway, London, W.C., are selling off a quantity of shop-soiled cameras, lenses, shutters, tripods, enlargers, and sundries until May 31. These goods will be sold as low as from 50 per cent. to 60 per cent. off the list prices, and it is an opportunity for anyone

who is looking for bargains. Those calling to inspect such apparatus may make a note of the fact that Messrs. Griffin give a demonstration of the bromoil process every Tuesday and Thursday at 3 o'clock.

THE APPOINTMENT OF MR. R. J. WALLACE as head of the research department of the Cramer Dry Plate Works, intimated some weeks ago in the "B.J.," is now publicly announced. Mr. Wallace came direct from the Yerkes Observatory of the University of Chicago faculty, leaving the position which he occupied there as head of the Department of Photophysics, to undertake the direction of the factory research laboratory.

The possession of a thoroughly equipped chemico-physical research laboratory, devoted especially to this work, and probably unequalled by any other in this country, guarantees the quality of test to which new products will be subjected, while the published work and practical commercial experience in trichromatism and photo-chemistry assure intelligent consideration of the needs of this large and constantly increasing class of workers.

Consultation upon special technical matters connected with the photography of light and colour will receive prompt and careful consideration, and suggestions offered when necessary.

MR. W. L. F. WASTELL, of Malmesbury Road, South Woodford, has distinguished himself by winning the "Ensign" roll-film prize for April, viz., a three-guinea camera offered by Houghton & Co. Ltd. every month for the best negative on "Ensign" film. The entries close on the 3rd of each month. Entrance is free, and a competition form is enclosed with every spool of "Ensign" film.

PHOTOGRAPHIC SURVEY AND RECORD OF SURREY.—The annual excursion will be held on Saturday, May 22, 1909, when Farnham and its vicinity will be visited. The chief points of interest will be the castle, the church, Moor Park, and Waverley Abbey. A list of the subjects to be photographed is being prepared, and the party, on reaching Farnham Station, will divide into two groups, each under the guidance of the officers, one party doing the town and the other Moor Park and Waverley Abbey. Special facilities have been very courteously given by the Bishop of Winchester for the castle, and Mrs. Johnston for Moor Park. All particulars as to trains, etc., from the hon. general secretary, Frank F. Wood, 11, Milton Road, Wallington, Surrey.

AT THE "PHOTO-SECESSION" GALLERIES, New York, a series of photographs of Rodin's "Balzac," by Eduard J. Steichen, have recently been on view. The prints, eight in number, are from negatives taken between the hours of 11 p.m. and 4 a.m., with the moon as the only source of light, for which purpose the "Balzac" was removed from M. Rodin's studio and placed in an open field on two nights during the period of the full moon in October of last year. The next exhibition, which opens to-morrow (May 8), will be devoted to a series of paintings by Mr. Marsden Hartley, of Maine.

"PHOTOGRAPHIC CHAT."—The monthly journal, issued by Mr. A. H. Baird, under this title, appears with the current (May) issue in a revised form. It contains a series of personal notes, under the heading "Entre Nous," short articles on "Selection of a Background," and "Weights and Measures." Those interested can have it sent, post free for one year, by sending 6d. to Mr. Baird, at 37 to 39, Lothian Street, Edinburgh.

THE BARTON COMPETITION.—Messrs. Barton Pictorial Postcard Co., 15, St. James', Barton, Bristol, announce that the winners of the free draw of 1,000 postcards are Messrs. Moore and Roberts, printers, Colchester, who receive 1,000 postcards free from their own negatives or print.

THE STRUCTURE OF LIPPMANN HELIOCHROMES.—The translation of the paper by Professor S. R. Cajal, on his experiments on the structure of the Lippmann heliochrome which appeared in the "Colour Photography" Supplement of the "B.J.," has been included in the Annual "Report" of the Smithsonian Institution for 1908, and issued as a reprint from that publication by the Government Printing Office of the United States, Washington.

HOW TO PHOTOGRAPH THE LITTLE ONES.—The following appeared in the Exeter "Express and Echo," but there is no reason to suppose that Mr. Richard Speaight has been induced to subscribe to our West Country contemporary:—"A photographer was having his troubles with a child of eight years whom its mother had brought to the studio for a series of photos. The picture man struggled with the youngster, who wriggled and squirmed and generally made his

miserable for upward of an hour, trying to procure the poses desired by the doting parent. Finally, a happy thought struck the photographer. 'May I suggest, madam,' said he, 'that you leave alone with this charming little girl for a few minutes? I think it, with a little quiet persuasion, I may be able to calm her nervousness.' The mother assented; and when she returned the photographer announced that he was sure of several fine negatives. 'Oh, my,' asked the mother when they were out of the studio, 'what did that nice man, the photographer, say to you when you were alone, that he was able to get the pictures?' 'He said,' answered Dolly, with a quivering lip, "'If you don't sit still, you miserable little worm—you dough-faced little monkey—you, you—don't know what—I'll shake you till you're blue in the face.'" So, mamma, I sat still."

UNFAVOURABLE RECEPTION OF THE ISOCYANINES IN CANADA.—The "National Photo-Bulletin" of Montreal, in its April issue, writes: "Mr. Samuel Edward Sheppard discourses in 'The Photographic Journal' on the optical and sensitising properties of the isocyanines. For the benefit of those of our readers who are interested in our photography we were about to abstract the article. Our efforts were in vain. When we reached the point where the author mentions paramethoxyquinaldineparamethoxyquinolineethylcyanineiodide the photographer demanded a vacation. Consequently we must refer to those who are interested to the original." To which it may be added: "The photographer who only paramethoxyquinaldineparamethoxyquinolineethylcyanineiodide know."

HERE PASSED AWAY, on March 23 last, at his residence, Moorlands, Ingleton, Yorkshire, at the age of 69 years, a well-known photographer, Mr. Joseph Wilkinson. He had formerly large photographic businesses in Burnley, Colne, and Huddersfield. Failing health induced him to select a quiet retreat at Ingleton.

THE HANDSWORTH PHOTOGRAPHIC SOCIETY are holding an exhibition, on May 13, of the Affiliated Societies' competition prints, and send a hearty invitation to members of other societies, and also to photographers generally, to be present on that occasion. Mr. Walter Morgan, who criticised the prints, will deliver a lecture illustrated with lantern slides made from the prints and his sketches. The exhibition will be held at the society's rooms, 20, Soho Road, Handsworth, and will commence at 8 p.m.

Correspondence.

We do not undertake responsibility for the opinions expressed by our correspondents. Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

THE EFFICIENCY OF THE FOCAL-PLANE SHUTTER.

To the Editors.

Gentlemen,—Will you permit me to point out that Mr. T. S. Hargreaves' experiment, so far as it is detailed by him, gives no practical proof one way or the other in the matter of efficiency? Certainly he has proved that "there is practically no difference in the result, as far as exposure is concerned." Just so. He has proved that the effective exposure is the same, and in my letter appearing in the "B.J.," April 16, I pointed out that, no matter what position the blind occupies between the lens and the plate, this is a constant quantity. His negatives really tend to prove a difference in efficiency, and it is not obvious that the slit takes less time to cross the apex of a light cone than it does to traverse the base; and if the time varies, yet the exposure remains practically the same, is it not proving, right up to the hilt, that efficiency varies?

Personally, I set the utmost value on experiment, but Mr. Hargreaves does not give sufficient data. What aperture did he use? Did he photograph a stationary object or one rapidly moving? If the latter, what was the extent of the movement recorded on the negatives for each position? Of course, with a small aperture and a wide slit, there is very little variation in efficiency, and if Mr. Hargreaves will repeat his experiments, using largest aperture possible, and a very narrow slit, and exposing an object moving so rapidly that a small amount of movement is recorded on the negatives, then the difference in the extent of the blur will be a measure of the difference in time, and by this measurement, together with the equality

in exposure he has already demonstrated, he will have established a practical measure of efficiency. I am sure there are many of your readers who would be most interested to know the result of such an experiment; it might settle the question as to whether there is a difference between the actual and the practical duration.

Referring back to Mr. Salt's letter of April 23, I quite appreciate his contention that, with the blind in a certain position, the light action during part of the time of exposure is very feeble; but I do not think we should be justified in altering our estimate of duration on that account. If, for instance, we fix the shutter blind so as to expose only a band across the plate, and expose by uncapping the lens on such a thing as a black motor-car, with gleaming nickel fittings, with a proper exposure we should find that, while some parts of the car were vignetted off to nothing before reaching the mathematical limits of our band, other parts would be portrayed by a clean cut image right up to the limits thereof. So the amount that could be deemed negligible differs with conditions, varies with different parts of the same subject even. And, further than this, with an actual focal-plane shutter exposure with the slit the same width as the light-pencil where it is cut by the blind, each point of the plate receives a whole series of illuminations, rising to a maximum and falling again; and who shall say that the weakest light, although too feeble to bring about a developable condition by itself, has not, when added to the whole series, done its little bit to upset the equilibrium of Ag Br.? Perhaps Mr. Hargreaves' experiments will throw some light on this.

C. J. STOKES.

52, Winchester Road, Twickenham, S.W.

May 3, 1909.

[We refer again to the focal-plane shutter in an article next week.—Eds. B. J.]

PHOTOGRAPHIC TRADE IN BRITISH COLUMBIA.

To the Editors.

Gentlemen.—In your issue of the 2nd inst. we notice an article by L. Haweis which we cannot pass by without commenting upon, as his conception of the Canadian photographic trade is altogether wrong. We enclose you, under separate cover, copy of our "National Photo-Bulletin," which will show you the position we occupy in the photographic trade. We issue each month 3,000 copies of this journal, which we mail absolutely free to all amateurs in the Dominion. We also have an open subscription list for same, and as soon as names are received they are put on a regular mailing list. We notice one of his complaints, where he says rival goods are frequently in the same hands, and that in being so placed they are not properly handled. We do not agree with this remark, as we find an ever-increasing sale for the products of all the manufacturers who are advertising in our "National Photo-Bulletin."

Again, too, he mentions the discrepancy in the prices of different articles. We would like to point out to you that owing to the very high freight charges the prices of goods must necessarily vary. We cover the whole of the ground in Canada, and have branch houses in all the important cities, thus we are able to place the manufacturers' goods in a far more effective way than a small firm carrying a sole wholesale agency. We employ sixty-seven travellers, and thus the whole of the ground is practically covered at once, instead of taking several months, in the case of the small man. We trust you will find space to publish this letter, as we would like the English manufacturers to know that there is at least one firm outside of the Trust that is capable of doing a very large photographic business in this country.—Yours truly,

J. MATTINSON, Manager,

National Drug and Chemical Co. of Canada, Limited.

34, St. Gabriel Street, Montreal, April 19, 1909.

REMOVING THE FILMS FROM LARGE NEGATIVES.

To the Editors.

Gentlemen.—In reference to the recent paragraph as to the use of large negatives for the making of passe-partout mounts, may I give a little hint which may be useful to some? It is to damp the film slightly with a moist rag. The negative can then be simply peeled off from the edges—rolls off, in fact—with the fingers, whereas hot water means a tremendous lot of trouble in getting away every trace of film.—Yours very truly,

F. NEWELL.

Eastern Photographic Company,

Manningtree, Essex.

Answers to Correspondents.

PHOTOGRAPHS REGISTERED:—

- S. H. Greenway, 27, Abington Street, Northampton. *Photograph, Group of Northampton Town Football Club, Southern League Champions.*
- J. A. Stelling, "Modena," 60, Peckham Road, London, S.E. *Photograph of the Rev. C. E. Pugh.*

CONSTANT READER.—The difference will not be great. We should advise you to choose whatever focus suits you best.

SINGLE LENS OF DOUBLET.—I understand that for those for whom the price of a soft portrait lens is too high the single combinations of some other lenses will give really artistic results in large heads, etc. (1) Could you recommend to me one or two reliable series for this purpose? (2) Do the exposures run into rather a long time compared to portrait lenses? (3) Has a telephoto lens any useful bearing on portrait work—the size is half-plate?—C. H. S.

(1) Certainly a long focus lens is preferable for large heads, otherwise the point of view is not far enough off, but the single combination of a doublet will usually not be larger than $f/12$, which is slow for a portrait lens. As your query suggests you are seeking a lens to give somewhat diffused results, we may advise you to apply to Messrs. A. E. Staley and Co. for particulars of their anachromatic series of lenses. (2) Certainly they do. (3) Not very much. The chief function of the telephoto is to give a large size image of a distant object, with short camera extension. In a studio the subject is near, and the camera extension can usually be anything up to 30in. or 40in., whilst the small aperture of the telephoto is against it.

"CINEMATOGRAPH JOURNAL."—Will you please inform me, through your "Answers" column, who the publishers of the "Cinematograph Journal" are? I have heard of this paper before, but have never seen it on sale, and as I am interested in cinematography should like to know more of it.—L. S. TRUSS.

"The Kinematograph and Lantern Weekly" is published by E. T. Heron and Co., 9-11, Tottenham Street, London, W.

M. F. AND S.—From the shape and appearance of the spots we should say there is no doubt that they are due to dirt on the plates. Possibly chips or flakes of either backing or varnish from developing tank or dark slides.

STEREO FRONT.—Can you kindly tell me where the right and left handed screw described on p. 320 of the "B.J." is to be obtained! —R. J. S. S.

Our screw was home-made with paper dies. If you do not care to go to the expense of suitable taps and dies (costing about 6s.), we should advise you to get some firm such as George Adams, Holborn, to make the screw, or any engineer engaged in cycle or electric works, and most camera-makers could no doubt do it for you.

AMERICAN P.P.A.—Can you oblige by informing if there is a professional association of photographers in America similar to our own? Also, if there is a list of the members published?—PHOTO.

The Professional Photographers' Society of New York State. The secretary is L. Minor Sherow, Ossining, N.Y. We cannot say if a list of members is published.

PRINTING-IN CLOUDS.—As an amateur reader of your valued paper (from which, by the way, I obtain far more useful instruction and information than from other journals), I should be extremely obliged if you could inform me through an article or in the correspondence column of a reliable way for printing clouds into landscapes. On printing out paper I have used with considerable success a method described by you about a year ago, viz., painting over the landscape outline on the print with photopake. This method is obviously inapplicable to carbon and platinotype, and, also, I must say I have not been quite successful even on P.O.P. with complicated outlines such as tree branches against the sky. In such a case the procedure is most tedious and must require much skill to prevent the work showing, and the necessity for repeating the process after each failure makes it somewhat unsuitable for amateurs with limited time at their disposal. Of course, I am well acquainted with the

majority of more or less rough and ready methods of vignetting skies into landscapes, which have so frequently been described, but on what I want information is some accurate method, such, for instance, as is employed by Mr. Whitehead, in whose landscapes not a trace of the method of combination printing employed can be noticed, and whose clouds are continued behind his trees and join up with the horizon in an absolutely natural manner. I should prefer some process which does not involve the making of copies from worked up prints, as I am not cut out for copying, but if this is inevitable I shall have to arrange for it somehow. For platinotype print I have tried tracing the outline of the horizon on grainy paper-mineral, blacking out to a sufficient depth with water-colour and pasting on film side of cloud negative. But I have never in this way succeeded in getting exact registration, as the paper expands and then does not exactly contract to its original position.—JOHN.

The various methods that have from time to time been described are all reliable. They all require patience and some little experience in the working, but that is quickly acquired with a little steady perseverance. If instead of using water colour on mineral paper you employ plumbago (black lead) applied with a stump, there will be no trouble arising from the expansion of the paper. In Illingworth's "Carbon Photography Made Easy" two or three methods of marking in skies in carbon printing are described, and they are quite simple in practice.

RIGHT TO PUBLISH.—Would you kindly inform me if proceedings could be taken against anyone for publishing a photograph in a book or paper that they have not actually taken themselves, and that is not copyright?—C. R. HIDER.

Proceedings could, of course, be taken, but whether they would be successful is very doubtful. However, it would be highly discreditable if you publish another man's picture representing, as being your own work.

EDITH SMITH and Others.—In our next.

OTHELLO.—Certainly it will not become larger. We do not know that it is a peculiarity of Jena glass, but we think it cannot impair the lens.

GLASS FOR STUDIO.—I desire a little information as to which is the most suitable glass for a studio side and top light. We are having a new establishment constructed here, and our architect has ordered Hartley's rolled plate. One of our professional friends here tells me there is a drawback to this sort of glass, but do not know what it is. There is just time for the order of glass to be altered to any other kind if you would kindly name it.—H. F. COOPER.

Hartley's white rolled plate will be very suitable. It obstructs but little light, is not likely to be broken by hailstones, and has the advantage that it cannot be seen through. We should have the glass as ordered.

BATREY.—The two prints—Continental copies of paintings—are toned bromides, as you surmise. They are double transfer carbon prints, made in a special green colour tissue. There is no method that we know of that will yield results like them by toning bromides.

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SUMMARY.

The Royal Photographic Society will, in a few weeks' time, make its home at No. 35, Russell Square, where it has secured a lease of more commodious premises. (P. 388.)

In further reference to the correspondence as to the efficiency and speed of the focal-plane shutter, we discuss in an article on page 375 the separate factors which require consideration.

An incident which took place on the making of a flashlight photograph last week very nearly led to serious consequences. (P. 374.)

A Canadian photographer has recently made a specialty of a so-called "pipe-dream" photograph, and has found that the display of specimens in the window led to a deal of local prominence of his studio. (P. 383.)

A method of home sensitising by which black and brown tones are obtained when the paper is treated first in a salt bath and then in hypo is given on page 382.

In the current "Photo-Notes" of the Rotary Photographic Co., Mr. Douglas Carnegie describes a method for setting the plate parallel to the subject when copying in the camera a flat surface, such as a painting or plan. The apparatus necessary is readily made. (P. 377.)

Mr. R. J. Wallace, in conjunction with Mr. H. B. Lemon, has found that the preliminary exposure sometimes recommended when very faint light impressions are to be recorded upon a plate is practically of negligible advantage. (P. 378.)

Methods of machine-etching and the procedure in white-letter processes are mentioned under "Photo-Mechanical Notes." (P. 384.)

Mr. D. W. Gawn describes under "Correspondence" a method of making an electrical igniter for flashlight work. (P. 390.)

We give on page 382 the questions set at the recent examination in photography held annually by the City and Guilds of London Institute.

EX CATHEDRA.

The Dresden Exhibition.

The opening of the International Photographic Exhibition at Dresden, by H.R.H. the King of Saxony, took place on May 1st with every manifestation of enthusiasm. We understand that the exhibition was practically complete in every part on the opening day, a fact upon which the organisers may be congratulated. The official catalogue, a volume of 350 pages, shows that in the department of scientific or technical photography, professional portraiture and amateur or pictorial photography, the exhibition is particularly strong. The collection of professional photography by Americans is very representative of the best workers in the States, and in the amateur section the British collection appears to be the most important. The trade section is chiefly German and Austrian. There are only one or two French houses represented, and British firms appear to have exhibited, though chiefly through their German agents. We gather from the German papers that the design and decoration of the exhibition have been done on most artistic lines, and that each section, even that devoted to commercial articles, has been caused to conform to a certain style. The exhibition appears to have realised the aims of its promoters, and we hope to deal at greater length with its several sections in forthcoming issues.

* * *

Physical Photography.

Dr. Hall Edward's suggestions for the encouragement of scientific photography deserve attention, for exhibitions generally tend to suggest falsely that pictorial work is the most important application of photography. But the scientific applications of photography are more numerous than ever, yet they are not very much in evidence at exhibitions excepting in the form of natural history work. A somewhat important, but very much neglected branch of photography is its use in illustrating curves produced by various kinds of motion. For example, by fixing a bright point on a wheel and exposing while the wheel is rolling, the formation of a cycloid can be illustrated in a most convincing fashion, and by slight modifications various forms of cycloidal curves (such as hypo-cycloids, etc.) can be produced. Lecturers make use of such photographs occasionally, but the general application of the same methods to various curves does not seem to have been worked out, though the task should be a very interesting one. A great deal of work is being done in the photography of physical experiments, but very few of these are in evidence on the walls of exhibitions, excepting when they represent something startling, such as the history of a splash or the flight of a bullet. Such work represents the highest standard of physical photography on account of the difficulties to be

overcome, but there is plenty of less ambitious and less difficult work that is quite interesting enough for exhibition purposes.

* * *

Magnifiers and Fixed Focus Cameras.

The general principle which in theory governs the action of the supplementary lenses, commonly miscalled "magnifiers," is fairly well understood. If a camera is focussed on infinity, and a "magnifier" of 5 feet focal length is attached, then objects 5 feet away come into focus, and similarly we need only substitute a 3-foot lens to bring objects 3 feet away into focus. This simple principle is, however, likely to break down in practice, because the fixed focus camera with which such magnifiers are useful is not likely to be focussed on infinity. If it is to be generally useful without the addition of magnifiers, it should be set to focus on the hyperfocal distance or thereabouts, and when so set the theory of the magnifier breaks down to a very considerable extent. Suppose, for example, we have a camera with a five-inch lens, working at $f/8$, and set permanently to focus on 26 feet, we add a 5-foot magnifier to this and expect objects at 5 feet distance to be in focus, whereas the real distance of sharp focus is somewhere about 3 ft. 9 ins., or 15 inches nearer. It is therefore always necessary to make a practical test when fitting magnifiers, and usually advisable to purchase magnifiers rather longer in focus than the distance required to be brought into focus. In the instance quoted, a 7 ft. 6 ins. lens would be about the right power for the purpose, and a similar, but greater relative increase in focal length would be required for greater distances than 5 ft. Thus a 20-foot magnifier would only bring into focus objects 11 feet away.

* * *

Molybdenum Printing Papers.

The use of molybdenum compounds for the preparation of papers intended for the copying of plans, etc., has recently been patented in Germany by the Neue Photographische Gesellschaft. These papers are "developed," after exposure to light, by means of a ferricyanide which forms, with the molybdo-molybdate produced, an insoluble, stable, highly coloured image. Eighteen grms. of molybdenum trioxide are added to a solution of 20 grms. of oxalic acid in 400 c.c. of water; by crystallisation a mixture of oxalic acid and molybdic acid is produced, which can be coated on paper. For blue tones the developer may contain ferric chloride, potassium ferricyanide, and oxalic acid; for brown tones uranium nitrate; and for red tones copper sulphate is substituted for the ferric chloride. The sensitiveness of ferro-prussiate papers is increased by addition of molybdic acid; thus paper may be immersed in a solution of 3 grms. of molybdic-oxalic acid mixture, 2.5 grms. of potassium ferricyanide, 0.5 gm. of oxalic acid, 1 gm. of sodium chloride, 12 grms. of ferric ammonium citrate, and 3 grms. of gelatine in 100 c.c. of water. After exposure to light these papers are developed by water.

* * *

A Flashlight Incident.

According to a report in the Nottingham papers of last week, the taking of a flashlight photograph in a crowded hall in that town recently was the occasion of an incident which gave rise to something almost approaching a panic. A performance of a theatrical character had been given before an audience composed almost entirely of children, and at the conclusion a flashlight photograph was taken of the final tableau. The flash, however, instead of taking place in an almost noiseless fashion, is stated to have given rise to a loud report and the evolution of volumes of smoke. The sudden rush of performers and spectators to

the exit was fortunately checked by some elders, and no serious results followed. There need be no cause for alarm in regard to the incident, for it is clear, from the account, that no actual harm was done, but the incident is a reminder that every care is needed when handling flash powder among persons susceptible to anything seeming to be dangerous. The explanation of the mishap is probably the use of a larger charge of powder than was necessary, though why, as suggested in the press report, that course should have been adopted in order to secure instantaneous firing it is difficult to understand.

* * *

A Chemical Test for Metol.

According to M. A. Nicolle, in a recent paper in the "Moniteur Scientifique," commercial metol may contain paramidophenol sulphate, which interferes with the keeping qualities of the developer. The following test is described for detecting the presence of this substance: About 1 gm. of the sample is shaken with 3 c.c. of concentrated hydrochloric acid. If after a few minutes the solution is not perfectly clear, paramidophenol sulphate is present. Mineral adulterants, such as sulphides, etc., may be detected by incinerating a portion of the sample; in no case should the ash exceed 0.5 per cent.

THE HYPO-BROMIDE-FERRICYANIDE REDUCER.

A RECENT communication from the laboratory of "Progresso Fotografico," which, we presume, is directed by Professor R. Namias, records the results of trials made of two modifications of the Farmer reducer, intended to give the even reduction afforded by persulphate. The two varieties were (1) hypo and ferricyanide *plus* ammonia and (2) the mixture of hypo, ferricyanide, and bromide described by Mr. Welborne Piper in our issue of April 24 last year. These modified solutions were tried both on plates taken direct from the washing tank and on others hardened with alum. In the case of the unhardened plates it was found that the ammonia formula acted a little more slowly, but otherwise scarcely differed from the normal formula in its selective action on the shadow of half-tone detail. The bromide formula was found to emphasise the contrasts still more, and these results were obtained also with the plates treated in the alum bath. It was noticed that the ammonia both retained its activity for five or six hours, whilst the other two decomposed in a few minutes. It is concluded that the suggested modifications in the Farmer reducer, instead of "softening" the effect, actually tend to increase contrasts. Possibly the results are partly due to the fact that the bromide and ferricyanide formula used was only about one-tenth the strength of the solution described by Mr. Piper. It does not, in ordinary conditions, act as slowly as stated in the report from which we are quoting, and though its effect on gradation is a very doubtful matter it is favoured by many workers on account of its steadiness of action. It has never been claimed that it acted like persulphate, but we were informed some time ago by another experimenter that it gave the same results as the normal Farmer's reducer when fog readings were deducted, while it gave less contrast if the fog readings were included. The latter, of course, ought not to be deducted in tests of this nature.

While on this topic, we may suggest this question of reduction for investigation in an exhaustive manner. It is of little use to compare reaction of various reducers when we do not know the conditions that govern the action of any one of them. Farmer's reducer, for example, seems

to produce many different effects, according as its strength and proportions are modified, further than which it sometimes acts quite differently on old and new negatives. So far the facts available seem to be very fragmentary and difficult of assimilation, while in many cases we cannot deduce anything from them, because the experimenters do not state whether their measurements include fog or not.

THE SPEED OF A FOCAL-PLANE SHUTTER.

THE letters that have appeared in our columns on the subject of the focal-plane shutter show pretty clearly how little the peculiarities of this shutter are understood. In a recent issue Mr. Hargreaves gave the results of what he described as a "practical" test, which, unfortunately, was eminently unpractical as a test of efficiency. All that this test revealed was the fact, previously pointed out by Mr. Stokes in our issue of April 16, that the efficient exposure is the same whatever the distance may be between plate and slit. This can be shown mathematically without the trouble of experiment, and Mr. Hargreaves missed the important point that, though the efficient exposure is the same, yet the efficiency and duration alter. In view of the confusion likely to arise from thus misconceiving the crux of the problem, it will be as well to go more closely into the matter of "speed" in the case of the focal-plane shutter.

First of all, it is evident that many fail to realise what "speed" means with this shutter. This is proved by the various incorrect methods of measuring it that have been proposed from time to time. Many correct methods can be devised for ascertaining the speed of a lens shutter, but very few of these methods are capable of giving even approximately correct results with the focal-plane instrument. The measure of speed with a focal-plane shutter is the time during which light is allowed to reach one infinitely narrow band of the plate, which band is parallel to the slit. If this time is ascertained for a band in the centre of the plate, then we know the time for any part of that area of the plate which is illuminated by the full aperture of the lens; provided, of course, the rate of movement of the shutter-blind is constant.

The factors that govern the speed of exposure are:—

1. Rate of movement of blind.
2. Width of slit.
3. Angular aperture of lens.
4. Distance of blind from plate.

The efficient exposure, which is a matter quite separate from speed, is independent of the fourth factor mentioned, but the important thing in focal-plane work is the duration of the exposure, not its efficiency. We, of course, want the exposure to be as efficient as possible, but we have to regulate exposure by the rate of movement of the object, therefore speed or duration is of first importance. This being the case, the fourth factor must be taken into account together with the others, and any system of measurement that ignores any one of the four factors is quite valueless from a practical point of view. A good many people have tackled the measurement of speed without paying any regard to these fundamental necessities of the problem, hence the whole subject of speed with the focal-plane shutter is much confused. If the speed of a shutter is measured independently of the camera and lens with which it is to be used, there is only one measurement that can be of any use, and that is the speed of the shutter for a plate situated in the same plane as the blind. When that shutter is afterwards fitted to a camera, the variations due to the new conditions must be calculated and allowed for. The only alternative is to measure the speed in the precise conditions under which the shutter is to be used, and this is not a very easy matter. For practical testing probably the simplest method would be to use a special testing camera arranged so that the angular aperture is always the same, and so that the shutter may be mounted at what corre-

sponds to a certain fixed distance from the plate. From the results the speed can be computed for any other distance and for any other angular aperture, or for a plate situated in the plane of the blind.

As an example of the importance of regarding all the four factors mentioned as essential to a speed determination, we may take a case comparable to some extent with that stated by Mr. Hargreaves. He experimented with a blind giving a nominal speed of 1-1,300th sec., and at the two distances of $\frac{1}{8}$ inch and $\frac{3}{4}$ inch from the plate. He did not state either aperture or width of slit, but we will assume the one to be $f/6$ and the other $\frac{1}{8}$ inch. Neither did he state when the speed was 1-1,300th sec. We will, however, first assume this to be the speed with the plate in the plane of the blind. In these conditions, if the blind is moved forward to $\frac{3}{4}$ inch from the plate, the speed is reduced to 1-650th sec., and the efficiency to $\frac{1}{2}$. This means that the effective exposure is the same as before—viz., 1-1,300th sec., while any blur due to movement is doubled. At $\frac{1}{8}$ inch from the plate the speed is 1-1,114th, and the efficiency 6-7ths. The effective exposure is still 1-1,300th, but the speed is 1.7 times the speed at a distance of $\frac{3}{4}$ inch. Again, we may consider the speed to be 1-1,300th at $\frac{3}{4}$ inch. In this case it must be greater at $\frac{1}{8}$ inch distance, and it is in fact equal to 7-12ths of 1-1,300th, or to 1-2,228th sec. When blind and plate are in the same plane the speed is 1-2,600th, which is also the efficient exposure for any position of the blind.

From this it is evident how much depends on the position of the plate relative to the blind when the speed is being ascertained. To say that a given shutter gives a speed of 1-1,000th sec. is quite meaningless, unless we know the exact conditions under which that speed is attained.

The rule that the efficient exposure is the same for any position of the blind shows that we shall get just as much light effect if we move the blind right up to the lens. If the shutter gives, say, 1-1,300th sec. when plate and blind coincide, it will still give the same efficient exposure if the blind is moved up to the diaphragm slot; but supposing our $f/6$ lens to be of 6 inches focal length, the duration of the exposure will be increased (or the speed reduced) to 1-185th sec., with an efficiency of 1-7th. Shutters of this type have been used, but it is obvious that we can do far better than this with the more usual types of lens shutter.

People are in the habit of talking very glibly of speeds of 1-1,000th sec. and upwards, but possibly few realise what such a speed means. If such a speed is really given in practical working conditions with an $f/6$ lens, and with $\frac{1}{8}$ inch shutter slit working $\frac{3}{4}$ inch from the plate, it means that the blind must travel at the rate of 21 feet per second, which is a fairly high speed to be attained with mechanism of the kind commonly employed.

We may add that the vignetting effect described by Mr. Salt in his letter of April 23 need not be considered. The definition of speed we have given fully allows for this effect. We should also mention that Mr. Stokes, in his letter of April 16, was in error in attributing an effect of under-exposure to the low efficiency caused by distance between plate and blind. As he himself has pointed out, the efficient exposure is not affected, and this is, of course, the factor that determines the adequateness of the light effect. For similar reasons the light effect should be fairly uniform over the plate, even though oblique pencils may be vignetted by the lens mount, and the efficiency thereby increased (not decreased, as stated by Mr. Salt) towards the margins of the plate.

It is a simple matter to calculate the effect of varying the position of the slit relative to the plate. We must first ascertain the diameter of the light-pencil in the plane where it is intersected by the shutter-blind, and then, if we divide the slit width by the sum of the slit width and diameter of light-pencil, we get the efficiency. The duration of exposure is

always exactly proportional to the sum of slit width and pencil diameter, while the product of efficiency and duration is the efficient exposure. When the plate is at the plane of the blind the diameter of the light-pencil is nil, and the efficiency 100 per cent. That is to say, the efficient exposure and the duration

are the same. As the efficient exposure is a constant quantity for any one slit and tension, regardless of position of slit, it is very convenient to take the duration of exposure with plate and blind coincident as the basis of comparisons between different shutters.

PHOTOGRAPHY AND OUR ANCIENT CHURCHES.

III.

Screens and Carving.

Many of the larger churches possess stone altar-screens, which are often erections of singular grace and beauty. Wooden rood-screens, though much less common, are still to be met with in certain rural parish churches. They are commonly of oak, and built in two stages, the upper generally consisting of open-work tracery, and the lower exhibiting a series of panels decorated with geometrical designs.

In the churches of the Decadent period the carved woodwork of the pulpit and pews will sometimes repay the visitor's examination, whilst in those of the Perpendicular and Later Decorated periods the oaken stalls intended for the use of the officiating clergy are often of admirable workmanship and design. The *misereres*, or folding-seats, attached to these stalls are, it may be mentioned, frequently ornamented on the under-sides with figure groups of a singularly naïve character. In the earlier churches no such stall-work is to be met with, *sedilia*, or recessed stone seats, having, during the twelfth, thirteenth, and fourteenth centuries, been employed as a substitute. Finely sculptured examples of the latter are still to be seen in many of the churches of the Early English and Decorated periods.

Fonts, Mural Paintings, and Tombs.

In edifices of the parochial type, among the smaller objects of interest likely to form suitable subjects for the camera, the font will commonly deserve particular notice. As a rule, the more interesting examples are those of early origin. The fonts of Saxon and Norman date are of various forms. Some specimens are circular, and ornamented with the well-known chevron moulding, or with knot-work designs of an elaborate pattern. Others, again, are square or polygonal, and exhibit panels decorated with conventional foliage, figures of animals, and sculptured groups representing incidents in Scriptural history. The fonts of the Early English period, on the other hand, are usually plain. Most of the specimens of those of the Decorated and Perpendicular periods are, however, of a more ornate description, and the nature of the decoration of these is almost invariably heraldic.

Mural and fresco paintings, though formerly a common feature of perhaps the majority of our church interiors, are nowadays of very rare occurrence. As the complete obliteration of such vestiges of work of this kind as still remain uninjured is, unhappily, only a question of time, the necessity for our perpetuating by photographic means whatever in the characteristics of the extant specimens seems worthy of preservation will be obvious to all who are interested in early ecclesiastical art.

The churches of Great Britain are particularly rich in monu-

ments of a sepulchral character. Memorials of this kind occur in a variety of forms. The incised grave-slabs of the earlier periods, and the monumental brasses of the fourteenth and fifteenth centuries are, as a rule, owing to their usual position in the pavement of the building, ill-adapted as subjects for the camera. The carved altar-tombs of the Decorated and Perpendicular periods are, on the other hand, specially deserving of the photographer's notice. These are generally richly ornamented with heraldic devices, and support life-sized stone effigies representing the deceased in the armour or costume of their generation.

In certain churches military trophies in the form of helmets, swords, shields, gauntlets, and armorial banners are still to be seen. Relics of this class are, however, now exceedingly rare, and for that reason merit careful record.

Stained glass of early date is also nowadays far from common in ecclesiastical edifices. Good specimens are still to be met with in some of our larger churches, but, unfortunately, seldom in such a position as, under ordinary circumstances, to be readily accessible for the visitor's close examination, or for the employment of the camera.

Among other antique objects of archaeological interest which will sometimes merit particular notice may be mentioned umbries, font-covers, offertory boxes, lecterns, and muniment chests, characteristic specimens of one or more of which will be found in most English churches of the parochial class.

In addition to the ancient tombstones so abundant in many of our country churchyards, lich-gates and churchyard crosses will now and again provide the photographer with striking subjects for the illustration of what may be termed the accessory features of parish ecclesiology.

In conclusion, a few words may be added concerning monastic antiquities. Ruined abbeys and priories are numerous both in England and Scotland, and the vestiges of many of these are of great architectural beauty. The range of buildings attached to a mediæval abbey was usually extensive, and generally included a chapter-house, cloisters or ambulatory, refectory, dormitory, abbot's parlour, guest-house or hospitium, cells, domestic offices, and entrance gate-house. The chapter-houses were commonly of hexagonal or octagonal form. Many fine specimens, chiefly of the Early English and Decorated periods, still exist in a fair state of preservation. The refectories, or conventual dining halls, are also frequently well worthy of the visitor's examination on account of the superior excellence of their architecture. Such of the monastic gate-houses as still exist are, as a rule, picturesque structures, and not infrequently form suitable subjects for the camera.

MATTHEW WILSON.

THE LONDON AND SOUTH-WESTERN RAILWAY Co. have just issued their official guide book for 1909, which is a valuable compendium of information regarding that part of the country reached by this line and its connections, including its steamship services to Normandy, Brittany, etc. In addition to the brief topographical details of the chief holiday resorts, list of golf links, train and boat services, etc., the book contains a comprehensive list of hotels, board-

ing houses, farmhouse and other accommodation suited to the pockets and tastes of all classes of tourists and holiday makers. The numerous illustrations, together with a well printed map of the districts covered, form an attractive feature of this guide, which may be obtained gratuitously on application to Mr. Henry Holmes, superintendent of the line, Waterloo Station, S.E., or for the price of one penny from Messrs. W. H. Smith and Son's railway bookstalls.

A PRACTICAL METHOD FOR SETTING PLATE PARALLEL WITH THE SUBJECT.

[In a competition organised by our monthly contemporary, "Photo-Notes," a prize was offered for a reliable method of adjusting the sensitive plate and a flat subject, such as a painting, in exact parallelism, a condition which is essential to the accurate photographic reproduction of plans, drawings, etc., but is not one which is readily fulfilled by the attachments ordinarily provided on a camera. Cameras built solely for process work are constructed so that the focussing screen (and plate) and copy-board can occupy no relation other than this, or can be put out of this adjustment only by purposely doing so; but whenever an original cannot be placed on the copying easel, as when photographing in galleries, an adjustment of this kind becomes necessary. The following simple piece of apparatus has been designed by Mr. Douglas Carnegie, to whom the first prize in the competition is awarded.—Eds. "B.J."]

The method here proposed for placing the plane of the photographic plate parallel to the plane focussed for is a direct application of the simple laws of reflection at a plane surface. The necessary apparatus (hereafter for brevity called the "paralleliser") is of the simplest character, and its manufacture is well within the capabilities of anyone whose digits are not all thumbs.

another flat strip of wood is screwed on to the slotted piece, so as to bind the pins securely in position. Before screwing up tight care must be taken that the tops of the pins are in accurate alignment. The pin holder (H) is now nailed to the end of the bar, and for purposes of easy identification the top half of the central pin is painted black on the side away from the peep-hole, the whole of the portion of the central pin facing the peep-hole being left bright. The bar itself is now mounted on a tripod by means of a small ball and socket head (suitable ball and socket heads can be purchased for a shilling).

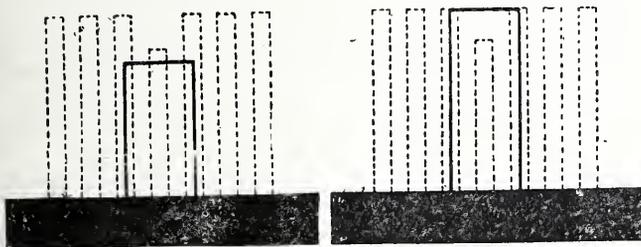


Fig. 1.

Fig. 2.

Fig. 1.—Appearance when the paralleliser is adjusted in azimuth, but not in altitude. (Full line represents the central pin; dotted line represents the mirror images of the pins.)

Fig. 2.—Appearance when the paralleliser is adjusted both for azimuth and altitude.

The Paralleliser.

At one end of a bar of wood 10 inches long and 1½ inches broad, seven pins (P) are fixed in vertical positions, one-eighth of an inch apart from each other. (Fig. 3.) A peep-hole (s), made by boring a hole one-twentieth of an inch in diameter in a piece of sheet zinc (z), is affixed to the other end of the bar. If the refraction of the observer's eye is not normal, a lens of suitable power and sign must be fixed centrally over the peep-hole.

The side of the zinc plate facing the pins should either be painted dead black, or covered with black velvet. The pins I have used

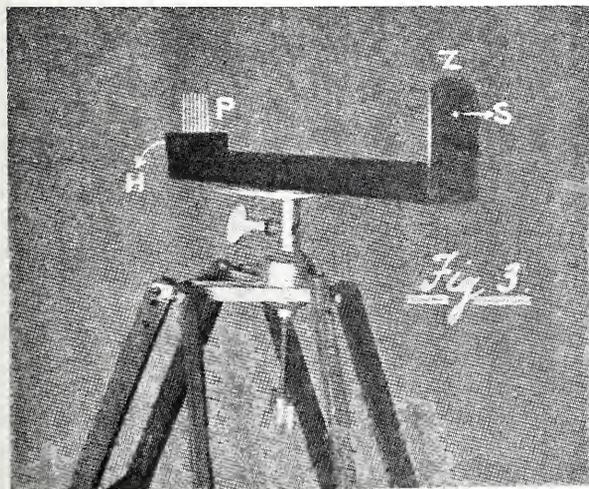


Fig. 3.

are of the large size (1-20th inch diameter) known as "blanket pins." The points and heads of the pins are cut off so that inch-and-a-quarter lengths of uniform diameter are obtained, and the ends are smoothly filed off at right angles to the longitudinal axes. By means of a saw of slightly narrower cut than the diameter of the pins, shallow slots are made in a small strip of wood at intervals of one-eighth of an inch. The pins are pressed into these slots, and

The Procedure.

Suppose the object to be photographed is a picture (P), inclined to the vertical wall on which it hangs. (Fig. 4.) The camera (C) (which should also be mounted on a substantial ball-and-socket head) is set up in front of the picture at such a distance as to give the desired scale of reproduction. It is adjusted so that the focussing screen is as nearly parallel to the picture plane as can be judged

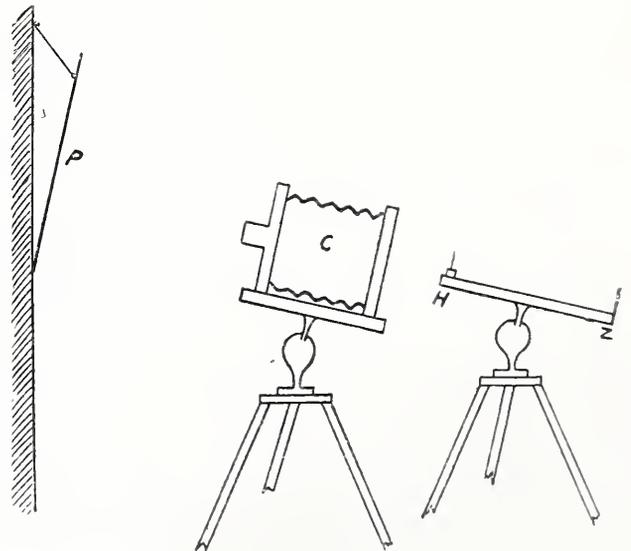


Fig. 4.

by the eye. The picture is centred and roughly focussed. The lens is now unscrewed from its mount, and the focussing screen removed from the back of the camera. The paralleliser (H) is set up as close behind the camera as is consistent with good illumination of the pins, and its line of sight is directed along the axis of the camera. A small piece of patent plate mirror (M) (1-16th inch thick) is stuck flat on the glass of the picture by application of wads of soft wax at the corners. If the picture is not glazed the mirror must be held up against the picture surface by an assistant.

On looking through the peep-hole of the paralleliser the pins and their virtual mirror images will be seen. The paralleliser is now turned in azimuth (laterally) till the central pin centrally overlaps its mirror image, the latter easily recognised by its appearing shorter than the images of the other pins, owing to the black paint with which its upper front half has been treated. (Fig. 1.) The paralleliser is then turned in altitude (vertically), so that the top of the central pin is in perfect alignment with the tops of the images of the other pins. (Fig. 2.) The focussing screen is now replaced, a piece of mirror affixed to its hind surface, and (the ball joint

of the camera having been loosened so as to move smoothly when gently urged) the camera is adjusted on its head till a similar coincidence and alignment to that just described is again obtained on looking through the peep-hole at the focussing screen mirror.

The plane of the screen must now, of course, be parallel to the picture plane. The lens is replaced in its mount, and the picture is finally and critically focussed.

The advisability of using a camera and plate of larger size (*e.g.*, of using a half-plate for the production of a negative of quarter-plate size) will, I think, be clear, for if in the preliminary focussing the image just filled the screen, the final adjustment with the paralleliser would result in throwing some of the image off the plate altogether. It is also advisable that the camera be of the front focussing type.

Rationale of the Paralleliser.

Why, it may be asked, is a peep-hole used on the paralleliser? Would not the pin images be brighter in the absence of such a perforated screen as is recommended? The object of the peep-hole is, firstly, to fix the direction of regard; and, secondly, to give the eye an artificial near point, so that the pins can be distinctly seen at a distance well within arm's length, thus permitting of the manipulation of the camera while looking through the peep-hole. In an ordinary room, and with the size of aperture specified, the images of the pins are usually abundantly bright. (If, owing to the darkness of the room, or to the necessity for placing the parallel-

iser in such a position that the pins do not receive good frontal illumination, the images are too dim for clear discernment, they must be illuminated by a suitably placed lamp or gas flame.) Were the paralleliser not furnished with a peep-hole, then not only would error arise from changes in the direction of regard, but the services of an assistant would most probably have to be requisitioned to move the camera according to the instructions of the observer, and this is neither a satisfactory nor expeditious way of getting an adjustment.

Again, it may be asked, what is the object in having seven pins? There is no particular virtue or magic in the actual number seven, but there is virtue in multiplicity, for the mirror image of a single pin is much further from the eye than the pin itself, and consequently the image appears much smaller than the object. (Figs. 1 and 2.) Since, then, from the nature of the case, the object must overlap its image, the exact adjustment for altitude with a single pin would necessarily be a matter of guess-work. The images of the lateral pins provide a horizontal datum level, permitting of the adjustment in altitude being made precise and unequivocal. If the plane focussed for is a considerable distance away from the camera, it may be necessary to increase the length of the row of pins by adding to their number.

There are other solutions of the problem here attacked, but the one described I have found the most useful and workable.

DOUGLAS CARNEGIE.

ON THE EVALUATION OF THE RECIPROCITY LAW, BASIC FOG, AND PRELIMINARY EXPOSURE.

(A paper in "The Astrophysical Journal," Vol. XXIX., No. 2.)

A CURSORY examination of past photographic literature is sufficient to show the recurrence of similar ideas and methods which have either been discarded as fallacious, or, because of lack of definite scientific investigation, have never advanced beyond a somewhat nebulous stage of development. The systematic and unbiased investigation of these ideas is of the utmost importance, not only in the upbuilding of a firm foundation upon which may be reared the structure of photographic practice, but such investigation is also of major importance to every scientist who records his results by photography.

The work detailed in the present paper was undertaken in the hope of obtaining definite measurable results and shedding light upon somewhat disputed questions.

Primarily, it was concerned merely with the effect of a supplementary "fogging" exposure upon a plate as influencing the recording power of the sensitive film, but, as the work progressed, it was found necessary to investigate also the influence of varying amounts of "fog" upon recorded densities, and likewise the so-called "reciprocity law."

It is usual in all photographic density measurements to subtract from each reading the total amount due to basic "fog,"—i.e., the sum of the absorption of the glass, the gelatine, and the general reduction products in the film. As a usual thing this value is comparatively small, amounting in a good, clean-working plate to about 0.05 (Hurter and Driffield), which is practically negligible except on records of small total luminosity. From causes either inherent in the film—induced by subject or apparatus, or intentionally added (as in the case of a preliminary exposure)—this value may increase in an alarming manner and rise as high as 0.45 or 0.5 H. and D. This is equivalent to 20 per cent. of the highest allowable printing density upon the plate, for when this fog value is subtracted from the various densities, the records are not only in error, but result in anomaly.

As an example of such, the following experiment is detailed.

A Seed "G. E. 27" plate was impressed with a series of preliminary exposures in strips A_1, A_2, \dots, A_8 running parallel to the longer edge. The plate was then exposed in the sector-disc machine and received a second series of exposures B_1, B_2, \dots, B_8 ,

and was developed. Measurements of the plate gave the following density values:—

TABLE I.

No.	Original (Minus Fog).	Original + F_2 .	Original + F_3 .
Fog ¹ ...	0.0105	0.2418	0.5278
1 .....	.0105	.0216	.0094
2 .....	.0105	.0386	.0286
3 .....	.0461	.0700	.0486
4 .....	.1841	.1662	.1038
5 .....	.4327	.3472	.1792
6 .....	.7603	.6110	.4082
7	1.1669	1.0032	.6988
8	1.6443	1.4504	1.1328
9	2.2223	1.9130	1.6634

If now these measurements be plotted in the usual manner against log. exposure, it will readily be seen (Fig. 1) that all of the curves will cross the original curve at a low density-value, so that in the region of higher density these results are utterly false representations of the plate values; for these, while still in the straight portion of the characteristic curve, are shown as of lower density when the incident light-value is increased. The utter falsity of this result may be appreciated by glancing at fig. A, which is a reproduction of a similar negative.

Observation of Fig. A will at once impress the fact that as the increasing supplementary fog value F_n falls upon successively increasing original densities (O_n), the additive effect becomes less and less apparent until it is finally lost, this *extinction point* (so to name it) varying with the relative values of F and O . It is therefore evident that the subtraction of an equal value for this fog, F , from densities, O_n , cannot be considered. To determine this variation was therefore obviously the first consideration.

"Fog" Value with Increasing Densities.

Upon a Seed "27" plate was made a series of exposures to the constant acetylene light, the exposures being so timed that each strip received an exposure increasing by 1.27 times that immediately preceding it, and then developed. When dry the plate was measured

¹ The value of the "fog" on subscripts 3 and 6 equals the value of the preliminary exposure plus the basic "fog" of the original.

in the spectrophotometer at several points along the *length* of the strips in order to determine the evenness of the deposit.² This plate was then used as a transparency, behind which were exposed a number of other plates for fog value determination.

This transparency plate was set up at a distance of 2 metres from the constant acetylene light, and the plate behind and in contact with it received an exposure of 200 seconds. Upon completion of the

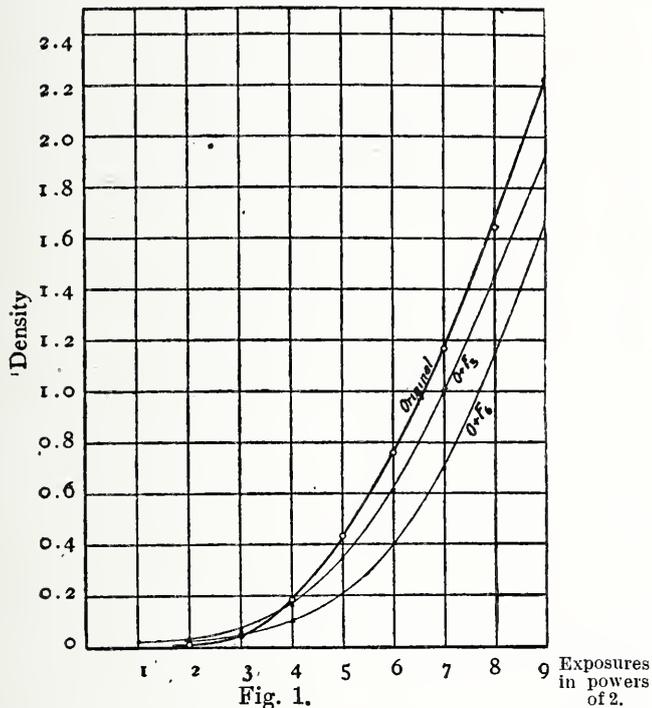


Fig. 1.

exposure the plate was rotated 180 degrees and exposed again for another 200 seconds, and then developed. A large number of such plates was made in the course of the investigation.

Measured densities were then plotted as ordinates against

F₁ F₂ F₃ F₄ F₅ F₆ F₇

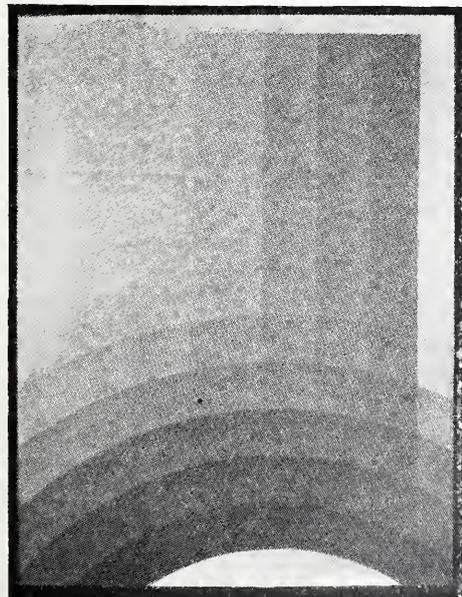


Fig. A.

logarithms exposure as abscissæ, and as the actinic value of the acetylene burner at a distance of 2 metres = 0.15 candle, then

$$\log. E = \log. I + \log. T,$$

where log. T is the value obtained by measurement of the strips on the transparency plate.³ These curves are shown in Fig. 2.

Referring to Fig. B, and calling one series of exposures

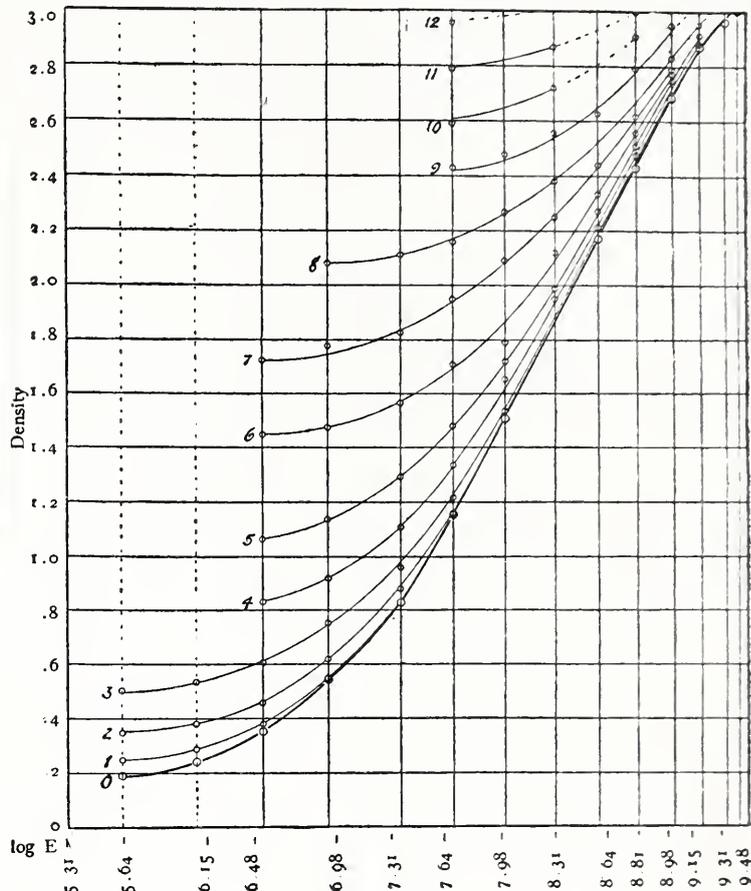


Fig. 2.

O.	Original (unfogged)	F ₁₂	Density = 1.4006
F ₁	Density = 0.2154	F ₇	" = 1.7128
F ₂	" = .3072	F ₅	" = 2.0060
F ₃	" = .4872	F ₉	" = 2.3130
F ₄	" = .7482	F ₁₀	" = 2.5340
F ₅	" = .9970	F ₁₁	" = 2.6866
		F ₁₂	" = 2.9144

O O₁ O₂ O₃ O₄ O₅ O₆ O₇ O₈ O₉ O₁₀ O₁₁ O₁₂

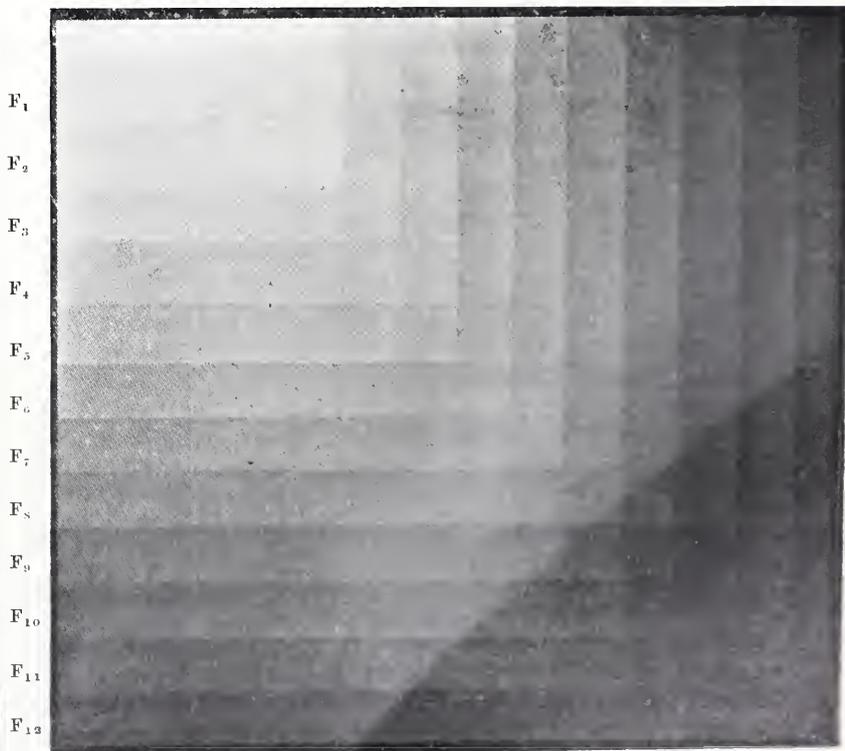


Fig. B.

² Owing to the coating inequality of the ordinary commercial plate, it was found necessary to make careful selection before one sufficiently even was found.

³ A series of differently timed crossed exposures made directly to the acetylene light without the interposition of the "transparency" gave precisely similar results.

the original, its successive strips may be designated $O, O_1, O_2, \dots, O_{20}$, while the other exposures may be termed "fogging strips" and designated as $F_1, F_2, F_3, \dots, F_{20}$. It will, of course, result that the graphic illustration of $O, O_1, O_2, \dots, O_{20}$ (which has been protected from any additive exposure) will simply represent the characteristic curve of the plate, while $F_1(O, O_1, O_2, O_3, \dots, O_{20})$ illustrates the change occurring when definite amount of "fog" (F_1) is added to the original series of exposures $O, O_1, O_2, \dots, O_{20}$ (Fig. 2).

In photometric and general scientific work, where it very often occurs that heavily fogged plates have to be measured, the value of the curves should be obvious; particularly in the measurement of relative brightness in such instances as solar disc phenomena, selective spectral intensity, etc.

In use one knowing the value of the "fog" under consideration may at a glance obtain the "minus value" of the same for densities of varying amount. It will be noted that fog-increase values appear to become asymptotic to the straight portion of the characteristic curve.

Gain from Preliminary Exposure.

To determine the value of preliminary exposure with reference to the photographic visibility of light of feeble intensity, the following method was adopted. Exposure was made to the constant acetylene light through a transparency graduated in strips (whose densities advance in arithmetical progression) for a definite length of time and at a definite distance. The plate was next turned through 180deg. and exposed behind the rotating sector disc, the apertures of which advance geometrically. Both exposures were so timed that the developable impression ceased to be visible before exhausting the number of strips. The plate was then developed as usual under constant conditions.

A very large number of plates (Seed "27") were thus made with the light at different distances and behind variously graduated transparencies, but the results in every case simply verified one another.

Fig. A is a reproduction of such a plate as has just been described, and even with the unavoidable loss due to the half-tone process it will be seen that there are arcs showing upon some of the "fogged" sections which are totally invisible upon the original unfogged region. This gain is best noticeable at F_4 , and the gradual disappearance of the effect of the additive "fog" against increasing density of the original is also clearly shown.

All of the plates thus exposed were assembled, and selection for measurement was made of that one which showed the maximum effect of increase. The measurement of such small differences requires the utmost care, and is very trying upon the eyes; ample precautions were taken relative to screening off extraneous light.

The density measures of this plate are shown in Table II., and the plotted values in Fig. 3.

TABLE II.

No.	Original ^a (Unfogged)	Original ^b + Prelim. Exposure.
1	—	0.4938
2	—	.5232
3	0.1588	.5590
4	.2818	.6512
5	.5324	.7646
6	.8306	.9970
7	1.2574	1.3860
8	1.7128	1.8038
9	2.2108	2.2108

It was at first intended to plot the densities of this plate against actual candle-power, but further consideration of the method showed the infeasibility of such a plan, for while it presumably would be true for a certain emulsion evenly coated, yet commercial production does not allow of such a degree of accuracy, and any change in the speed or constitution of the emulsion would necessitate an entirely new determination. We considered it decidedly better, therefore, to plot these densities against exposure ratios in powers of 2 as being the more practical, and also because this method presents uniformity with earlier papers published by one of us.

Considering now these curves shown in Fig. 3, the continuous line represents the original (unfogged), while the dotted line represents the same original exposure, but as influenced by an amount of pre-

liminary exposure giving a density value of 0.3218. It is, of course, understood that this density (0.3218) would appear in practice entirely covering the plate as a "basic fog," and would be representative of the highest transparency thereon. Having a definite measure of this additive fog, we can, by reference to the curves shown in Fig. 2, construct another curve which will represent the true increase or gain in sensitiveness conferred by the preliminary exposure. This curve is shown by the heavy continuous line in Fig. 3.

Just how much has been gained by the method is plainly shown graphically, but is difficult to present in figures. One naturally expects to be able to state in percentages the amount of any change, but in this instance such a method would convey very misleading information, for while with the most careful examination No. 3 was the first exposure to show any trace of development action on the original (unfogged) scale, yet Nos. 1 and 2 showed perfectly measur-

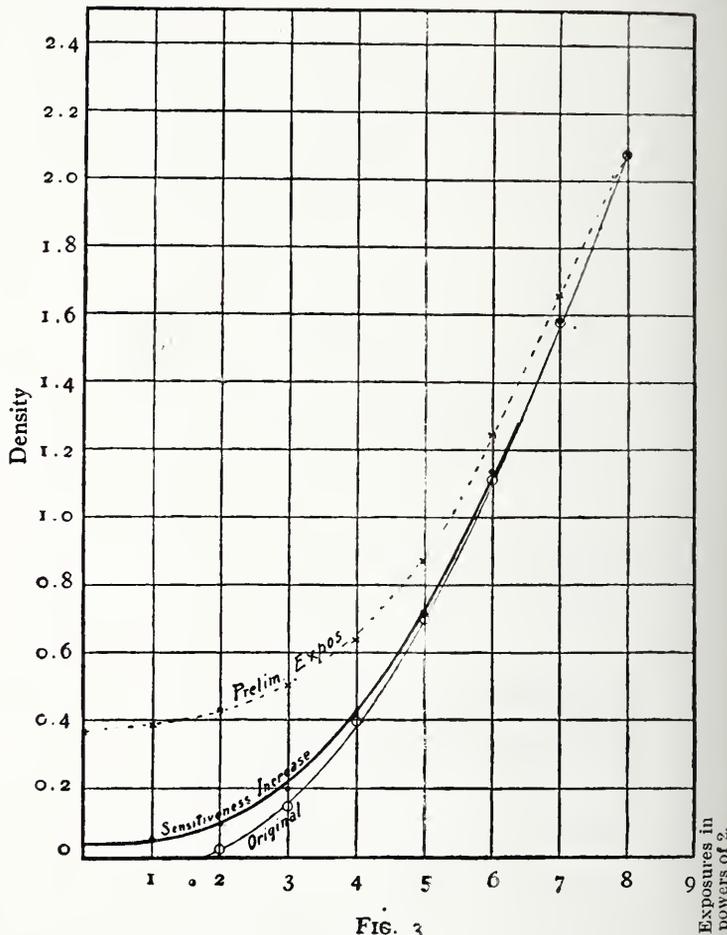


FIG. 3

able differences on the strip preliminarily fogged. The gain could thus be only represented in percentage by "infinity," which is ridiculous. We have considered it better, therefore, to make our deductions from sector exposure No. 3, which gives a density difference of 0.08 (H. and D.). This value corresponds to about 0.2 magnitude on stars near the limit of photographic action—i.e., of a density so low that their impress is but barely discernible on the negative. This gain, as will be seen both from the curve and from Fig. B., is a quantity decreasing with the density—for example, for neighbouring stars giving a density value of 0.4 the gain is reduced to 0.08 magnitude.

From these results it therefore appears to us that there is no practical advantage in preliminary (or supplementary)⁶ exposure, in so far as concerns astronomical (stellar) photography. It is, however, perfectly comprehensible that there may be special occasions (more particularly in long spectroscopic exposures) where the exposures are measured by hours or days, when the slight gain would be well worthy of consideration; ordinarily the "gain" is a negligible quantity, which is in many lines of work offset by the change in gradation curve.⁷ The great majority of workers will naturally hesitate to purposely "fog" their plates for so slight a gain.

⁶ Plates made with supplementary exposure resulted in values similar to those preliminarily exposed.

⁷ This change is shown by the uniformly lower γ of the "fogged" strip, i.e., by a smaller angle between the straight portion and the log. E axis.

⁴ These values represent the actual density, the value of the density due to glass and gelatine having been subtracted, as is usual in sensitometric measures.

⁵ Density of preliminary fog = 0.4512.

Reciprocity Law.

The well-known Bunsen-Roscoe "reciprocity law" states that the product $I t = E$, where I is the intensity, t the time, and E the exposure. Abney was the first to point out that this law did not hold for photographic plates, and further work has since been undertaken upon the subject by English, Schwarzschild, Mees and Sheppard, and others, from which it results that the formula $I t^P = E$ is more in agreement with truth when P is slightly less than unity.

As the matter is of considerable importance from an astronomical standpoint, it was decided to verify these foregoing values upon the plates most generally in use⁸ in astronomical and general scientific work—viz., Seed "27" and Cramer "Instantaneous Isochromatic."

A large number of exposures were made upon these respective plates behind the graduated transparency before mentioned at different distances from the constant acetylene light, and (by means

constant light at a distance of 2 metres. This "constant" exposure may be represented by m . The light was then removed to a distance of 12 metres (=1/36th the original intensity), and four more exposures were given on the remaining portions. As each exposure time was completed, the movable slides protected that portion from further light-action, which, for example, were in some cases

24 minutes (=m)	=P=1.0
35 " 4 seconds	=P=0.905
53 " 48 "	=P=0.816
1 hour 26 " 16 "	=P=0.734
2 " 27 " 52 "	=P=0.663

although varying values for P were given on different plates.

As was anticipated, examination of the plates after development showed that in every case, with the "27," the exponential value

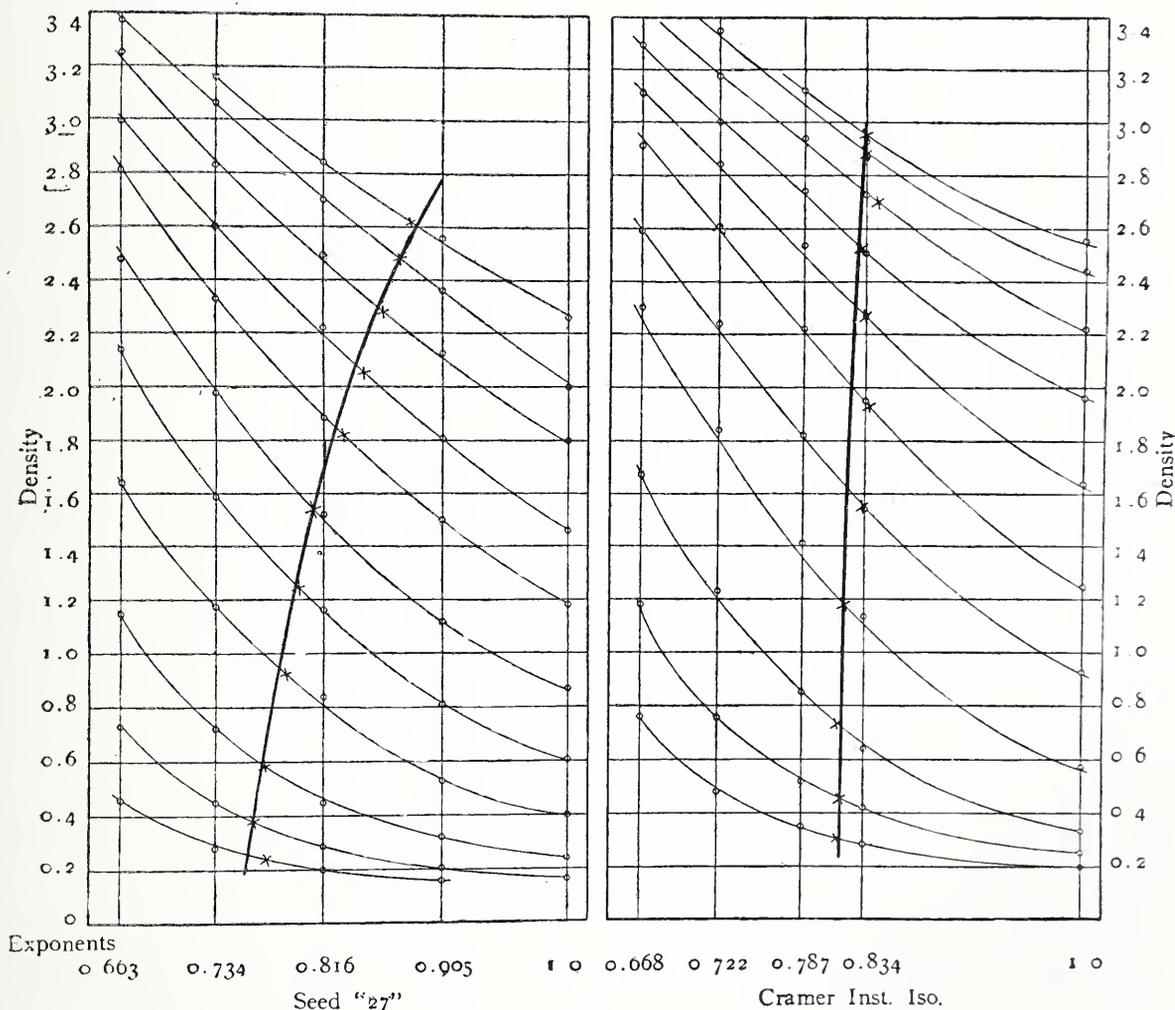


FIG. 4

of shutters) for different lengths of time—i.e., different values of P . From the formula $I t^P = E$ we obtain:

$$I_1 t_1^P = I_2 t_2^P,$$

whence

$$P = \frac{\log \frac{I_1}{I_2}}{\log \frac{t_2}{t_1}},$$

and

$$t_2 = \text{antilog} \left(\frac{\log I_1 - \log I_2 + P \log t_1}{P} \right)$$

In actual practice six separate exposures were made on each plate ("27" and "iso") in the following manner. One portion of the plate was exposed behind the transparency for 40 seconds, with the

varied with the density. With the "iso" plate this variance does not obtain, but remains practically constant even beyond the limit of full printing density. Plotting the measures made from these two types of plates against the true log. E , the crossing of the various curves over m is plainly shown.

If, however, these curves be plotted with density against exponents, we obtain a series of smooth curves which present great interest, for upon each unit we may indicate the density value of m , and, connecting the points, obtain a result which gives directly the exponential value required to reproduce a density of any chosen magnitude. Thus it will be noted (Fig. 4) that with a Seed "27" plate for a density value of 2.6 the exponent value required is 0.88, while for $D=0.4$, $P=0.76$.

In astronomical photography, assuming that for certain stars of n th magnitude an exposure of 60 minutes is necessary in order to obtain upon the film a density of 0.4, then the exposure time neces-

⁸ In the United States.

sary to obtain images of comparable density from stars 1 magnitude fainter would be found as follows:—

$$\begin{aligned} \text{Let } I_1 &= 1. \\ I_2 &= \frac{1}{2.5} \\ P &= 0.9. \\ t_1 &= 60 \text{ minutes.} \\ t_2 &= x. \end{aligned}$$

$$\text{Then } \frac{0 + 0.3979 + 0.9 \times 1.7782}{0.9} = 2.22.$$

$$\text{and } \log^{-1} 2.22 = 166 \text{ minutes} = t_2.$$

For stars of higher density the time is proportionately shorter.

Regarding the Cramer "inst. iso." plate curves (Fig. 4), it will be seen that when plotted in similar manner the exponential curve is practically a straight line with its mean value at 0.83, which is in practical agreement with Schwarzschild, who found when using Schleussner plates $P=0.86$. It is evident, however, that the value for P will vary with plates of identical "brand" if the emulsion be not coated in one operation at the one time. It is also probable that the P value may vary with the wave-length of the incident light.

R. JAMES WALLACE.
HARVEY B. LEMON.

SENSITISING SOLUTIONS FOR PRINT-OUT PAPERS TO GIVE BLACK AND BROWN TONES.

(Some modified formulæ for the making of plain paper are given in a recent issue of "Der Photograph," by Dr. C. Stürenburg, who, in recommending their use, comments upon the preference now extended to printing papers which give the rich brown tone of a mezzotint engraving, and at the same time possess the natural texture of the paper.—Eds. "B.J.")

THESE conditions, it is pointed out, are realisable by the use of a paper which the photographer can prepare for himself with comparative ease, and requires only to fix and wash. The following formulæ and methods of preparation are recommended.

For a paper which shall give a black tone 10 gms. of sodium phosphate and 20 gms. of gelatine are dissolved in 1,000 ccs. of water. To this warm solution 10 ccs. of a 5 per cent. solution of shellac in alcohol are added. The paper to be used is dipped in this warm solution and removed and hung up to dry as soon as the liquid has penetrated it. In place of immersion the solution may be applied with a brush, and the dried paper can be kept for any length of time. In order to sensitise it the following silver bath is prepared:

Silver nitrate	120 gms.
Boric acid	10 gms.
Potass chlorate	20 gms.
Water	1,000 ccs.

The paper is floated on this bath for about five minutes and hung up to dry. Printing takes place very quickly, and the prints are then washed and placed in a plain bath of hypo of 10 per cent. strength, again washed and dried.

A second method (for brown-toned prints) is as follows:—

Soft gelatine	10 gms.
Ammonium chloride	6 gms.
Sodium carbonate	2 gms.
Borax	2 gms.
Sodium phosphate	6 gms.
Potass. bichromate, 10 per cent. solution...	3 drops.
Water	300 ccs.

The above proportions give a deep brown tone. For a black tone only 8 gms. of borax should be taken and 9 gms. of sodium phosphate. For sepia tones the proportions should be borax 15 gms., sodium phosphate 2 gms.

This warm solution is applied freely to the paper by means of a brush, the paper being pinned to a board. After drying, the paper is sensitised in:—

Silver nitrate	15 gms.
Lead nitrate	15 gms.
Distilled water	240 ccs.

Ammonia is added drop by drop to this bath until a slight permanent precipitate is produced. The bath is then exposed to light until the precipitate has settled and is then filtered. The paper may be sensitised by liberal application of the solution with a brush. In its sensitive condition the paper will keep a few days. It may be fairly deeply printed, and the prints then given a few minutes in a 3 per cent. solution of salt, rinsed and fixed in a hypo solution containing 180 gms. hypo per 1,000 ccs. of water. This is followed by the usual washing.

THE CITY AND GUILDS EXAMINATIONS IN PHOTOGRAPHY.

At the examinations held on April 28 and May 1 by the City and Guilds of London Institute, the following papers and practical exercises were set in photography. The number following each question is that of the number of marks given for it.

ORDINARY GRADE.

Written Examination.

1. The following formulæ for development, accompanying each box of plates sent out by a popular maker, is a fair sample of the usual instructions, with British weights and measures. Would you advise any improvement, and, if so, what, in the mode of stating the proportions of the ingredients?

Avoirdupois Weight.

Pyro Developer.

To those who prefer a vigorous negative the following is recommended:—

Sol. 1.	Pyro	1 oz.
	Potassium bromide	50 grs.
	Potassium metabisulphite	50 grs.
	Sodium sulphite	8 ozs.
	Water to make	80 ozs.
Sol. 2.	Sodium carbonate	8 ozs.
	Water to make	80 ozs.

Use equal parts of solutions 1 and 2.

For softer negatives the following may be used:—

A.	Water	16 ozs.
	Sodium sulphite (crystals)	1 oz.
	Pyro	1 oz.
	Citric acid	20 grs.
B.	Water	16 ozs.
	Sodium sulphite (crystals).....	4 ozs.
C.	Water	16 ozs.
	Sodium carbonate (crystals)	4 ozs.

To develop take

A.	.....	1 oz.
B.	.....	1 oz.
C.	.....	1 oz.
Water	.....	8 ozs.

(a) Taking 1 oz. of the first-named complete developer, what would it contain?

(b) What are the contents of an ounce of the second "for softer negatives"? (30 marks.)

2. Given a batch of negatives thoroughly washed and ready to be dried, how would you proceed to dry them, (a) twelve hours being allowed, (b) half-hour only being allowed? In either case, what troubles might possibly occur, and how would you remedy them? (30.)

3. What strength would you recommend for a "hypo" fixing solution for negatives? How would you decide when to remove the plate from the solution? What method would you adopt for freeing it from the "hypo"? (25.)

4. Of what is the film of an average dry-plate of the present day composed? (40.)

5. Explain the action of the developer upon an exposed gelatine dry-plate? (40.)

6. For use in various departments of photographic work, dishes of many kinds of material are purchasable; state what material or materials and what colour or colours you would prefer, and give your reasons for such preference. (30.)

7. If the inside of the bellows of a camera had lost its original dead black appearance and become grey and worn-looking, would any ill-effect be produced when using it? If so, how would you provide against it? In re-blackening the interior of a dark slide how would you proceed, and what materials would you employ? (35.)

8. Having a whole-plate (8½ ins. x 6½ ins.) camera capable of extending to 18 ins., what is the extreme size you could, with it, enlarge a head 1½ ins. from chin to top of head when using (a) an 8-in. focus lens and (b) a 5-in. focus lens? (40.)

9. In the case of a gelatine dry-plate negative badly cracked, but with the film itself not ruptured, how would you transfer the film to another unbroken glass plate? What risks would occur, and how would you combat them? (35.)

10. Some makers advertise lenses as specially valuable on account of their so-called "depth of focus." Have you found, in your own experience, such claim to be well founded? On what does this "depth" depend? (30.)

11. Give formulæ for the composition of a developer and a clearing solution for platinotype printing. (30.)

12. How would the resulting prints on platinotype paper be affected if the paper had been insufficiently protected from the atmosphere for some weeks? (30.)

13. Used in a studio 20 ft. long, what is the longest focus a lens could have so that a full-length standing figure 6 ft. high could be taken for a cabinet size (5½ ins. x 4 ins.) picture, leaving ¾ in. space above his head and ½ in. below his feet on the print? (40.)

HONOURS GRADE.

Written Paper.

1. Give an account of the chemical theory of the formation of the photographic image. State any objections to it which appeal to you. (60 marks.)

2. A lens is made of glass, having a refractive index of 1.52. It is equi-convex, and has a focus of 12 ins. What is the radius of curvature of the two surfaces? (40.)

3. What are the essential principles of sensitometers for three-colour work? (50.)

4. You are given colour screens which are not perfectly plane. By preference where should such screens be placed? Give your reasons. (30.)

5. A good lantern slide has to be made by contact on a fairly rapid lantern plate from a very thin negative. Describe how you would set about making it. (50.)

6. Describe Hurter and Driffield's method of ascertaining the comparative rapidities of plates. Point out anything which militates against the absolute theoretical accuracy of the method. (60.)

7. Name any metallic salts (other than silver salts) which are sensitive to light. (30.)

8. Discuss the advantages or disadvantages of having an instantaneous shutter between the two components of a doublet lens. (40.)

9. Describe the single transfer carbon printing process. (30.)

10. State what you know about flashlight photography as regards time of exposure and ingredients employed to produce the flash. (40.)

11. Give the formula for an acid fixing bath, and state any advantages it possesses over the ordinary hyposulphite bath. (30.)

12. Describe some plan by which you can use with safety plates that are liable to frill. (40.)

Practical Examination.

1. Copy the engraving given you, making the image as large as possible on a half-plate.

2. Dry off the above negative with methylated spirit and take a contact print from it on bromide paper.

3. Print the negative given you on carbon paper, double transfer.

4. Intensify the negative given you.

PIPE-DREAM PHOTOGRAPHS.

AMONG the forms of photograph of a kind to attract attention which have come under our notice of late, the most striking is undoubtedly that devised by Mr. W. R. Barefoot, of the Dixon Studio, Toronto, and called by him "Pipe-dream Pictures." The novelty of the setting and its value as a means of advertising the photographer are best summed up in the expressive phrase applied to it by Mr. Barefoot, "It's a winner."

In response to our request for a print for reproduction and some account of the process, Mr. Barefoot writes as follows:—

"To make a 'pipe-dream picture' you take a negative of a subject you may choose on a white ground. Vignette it in on your



panel sheet of matt-surface paper, and at the same time from a negative of a pipe the required size. Print in that also on the bottom of the same panel sheet of paper. This being done, you develop the print in the usual way, fix and wash, and then dry the print under pressure to keep flat. The smoke effect is now put in by hand, with a piece of absorbent cotton and graphite, and etched out with a rubber to the design you may require. A soft rubber is used for the etching.

"These novelties are very simple and easily made, and when I dressed our Christmas window with them—it being the first appearance of a 'pipe-dream' in photographic form in America—they attracted no small amount of attention from the public."

Photo-Mechanical Notes.

Another Etching Machine.

The patent specification (No. 13,452, 1908) is just published of an etching machine invented by Mr. Holt, the managing director of the works of Messrs. John Swain, Limited, at Barnet. The machine consists of an etching bath, in which the plates are laid in the etching solution. Just above them is arranged a disc, which is caused to rotate by means of a small motor. On the face of the disc are fixed vertically small blades or vanes so constructed that the rotation causes them to make a maximum agitation of the liquid.

The idea would seem to be a combination of those of Concewitz, who whirls the plate in the bath, and Albert, who agitates the liquid by a reciprocating movement. The special claims of this machine are that it is durable and effective, that the desired effect is obtained in a very expeditious, economical, and satisfactory manner; further, that it is silent, and can be run at small cost.

It is well to remember, in these days of etching machines, that the only way to facilitate etching mechanically (the strength of mordant and other conditions remaining the same) is to remove rapidly the reaction products and bring fresh mordant to bear on the metal to be etched. That is the reason why violent shaking of the bath, or violent brushing of the plate, hastens the process. The point, therefore, to be determined is which method of removing these reaction products is the most effective. In copper etching with iron perchloride without agitation, there can be no doubt that face-down etching is better than face-up etching, principally for the reason that the copper chlorides formed sink, and if the plate is laid in the bath face up the reaction products fill up the etched spaces, and if they are then removed by surface agitation the side-spreading action is much greater than it is when the mordant is allowed to act from below, because the chlorides, in the latter case, sink then into the bath and not into the etched spaces, and leave fresh copper exposed automatically. There is no advantage gained by etching in a still bath with zinc face down, because some of the reaction products are gas bubbles, which cling to the surface and spoil the etching unless they are removed. But it is certain that violent rocking of the bath or violent brushing of the plate also increases the width of the etching action in proportion to the depth, and that until some other method is found to be better it is probable that either raining down the mordant or spraying it up will be found superior for both zinc or copper. Comparative tests on different machines, some using agitation of the bath solution, others using spraying methods, have shown, as was to be expected, a greater depth for the same width or a lesser width for the same depth in the case of the spraying machines, while the reverse is true for the other machines. However, there is no doubt that any of the machines so far on the market give superior results to hand-rocked tub-etching.

White-Letter Process.

A correspondent writes:—"Have you at any time given under 'Patent News' or elsewhere details of Baker's 'line-tone' and white-letter process, and if so, could you give me date or number of issue? Failing this could you give me the number of the patents?"

We believe these are secret processés, and we do not remember ever having seen them referred to as patented. The white-letter process is a transposition method, and such "reverses" can be simply attained as follows:—Take a good black impression of the matter desired to be transposed, and immediately dust over it dry oxalic acid in powder, brushing away all powder that does not adhere to the ink. Cover the litho. stone or zinc plate with a thin even film of transfer ink. Place the print in a damping book for a few seconds, and then lay down on the stone, pull through the press with good pressure and remove. The acid has now penetrated the ink and the stone can be gummed up and washed out as usual.

Another method is to dust the ink impression with powdered gum arabic, and lay this down on a stone previously damped with water applied with a clean cloth. Pull through the press, and the gum will adhere to the moist stone. The stone can then be

rubbed up with ink and turpentine, dried and treated in the usual manner, when a "reverse" will be the result. The former method is said to give the sharper results.

PHOTO-MECHANICAL PATENT.

The following patent has been applied for:—

PRINTING.—No. 10,260. Improvements in photo-mechanical printing. Oliver Samuel Dawson, 254A, High Holborn, London.

Patent News.

Process patents—applications and specifications—are treated in "Photo Mechanical Notes."

The following applications for patents have been received between April 26 and May 1:—

HANGING DEVICE.—No. 9,865. Improvements in devices for hanging photographs and other objects. Ivan August Mauritz Larsson, 65, Chancery Lane, London.

BIOSCOPIES. No. 9,876. Apparatus applicable to bioscopes for minimising the risks of fires. Frank Porter and British Bioscope Manufacturing Co., Ltd., 11, Southampton Buildings, London.

EMULSIONS.—No. 9,900. Improvements in photographic emulsions of phosphate of silver. William John Wilson, Paget House, Watford, Herts.

CINEMATOGRAPHY IN COLOURS.—No. 9,912. Improvements in and relating to cinematography in colours. Henry William Hamblin Palmer, 52, Stephens Road, Tunbridge Wells.

FILMS.—No. 9,925. Improvements in photographic films. John Owden O'Brien, 6, Bank Street, Manchester, for John Edward Thornton, United States.

COLOUR PHOTOGRAPHY.—No. 10,059. Improvements in and connected with colour photography. Louis Weigert-Sterne, 77, Chancery Lane, London.

MOUNTING.—No. 10,205. Improvements in and relating to the mounting of photographic and other pictures and the like. James Bert Bowden Bailey, Montague Picton Prout, and Frederick William Emuss, 37, Chancery Lane, London.

VIEWING PHOTOGRAPHS.—No. 10,207. Improvements in and relating to obtaining and viewing of photographic images. Andrew Lincoln Jackson, 18, Southampton Buildings, London.

EMULSIONS.—No. 10,284. Improvements in photographic emulsions. William John Wilson, Paget House, Watford.

PROJECTION APPARATUS.—No. 10,292. Improvements in apparatus for projecting series of luminous pictures. Georg Mewes, 31, Bedford Street, Strand, London.

COLOUR PHOTOGRAPHY.—No. 10,351. Improvements relating to colour photography. Richard Merkel, 17, Holborn, London.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

CINEMATOGRAPH MECHANISM.—No. 11,395, 1908 (May 27, 1907). The invention relates to safety mechanism for the prevention of fires in the cinematograph projector, and is based on the fact that celluloid melts before burning and for melting requires heat which arises first from the source which causes the ignition and after by the flame of the already burning celluloid. By pressing the ignited band between two solid parts, such as plates, rollers or jaws, the fire is extinguished; the same result is obtained

when the burning band is freely placed between such solid parts separated the one from the other by an interval which can amount to a seventh of an inch and even more. The parts then exercise at a distance a cooling action on the flame and thus prevent the next point of the band from melting and which otherwise would become ignited. The cooling action is so effective that the fire is extinguished even when the band is in motion between the solid parts; therefore the larger the interval between these parts and the higher the speed of travel of the band, a greater length of the band must be comprised between the cooling parts for ensuring perfect extinguishment; the result is more perfect when the parts are of metallic, good-conductive materials. But, in cinematographic practice when sufficiently good conditions do not exist or when the celluloid is particularly inflammable, the action of the cooling parts causes at least an enormous checking in the speed of the conflagration, enabling an automatic apparatus to separate the ignited portion of the band from the other portion thereof, either by cutting the band or by compressing it before its entrance into the fireproof film magazine; said entrance being simultaneously closed by the same operation of cutting or compressing, and thus all further danger is prevented. Amédée Lertourné, 2c rue Payée, Rouen, Seine-Inférieure, France.

Analecta.

Extracts from our weekly and monthly contemporaries.

A Copying Dodge.

A task I have just had to perform, writes Mr. Ralph Earle, in "Photography and Focus" for May 11, was the copying of a design to which had been attached a water-colour sketch, which had apparently been toned down all over with some wash. Every exposure on the whole thing resulted in either the design being hopelessly over-exposed or the sketch equally hopelessly under-exposed. The sight of a sheet of orange-paper suggested the following dodge to me, and this proved to be an effective solution of the problem. A hole was cut in the orange-paper with a sharp knife and a glass plate as a guide, so that it exactly fitted the water-colour, and the paper was then laid down on the design, with the water-colour showing through the hole. In this condition an exposure of thirty minutes—which experience had shown to be about right for the water-colour—was given. The paper was then removed, without disturbing the other arrangements in the slightest, and a further exposure of two minutes was given to the whole design. The result proved to be quite satisfactory. Black paper or black velvet would perhaps have answered better, but the orange-paper was handy, and seemed to do all that was needed.

FORTHCOMING EXHIBITIONS.

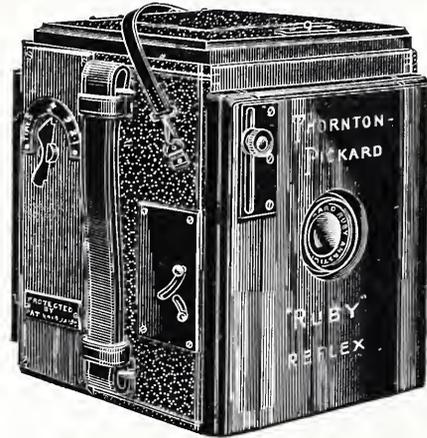
- April 29 to May 17.—Photo Club de Paris. Secretary General, Photo Club, 44, Rue des Mathurins, Paris.
- May 20 to 27.—Malvern Camera Club. Entries close May 10. Sec., J. B. Nickolls, The Exchange, Malvern.
- July 7 and 8.—Canterbury Camera Club. Entries close June 23. Sec., B. J. Fisk-Moore, St. George's Gate, Canterbury.

"OLD COACHING DAYS."—Lovers of Dickens will doubtless welcome this little booklet which gives an account of the early days of "The White Horse Cellar," so familiar to readers of "Pickwick," giving the chief place of departure and arrival for the old time coaches. Two specially interesting features are the eight illustrations in colour, reproduced in miniature from old sporting prints of the period, and the table of fares compiled from old way-bills and other coaching records. The little book has been compiled and published for the present proprietor of this old time hostelry by Messrs. Ward and Co., of 34, Craven Street, Charing Cross, London, W.C., from whom copies may be obtained, price one shilling net.

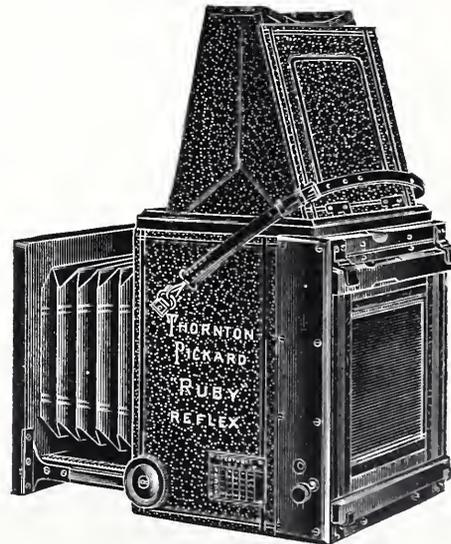
New Apparatus, &c.

The "Ruby Reflex" Camera. Made by The Thornton-Pickard Manufacturing Co., Ltd., Altrincham, Cheshire

The instrument sold under this name is made by the Thornton-Pickard Co. at a lower price than the "Royal Ruby" reflex, which is built with a pull-down baseboard carrying the universal front of the Thornton-Pickard design. This form of construction gives a

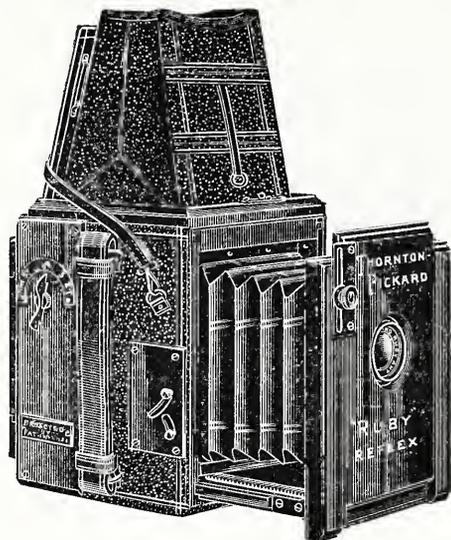


very great range of movement, but in the "Ruby Reflex" the makers supply an instrument which, while possessing a lesser range of movement, can claim to have one advantage over its more expensive fellow inasmuch as it is ready for use without the need of drawing out the front upon its baseboard. The camera is of the single-extension pattern, is provided with a rise-of-front movement, and has the hood instantly detachable for cleaning the ground-glass, two movements which may be considered essential in a reflex instrument. The chief feature, however, of the camera, and one which renders it extremely good value for the price charged for it, is the shutter, which is of quite distinct pattern from any hitherto used



on the Thornton-Pickard manufactures. Its chief claims to commendation, and they are particularly strong ones, are first that it is self-capping, protecting the plate when the shutter is re-wound; that all the speeds are instantly obtained simply by turning the winding-key, and this whether the shutter is set or run down; that setting is done with a very quick wind, only about half a turn of the milled head being necessary; and, lastly, that the construction of the shutter provides for a perfectly taut blind, the aperture in which is locked for each speed and does not vary as the blind runs down. In a reflex camera particularly a self-capping shutter is of the greatest advantage, since it prevents inadvertent re-exposure of the plate, even when the camera is not provided with an automatic return of the mirror to the down position. In the Thornton-Pickard camera this also is done so that the use of the instrument

is reduced simply to the one movement of re-winding the shutter after exposure and placing any plate in position in its dark-slide or by means of a changing box or other device. As the mirror may, however, be instantly locked in the up position so that a clear course is provided from the lens to the plate, the camera serves very conveniently for use on a stand, and here the quickness with which the shutter gives the full opening of the plate and may be thus used either for time or bulb exposures, is an excellent feature of the



arrangements. In giving this description of the mere convenience of the movements we should not do the camera justice if we omitted to say that in smoothness and silence of running the shutter is altogether excellent, and certainly marks an advance, from the point of view of the practical user, in focal-plane shutters. With all this convenience and efficiency the camera in quarter-plate size is priced at only £7 without lens, but with three double dark-slides, or with Thornton-Pickard "Ruby" anastigmat $f/6.8$, the price is £10.

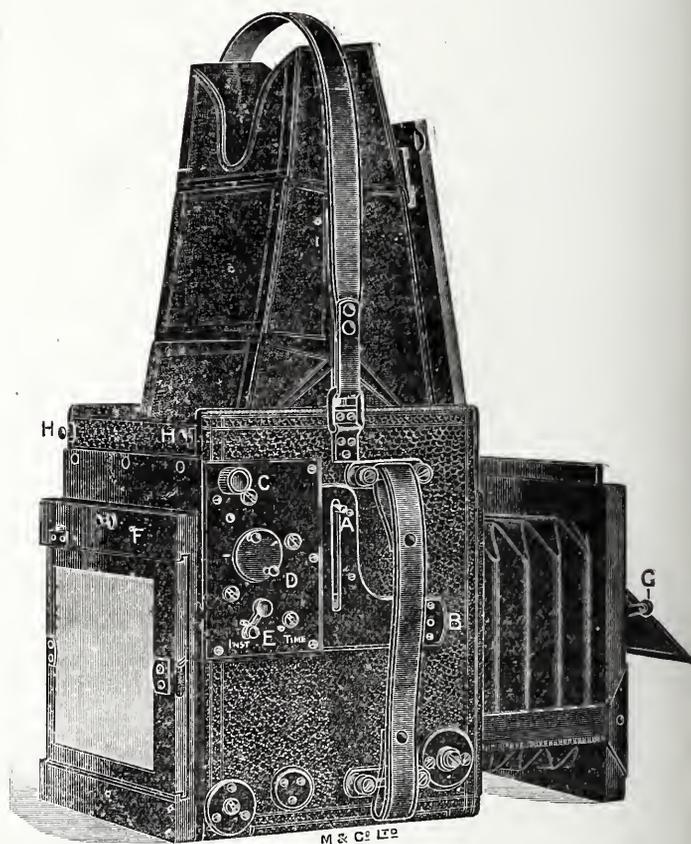
The "Soho" Viewing Mirror Attachment for Reflex Cameras, and new models of the "Soho" Reflex. Sold by Marion and Co., Ltd., 22 and 23, Soho Square, London, W.

As everyone who has used a reflex knows, that type of instrument possesses the drawback—we would almost say the one drawback—of requiring to be held in a somewhat low position in order to secure



a convenient view of the ground-glass screen. We have heard of heroic expedients undertaken in order to adopt a more lofty point of view: some photographers have declared their advocacy of holding the camera upside down at arm's-length above the head, in which position the picture upon the screen may be seen and focussed. This method, which, to say the least, is uncomfortable and apt to attract remark, is not one which is likely to come into general use. Messrs. Marion, in introducing a mirror attachment for the hood of the camera, have provided photographers with the means of doing prac-

tically the same thing in a much more convenient way. The mirror may be fixed at the mouth of the hood, as shown in the drawing, and the image formed on the ground-glass observed in it, a plan which, it will be seen at a glance, allows of the camera being held level with the eyes. Such a device has been embodied as a fixture in at least one camera, but this necessitates a hood of special pattern and one less suitable when viewing the picture in the ordinary way. Moreover, the detachable mirror being hinged to the frame by which it is affixed to the hood, the height at which the camera is held may be varied simply by giving the proper inclination to the mirror. It will be understood that it is not claimed for the attachment that the full size of the picture can be seen in the mirror; but a little experience of the accessory shows that very good judgment may be made as to the picture being actually obtained, and focussing may be done just as when the customary position is taken. Messrs. Marion supply the mirror attachment mounted so that the glass is protected when detached from the mirror, and may be carried flat in the pocket or in the camera case. This useful accessory is certain to be much appreciated by users of reflector cameras, inasmuch as it removes, as we have said, the one disability of this type of instrument. The price



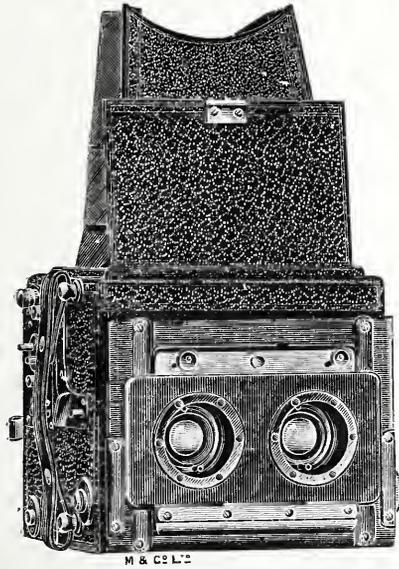
of the attachment covered in leather is 12s. 6d. in quarter-plate size, postcard 13s. 6d., 5 x 4 14s. 6d., and half-plate 16s. 6d.

In the 1909 model of the "Soho" reflex camera, an instrument which has taken its place as a standard of excellent manufacture and moderate price, several improvements have been made which materially enhance the working qualities of the instrument. In the first place, a lever adjustment of the rising front is provided whereby the movement is adjusted to a nicety while the operator has his eyes on the focussing screen. This is a feature of a reflex camera which is appreciated as much as any. Almost equal in importance, though perhaps not so clearly recognised as such by those unused to a reflex, is the ready accessibility of the ground-glass for cleaning purposes. This is now provided in the new model of the "Soho," the hood being hinged to the front and immediately raised releasing a catch. On a dusty day the focussing screen may receive a layer of dust which makes it difficult to secure a sharp focus, and on occasions when the camera has to be used in the rain, drops of water falling and spreading on the focussing screen will again make it almost impossible to be certain of accurate focussing, particularly when using lenses of large aperture. The shutter of the camera has been further modified so that the actual speeds for each width of

slit are recorded and all calculation dispensed with. The prices of the "Soho" reflex thus improved remain the same, and are given in full in a new twenty-page list just issued by Messrs. Marion and Co.

A further new pattern of the "Soho" reflex is one especially made for use in tropical climates. It is made throughout in teak, polished, and bound with brass where necessary, and of course without a leather covering. The hood and bellows are made of best Russian leather, whilst the dark-slides are also of teak and brass-bound in both the solid and book-form patterns. The apparatus is evidently of a kind to withstand the trying conditions of hot, moist, climates, and is issued in the quarter-plate size, complete with lens and three double solid plate-holders, at the price of £17 17s.

The stereoscopic pattern of the "Soho" reflex, introduced some little time ago, is built to take plates $5\frac{1}{2} \times 3\frac{1}{2}$ inches (postcard) size, the stereoscopic division being ingeniously fitted at the back of the camera, so that it is almost instantly removable when using the instrument for single pictures the full size of the plate. The panel



carrying the pair of lenses is similarly quickly removed, and the instrument thus allows of ordinary stereoscopic photography being practised while, at the same time, enabling the user to obtain negatives of the very pleasing shape, from the pictorial point of view, of $5\frac{1}{2} \times 3\frac{1}{2}$ inches. The price of the "Soho" stereo reflex complete with three solid plate-holders and stereoscopic division, and including the mounting of the two lenses, is £14 10s.

New Materials, &c.

THE LUMIERE FILM BLOCK.—By the omission of two letters from the notice of last week we were made to say that: "Separating papers are used between the films." The sentence should, of course, be: "No separating papers are used," etc. The error, we hope, will have been obvious from the context in which the very effective opaque backing and separating pellicles were described.

PHOTOGRAPHIC MOUNTS FOR PROFESSIONALS.—Since in our issue of March 26 we gave a description of current styles of commercial mounts under the title "Mounts and Mounting of To-day," we have had the opportunity of making the acquaintance of still other products than those mentioned in this article. Many of our readers know the work in mount designing and manufacture of Messrs. Witt and Wesley (the British Photo-Mount Co.), who a few months ago moved from the West-End of London to the seclusion of Tottenham, and have there established a factory which is probably unique in this country in its provision of the most modern machinery for mount making. The modern photographic mount, simple as it is in design and effect, calls for a surprising number of operations, and for several of great mechanical nicety, such as the adjustment of a paste-on nearly equal in area to the complete mount. Messrs. Witt and Wesley manufacture only the

high-class mount; the cheap article they leave to others, for they deal almost solely with photographers able to use mounts as good each of their kind as can be made. Their business is chiefly directly with the photographer, and in most cases they make to order; thus they have little stock and the specimens we secured on our visit were mostly those thrown out as not good enough to supply. These, however, sufficed to show the beautiful styles in mountings. Perhaps the most distinctive mounts are those of mounted or plain vellum bearing a tint or copper plate engraving. The latter by their beautiful fineness present an appearance much superior to that of lithography. Messrs. Witt and Wesley make and retain dies for a photographer's exclusive use. In mounts sold as B.P.M.C., of linen texture and two or more tints, the linen effect is very nicely obtained, and the mounted-on tint shows not the faintest sign of an edge owing to the enormous pressure used in affixing it. The result might be by litho so even is the surface, but the tint has the linen surface and presents a better surface for mounting on than a litho tint. In colour tones, too, these mounts include some delightful examples of harmony, and the makers justly point with pride to some in which a plate-mark is put round the mounted tint. Cosways, C. de V., and other mounts are produced of very choice design, and it is clear that no mount is beyond the makers' skill. Messrs. Witt and Wesley evidently take a great personal interest in their business, are ruthless in discarding imperfect mounts, and show in all their work a very nice appreciation of the requirements of refined portrait photographers.

Messrs. W. Butcher and Sons, Camera House, Farringdon Avenue, E.C., have also sent us examples of their latest styles in mounts for professional portraits. They include a great variety. Of these the "Mitsi," a Japanese hand-made mount with the mill edges, provides a very handsome style of mounting. A new departure is a mount with a flexible base with a fairly stiff paste-down, allowing of good effects by the ordinary method of mounting. It is invidious to specify particular items where there are so many nice in design and colour, but from the collection before us we may mention the "Greville," a canvas surface, fawn mount with embossed plate-mark; the "No. 2 Cosway," made in cream and white, with impressed plate-mark and natural edges; the "Cambic" portfolio, another of the popular canvas mounts; and the "Ideal" folio, composed of a cover imitating coarse brown canvas containing a "canvas" board with cream tint. Messrs. Butcher would remind our readers that by the absorption of the firm of Chas. Tyler and England Bros., Ltd., they at the same time took over their extensive mount factory, which they have still further improved and enlarged; therefore buyers have the satisfaction of knowing that all their mounts are of British manufacture.

LILYWHITE MEDIUM SPEED BROMIDE CARD.—The Halifax Photographic Co. have just produced a card of the bromide class which is slower in speed than ordinary bromide and gives prints of greater vigour than the "Standard" Lilywhite brand. We found the paper to give excellent and plucky results from negatives of average contrast—negatives about right for P.O.P. printing—and to develop to a fine black colour. The advantage of a card such as this which allows of brilliant prints being made, and of these being then toned by the sulphide process is one which photographers doing much commercial work will appreciate.

MR. ARTHUR S. NEWMAN, formerly managing director of Messrs. Newman and Guardia, whose severance from that firm we announced some time ago, has established himself in business as a scientific instrument maker at Whittington Works, Highgate Hill, London, N., within two minutes of the Highgate Tube terminus. Mr. Newman's long connection with the manufacture of photographic cameras of the highest class—the "N." of "N. and G." signifies Newman—is sufficient guarantee that his skill, we might almost say genius, as a mechanic may be depended upon by his customers. He is prepared to design, construct, alter, or repair cameras and shutters which require such expert skill as his, and the photographer or photographic investigator requiring special apparatus can depend on getting from him a design which is scientifically right, and workmanship which spares no pains to attain reliability. Mr. Newman, having no trade bias, also offers his services to readers abroad anxious in purchasing an outfit to obtain expert advice and supervision of goods purchased by him for them in London.

CATALOGUES AND TRADE NOTICES.

SECOND-HAND STUDIO CAMERAS.—A list just issued by the Sloane Square branch of the City Sale and Exchange, 26 and 28, King's Road, S.W., gives particulars of cameras for studio and field use, to be seen at these West-End premises, where the firm offers a very large choice of apparatus, which is shop soiled or has been little used. The list includes a number of large studio instruments, and those in want of such apparatus would do well to pay a personal visit to the C.S.E. establishment, which is within a minute's walk of Sloane Square.

"MIRAL" REFLEX CAMERAS.—Messrs. F. V. A. Lloyd, Ltd., the well-known photographic dealers, of 15, Lord Street, Liverpool, send us a new list of the "Miral" cameras of Talbot and Eamer, whose sole selling agents they have become. The list specifies the several patterns of "Miral" reflex, the reversing-back and focal-plane models of which particularly are instruments of excellent construction and design. The list is well illustrated with specimens of reflex work with the "Miral."

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

SATURDAY, MAY 15.

United Stereoscopic Society. Outing to Alexandra Palace and Park.
South Suburban Photographic Society. Beginners' Outing to St. Paul's Cray (afternoon).
Southend-on-Sea Photographic Society. Excursion to Hockley Woods.
Kinning Park Co-operative Camera Club (Govan). Outing to Lochwinnoch.
Southampton Camera Club. Ramble to Cadnam.

SUNDAY, MAY 16.

Borough Polytechnic Photographic Society. Outing to Malden.

MONDAY, MAY 17.

South London Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.

TUESDAY, MAY 18.

Royal Photographic Society. "Some Ancient Abbeys and Churches of South Essex." C. W. Forbes.
Edinburgh Photographic Society. Ramble to St. Andrews.

WEDNESDAY, MAY 19.

West Surrey Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Southend-on-Sea Photographic Society. "The Camera at Home." E. T. Holding.

THURSDAY, MAY 20.

Handsworth Photographic Society. "A Day in a Trappist Monastery." J. A. Swift.
Polytechnic Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Edinburgh Photographic Association. Ten-Minute Lectures on Favourite Subjects.
South Suburban Photographic Society. "Line and Composition." P. Bale Rider.

ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held Tuesday, May 11, the president, Mr. J. C. S. Mummery, in the chair.

It was announced that Mr. James A. Sinclair had been appointed a member of the Affiliation Committee to fill the vacancy caused by the death of Mr. Hector Maclean.

The president announced that after lengthy negotiations the arrangements as to the removal of the society from its present premises had been brought to a conclusion, and the agreement for a lease of No. 35, Russell Square had been signed, and the society would shortly be transferring itself to the more commodious premises at this address. Members were therefore advised that the enlarging room, dark rooms, and lockers at 66, Russell Square must be cleared out for removal by the 22nd inst. With the exception of the secretary's office, the rooms at 66, Russell Square will be closed after June 8.

A gift of a number of photographic reproductions of pictures in the Bridgwater collection had been made to the society by Mr. Walter Bourke. Mr. Bourke, in acknowledging the vote of thanks, commented upon the great value of the collection he had illustrated.

A paper was then read by Mr. Horace Mummery on "The Way We Look at Things," in the course of which the lecturer took a depreciatory view of the present craving among photographers with pictorial aims to produce something which compelled attention.

Mr. Mummery expressed a preference for the results obtained by "straight" photography as compared with those of "control." A short discussion followed the reading of the paper, in which the Rev. F. C. Lambert, Messrs. W. Thomas, Bale Rider, Walter Bourke, and the President took part.

SOUTH LONDON PHOTOGRAPHIC SOCIETY.—Mr. Charles H. Oakden dealing with "Irish Architecture," on April 30, traced its development from a very early period up to the present day. He showed many very fine slides, illustrating the earliest dwellings extant, the clochans, probably the same as the circular stone houses referred to by Julius Cæsar as existing in Britain at the time of his visit, the cliff castle of Dun Engus, the cahers or camps of Clare, the curious oratories of Gallerus and Kilmahedar; various examples of the round towers and the high crosses were shown with details of the ornamentation and sculptures on the latter, the symbolism of which was explained. Other slides showed the decadence in architecture which took place during the period of the rebellions, also the revival in recent years.

CROYDON CAMERA CLUB.—"In the Solent—Coves Week," formed the title of a capital lecture on the 5th inst. by Mr. F. W. Hicks. It was illustrated by a large number of slides, chiefly depicting varied types of racing yachts and other craft, and it was generally agreed that no better lecture-set had ever been shown in the club rooms. Full of graceful lines, sunshine, and suggestion of motion, the slides amply demonstrated that clean, straightforward photography can be beautiful, true, and delightful, and in subtlety of gradation is unapproached by any other method of graphic expression. The lecture had been preceded by three consecutive expositions on "processes of control," and there is no denying the fact that last week, by comparison, the photographic atmosphere seemed to suddenly clear and become more wholesome. A faithful and well-tried "N. and G." camera had recorded the pictures, Wratten lantern plates translated them, and Mr. Hicks supplied an interesting and breezy narration.

EDINBURGH PHOTOGRAPHIC SOCIETY.—At the monthly meeting, a most interesting paper was read by Mr. Francis Caird Inglis, F.S.A. Scot., on D. O. Hill and his work. The lecture was illustrated by some eighty slides made from original negatives. In addition to these, there were exhibited on the walls about a hundred old calotype prints done by D. O. Hill at the Studio on the Calton Hill, now occupied by Mr. Inglis. Among the portraits shown were Dr. Chalmers; Hugh Miller; Nasmyth, the inventor of the steam hammer; Dr. Knox, the anatomist, who was connected with Burke and Hare; Christopher North; Sir John Gladstone, of Fasque, father of the late W. E. Gladstone; Charles Kirkpatrick Sharpe; George Combe, the phrenologist; the Hon. Stuart Wortley; Lockhart, the biographer of Sir Walter Scott, and several other Edinburgh people of note. A series of most interesting views of Edinburgh about 1844-66, including pictures of the Scott Monument in course of erection, and delightful pictures of buildings now demolished. Mr. Inglis mentioned in the course of his paper that the first calotype taken in Scotland was produced in 1840, and was taken at Rossie Priory, the seat of Lord Kinnaird. The result of the experiment was a blurred and hazy outline of an old lady, who had been kept sitting for twenty minutes in full sunshine. In concluding, the lecturer suggested that a memorial medal be instituted commemorative of one who gave to photography its first artistic impetus in Scotland, this medal to be known as the D. O. Hill Memorial Medal, and to be the blue ribbon of the Edinburgh Photographic Society. The suggestion was unanimously and heartily approved of, and the matter remitted to the Council to form a committee. On the motion of the chairman, Mr. F. J. Duthie, a very hearty vote of thanks was accorded to Mr. Inglis. Messrs. Oliver, McCulloch, Baird, Anderson, and W. D. McKay, R.S.A., were among those who expressed their appreciation, etc.

THE LETO PHOTO MATERIALS CO. (1905). LTD., in consequence of the growth of their business, have removed their London offices and warehouse to larger premises at Roman Wall House, 1, Crutcher Friars, where a large showroom will be fitted up, and specimens of all the well-known "Leto" materials will be exhibited.

Commercial & Legal Intelligence.

EASTMAN KODAK COMPANY OF NEW JERSEY.—The Directors have declared an extra dividend of 5 per cent. upon the Common Stock of the Company, payable June 1, 1909, to Stockholders of record at the close of business on the 18th May.

AFFAIRS OF AN INVENTOR.—In the Chelmsford Bankruptcy Court, held at the Shire Hall last week, Mr. Birt Acres, whose address was given as 47, Cambridge Road, Southend, and formerly of St. Vincent's House, St. Vincent's Road, Westcliff, managing director of a company, appeared for his public examination. In a summary of debtor's statement of affairs, the gross liabilities were set down at £4,544 11s. 7d., of which £3,780 4s. 9d. was expected to rank. The assets were set down as 500 £1 shares in a company, 14 £1 shares in another company, one good book debt £966 4s. 9d., and a surplus from securities in the hands of creditors fully secured (per contra), £2,300; thus showing a considerable estimated surplus.

In reply to the Official Receiver (Mr. C. Mercer), debtor said the petitioning creditor was the Rev. J. K. Wood, Boy's Farm House, East Barnet, and he owed him £118 for money lent in July, 1907, mainly for the purposes of paying the wages of the men of the company and current expenses. He originally commenced business as a manufacturer of celluloid films at Barnet, and his trading returns for the years 1903-4-5-6 were £5,145 5s. 1d., £5,351 15s. 11d., £10,034 10s. 11d., and £11,994 10s. 1d. respectively. He had a cash capital of £100, and two years afterwards removed the business to Nesbit Alley. About 1897 he sold the business to a private company, which was afterwards wound up. Debtor took some machinery as interest in the company, but this was of no value at the present time. He commenced business again at Whetstone, and subsequently obtained land at Wickford on which to erect works that cost £500. In December, 1907, he sold the business with the Wickford premises to a company for £2,540 and £3,496 in shares. He received £2,000 in cash, the remaining £540 being allowed for the purchase of land at Wickford. He received £300 on the turnover in August, 1907, but could not give the date when he received the balance, as his papers connected with the company at Whetstone were annexed. The rates had not been paid and his desk was seized by the bailiff, whom he paid out.

Witness said he received the shares, but Barclay's held 2,000, Stollwerck's 1,000, and the Official Receiver had 500. The works at Wickford and Whetstone were now closed. Mr. McQuitty was practically the company, and he (debtor) was managing director. He did the experimental work of the company at a salary of £600 a year, which was paid up till January 31, 1908. The reason he did not receive the salary after that date was because the funds of the company would not allow of it. He would not accept the statement that he had carried on the Serikon Company without reference to Mr. McQuitty. It was impossible that Mr. McQuitty lost £4,500.

A number of the documents mentioned were perused, and questions asked upon them respecting the formation of companies and the accounts of the company with which Mr. McQuitty was connected. Debtor was ordered to provide a cash account of the £3,950 paid by Mr. McQuitty or the company from August 12, 1907, and the date of the receiving order.—The examination was adjourned.

NEW COMPANIES.

BRYAN AND SPEDDING, LTD.—Capital £500, in £1 shares. Objects: to carry on the business of Chemists, Druggists, Opticians, Dry-cleaning, Photographers, Nature Study Specialists, etc. Private company. Registered Office, 48, Deansgate, Manchester.

TOURIST GUIDE TO THE CONTINENT.—The Great Eastern Railway Company send us a copy of the latest edition of their popular guide book, which, in addition to its usual features, contains particulars of new tours in Holland, Belgium, and North and South Germany, also a chapter on "Tourists' Travel Talk," in English, French, and German. The descriptive account of the places reached by this company's services include such useful items as the time occupied by the journey from one part to another, cost of same, names and charges of chief hotels, etc., and the well printed illustrations and maps add much to the value of the book as a practical guide to the tourist. Copies may be obtained, price 6d., from the Continental Department, Liverpool Street Station, London, E.C., or from the publishers at 30, Fleet Street, E.C., and 12A, Regent Street, W.

News and Notes.

WIMLETON TOWN COUNCIL passed plans on May 5 for the erection of a photographic studio at the rear of 31, St. George's Road, for Mr. P. L. Truckle.

PHOTOGRAPHIC SURVEY AND RECORD OF SURREY.—The secretary of the architectural section is now Mr. E. N. Pearce, of 35, Lyndhurst Road, Thornton Heath, Surrey.

LIVERPOOL AMATEUR PHOTOGRAPHIC ASSOCIATION.—An exhibition of Autochromes will be on view at the room of the above society, 9, Eberle Street, Liverpool, from May 15 to 31, between the hours of 10 a.m. and 7 p.m. (Saturdays 10 to 4). Admission will be free.

LILLYWHITE IN NEW ZEALAND.—The Halifax Photographic Co. writes: Will you kindly inform your New Zealand readers that we have now opened a depot at 148, Hereford Street, Christchurch, Canterbury, New Zealand, where a large stock of our material will always be kept? Our agent, Mr. Bennett, will only be too pleased to give all orders sent through him his best and personal attention, and being a well-known photographer we think very much satisfaction will be given. This will be so convenient for our very large circle of New Zealand customers. It is our intention to also open a depot in Australia, and we are at present making arrangements for a depot in South Africa, so that our colonial friends will be well catered for as soon as our arrangements are completed. Until our Australian depot is ready it will be, perhaps, a convenience to our Commonwealth friends to buy from our New Zealand Branch.

CINEMATOGRAPH LEGISLATION.—The Parliamentary Committee of the London County Council reported this week on suggestions submitted to them by the Theatres and Music Halls Committee in connection with the provisions of the Cinematograph Bill, which has been introduced into Parliament in the present Session. The most important recommendation of the Theatres Committee is that the Bill should be extended to include not only cinematograph exhibitions where inflammable films are used, but all exhibitions. They point out that the film is not the only source of danger. There is considerable risk in connection with the arrangements for the illuminant, and the Council when recently revising the cinematograph regulations decided to make no difference as to the restrictions to be imposed where non-inflammable films were used. The Committee also state that if the restrictions were limited only to cases where inflammable films were used it would be more difficult to administer the Act, as in any case where exemption was claimed it would be necessary to test all the different lengths of films to ascertain whether any was inflammable. They also make another point of the suggestion that if non-inflammable films were exempted proprietors of premises where cinematograph displays took place would generally adopt them, and thus would be able to avoid structural alterations, etc., which otherwise could be forced upon them by the licensing authority. These places would also then be exempt from restrictions as regards Sundays, except such as are contained in the Lord's Day Act, and "it is very desirable," says the Theatres Committee, "that all places of public entertainment should be treated in the same way." The Committee's second recommendation is that a penalty should be provided in the Bill for refusing admission to premises where a cinematograph display is carried on, to a constable or officer appointed by the Council. They point out that in the case of unlicensed premises which there was reason to believe were used for cinematograph displays, it would be difficult to prove that they were so used in contravention of the Act if the Council's officers could be refused admission without penalty. The Committee propose that a penalty up to £20 should be imposed under the Bill. Their third and last recommendation is that the aggregate fees for licences paid for any one place in one year should not be limited to £1 as provided in the Bill. They think that each occasional licence will give the Council and their officers considerable trouble, and that a fee of 5s. cannot be considered excessive, whether the licence is for a month or part of a month. The Parliamentary Committee have adopted all these suggestions, and they state that as the scope of the Bill will depend largely upon the regulations made by the Home Secretary, they intend to obtain if

possible, an assurance from him on the matter, so that the Council can consider the regulations before they are finally settled and make representations to Mr. Gladstone thereon if necessary.

Correspondence.

* * *We do not undertake responsibility for the opinions expressed by our correspondents.*

* * *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

THE EFFICIENCY OF THE FOCAL-PLANE SHUTTER.

To the Editors.

Gentlemen,—In reply to your correspondent, Mr. C. J. Stokes, in your last issue on the above, I wish to say that my experiments, mentioned in your issue of April 30, were made with a view to test both the exposure and efficiency on rapidly moving objects with $\frac{1}{8}$ in. slit and open aperture $f/4$.

Why I did not mention efficiency in my letter was that I was somewhat in doubt at the time as to whether the efficiency varied or not at the different distances of plate from blind. Since then, however, I have made a long series of tests on rapidly moving objects, and my opinion, expressed in my previous letter, is confirmed as regards exposure, and my conclusion regarding efficiency is that it is slightly less when the plate is furthest away from the shutter, but the difference is so very slight that it can be ignored by the practical worker.

In order to show Mr. Stokes how near alike the results are both in exposure and efficiency, I have posted him two sets of negatives for his inspection, each set marked with a number, and I wish him to point out to your readers which plate in each set has been nearest the slit in the blind.

The negatives are of a man jumping, and were exposed with lens full aperture $f/4$, narrow slit in blind, all other operations being the same throughout, except that one negative in each set was $\frac{1}{8}$ in. from blind and the other $\frac{3}{8}$ in. from same.

I have given the following different exposures on this same subject:—1-300 sec., 1-400, 1-500, and up to 1-1000. I have selected the two sets of negatives which I think are most valuable for the purpose—viz., those receiving 1-500 sec. exposure. These show slight movement of the hands. Below this speed the image is considerably blurred and useless for comparison one with the other, and above this speed are both quite sharp. I may mention that very great care has been exercised in making these experiments, and I have personally seen that lens, shutter, light, plate, object, and developer were all precisely the same in each individual set.

I have instructed Mr. Stokes to forward the negatives on to you with any remarks he wishes to make on same.—The plates marked 1A and 2A have been furthest away from shutter.—Yours faithfully,

T. S. HARGREAVES.

3, King Street, Clitheroe.

[Our correspondent also sends us three prints which, he states, "show the measurement of the actual light rays as they fall on the plate at varying distances from the shutter and were made in the same way as my tests were made with plates, with the exception that the blind of shutter was kept still and the exposure made by uncapping the lens, using bromide paper instead of plates." These prints show the width of the shadow cast by the slit at the two different distances, but we fear the information they give is of no use in estimating either efficiency or duration.—Eds. "B.J."]

To the Editors.

Gentlemen,—Mr. T. S. Hargreaves has kindly sent me four negatives for inspection, these being focal-plane exposures on a young man jumping over a rail. He desires me to express an opinion as to which were exposed nearest the blind, and then send them on to you. This I am doing, together with his letter. I quite frankly admit that the negatives are so much alike that I cannot decide; and as this seems a kind of challenge, I should like to express an opinion, if possible, but it would be a pure guess.

Mr. Hargreaves used a lens working at $f/4.5$ and a slit $\frac{1}{4}$ -inch wide and the positions of the plates were $\frac{1}{8}$ inch and $\frac{3}{8}$ inch from the blind and according to my calculation the efficiency for the two positions would be 90 per cent. and 60 per cent. respectively. The duration of the reciprocal of the efficiency, so the difference in the amount of movement recorded in the negatives should be as 1 to $1\frac{1}{2}$ for 3 points moving with the same angular velocity. Now, how am I to determine two such points in two negatives of a man jumping? His arms and legs are out of the question, their movements being so complex as to defy all mathematical analysis. Quite probably the centre of gravity of a jumper rises and falls with a velocity approximately computable from the known laws of acceleration; it is possibly it would be justifiable to assume that this point of unific acceleration is situated near the bottom button of his waistcoat, but unfortunately the bottom button is covered up by the somewhat indefinite folds of an apron, and this, together with the fact that an athlete has apparently left Mother Earth further behind in one position than in the other, which means that, assuming he left the ground with the same initial velocity each time, the particular point in anatomy under discussion would be travelling at a different rate. Altogether there are so many assumptions to make, and the amount to be measured is so small, that I must refrain from committing myself. An object moving with a uniform velocity across the field of view and with definite lines marked upon it would serve the purpose so much better than a man jumping. I appreciate the trouble Mr. Hargreaves has taken, and his negatives are interesting examples of quick work. I trust he will not think I am trying to unduly force my own opinions, but in a scientific measurement it is necessary to be precise.

CHARLES J. STOKES

52, Winchester Road, Twickenham, S.W., May 10.

[We quite agree with Mr. Stokes that it is impossible to tell anything from these test plates. The object is moving towards the camera, and is at a different distance from it in each case, and the velocity is, of course, a variable quantity. We do not see how an adequate test could possibly be made without proper apparatus designed for the purpose. We have confirmed the calculations of efficiencies and durations given by Mr. Stokes, which are quite correct.—Eds. "B.J."]

AN ELECTRIC DEVICE FOR FIRING A FLASHLIGHT

To the Editors.

Gentlemen.—A correspondent recently inquired what would be a suitable size fuse-wire for the flashlight ignition device described No. 2,554. It depends upon several factors. There is the capacity of the battery, the voltage, the resistance of the circuit, and the quality of the fuse-wire, all having to be taken into consideration. The dry-cells referred to in the article were very small, and the resistance of the whole device was probably fairly high. Under these conditions, an extremely fine fuse-wire would be required. Anyone making the apparatus exactly as detailed would do well to select the finest gauge wire obtainable for the fuse—about No. 30 S.W.G. Any dealer in electrical supplies would have it.

To the present writer it has seemed that the American construction is likely to prove too complicated and troublesome for practical photographers to adopt. Dry cells are short-lived things at best, and soon fail to give a useful current when called upon for continuous work. Then, the fuses are calculated to be costly and anything but simple to make or replace. It would be expensive, too, having to insert a new fuse each time the flashlight was required.

An almost ideal electrically ignited flashlamp would be one in which the current was inexhaustible and the sparking or firing point permanent. Such a lamp is quite practicable. It would consist primarily of a small magneto machine, suitably encased and provided with a hand driving gear. The lamp proper, a small cup of refractory material, would have provision for screwing it a sparking plug as used in motor car engines. A switch and contact for the conveyance of current between the machine and the lamp would then complete the apparatus. Properly constructed, it would be practically everlasting, always ready and effective.

Those who wish to make an igniter of this nature for themselves may dispense with the magneto machine and use an inductor coil and accumulator instead. Let both these be of the auto type, since they are specially designed to give a hot flaming spark.

second-hand, they are to be had very cheaply at any motor auction.

Obtain a piece of slate or a tile and a motor sparking plug. Take two suitable lengths of flexible high-tension cable (i.e., stranded copper wire heavily insulated), connect one to the "B" terminal of the coil and to the top screw of the plug, and the other to the "I" terminal of the coil and to the metal base of the plug. It will be sufficient to bare the wire and wind it around tightly. Take a further couple of lengths of ordinary insulated wire and connect one to the accumulator to the coil—the red or + binding screw of the former and the corresponding + terminal of the latter, and the — of the accumulator to the coil terminal, which may be marked "C," "V," or "E," assuming it to be of French manufacture. Provide a switch in series with one of the last-mentioned wires so that the current may be cut in or out as wanted.

For action, simply lie the plug, with its connected wires, upon the slate or tile. Cover its sparking points with a little heap of talc powder, and it will be ready. On closing the switch, a brilliant spark will pass at the plug and so ignite the magnesium. 17, St. Ann's Road, Harrow. D. W. GAWN, M.I.A.E.

Answers to Correspondents.

All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.

For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

Harvey, Beechville, Wivenhoe, Essex. Photograph of Mr. Jack Humphreys Aeroplane on the River Colne, Essex.
Grewer, 1, Tottenham Street, Great Yarmouth, Norfolk. Photograph of St. Nicholas Parish Church, Great Yarmouth, Struck by Lightning, Showing Public and Arrival of Fire Brigade, April 27, 1909.

DEVELOPMENT.—1. In tank-development will halving the strength of developer and doubling the correct time of development give the same contrast as the full strength developer and normal time? 2. Is there any rule to ascertain the correct time of development from the plate speed? 3. As certain makers give Wynne III. 12 mins. and Wynne 88 12 mins., am I correct in taking these times for any brand of plates with the same speed, and assuming Wynne 45 to require 14 mins.? (Rodinal 1:22, 65 deg.)
-TRICOLOUR.

1. No, it will not. Air dissolved in the water produces irregularities. See the paper by Wratten and Wainwright in the issue of "B.J.," November 15, 1907 ("B.J. Almanac," 1909, p. 579). We believe Messrs. Wratten will send a reprint of this paper on application. 2. No, certainly not. There is no direct relation. 3. Most decidedly not. The times of development for a given degree of contrast vary largely with different plates. Why don't you buy and study the "Watkins Manual" (Watkins Meter Co., Hereford, 1s. 2d.)?

RETOUCHING PENCILS.—I want to know how to tell which retouching pencil to use for thin negatives and dense negatives, as I cannot get it right; the retouching shows more or less. Would be glad to know. Have tried 3, 4, 6 and 3, 4 for thick negatives, and 5, 6 for thin negatives.—E. SMITH.

No. 4 is the usual for thin negatives, and No. 3 when heavier work is required. If for other than portrait negatives, then use Nos. 1, 2, and 3; but the softer the pencil the lighter should be the

touch. The fault probably lies, not with the pencil, but with the medium and the way it is applied—or with the work.

STOPPING OUT SUN.—The studio I am working has a north-west light, and I have great trouble with afternoon sitters through the sun flooding the windows; although I have covered them with tissue I cannot get a brilliant lighting. The only light I can get is a golden twilight, so to speak, which causes very flat results. Can you suggest any coloured paper that would have the effect of white light?—SUNLIGHT.

There is no coloured paper that will give the effect of white light. Possibly the tissue paper you have is not really white. We would suggest that you try stippling the glass over with starch paste, to which a little whiting has been added. It can easily be washed off when the sun ceases to be troublesome.

THE OMNICOLORE PLATE.—Seeing your article on the "Omnicolore" plate in this week's "B.J.," I should be obliged if you would tell me where I can obtain it.—G. H. JACKSON.

From the English agent, Mr. A. E. Dean, 82, Hatton Garden, London, E.C.

POSTCARDS.—When in Scotland last year I took some photographs which I venture to think would sell well as postcards. Can you tell me whether (1) It would pay me better to produce the cards myself if I get any orders on submitting them to the local shopkeepers, and if I do, what is the usual price to ask? (2) Or should I be doing better to try to sell the right to reproduce them to some publisher of pictorial postcards, and if so could you give me the names and addresses of one or two? 3. In either case should I be wise to copyright them?—ENQUIRER.

Your best plan, we should say, would be to arrange for a local sale, that is, if you can find that a demand exists. You could get the cards reproduced in half-tone, collotype, or bromide; but the latter and three-colour cards are the best sellers. Consult our advertisement pages as to firms doing this work. The postcard publishers will not pay more than a guinea a negative for ordinary subjects as a rule. It would certainly be wise to copyright the photographs, as a good deal of copying goes on in this class of trade.

CLIPTO-GRAPH.—If not intruding too much on your valuable time, I take liberty to write you a few following lines which you will take into your kind consideration and it shall be great favour if you will let me know the instructions about it. I beg to state, that by reading the page 296 of the "Graphic" of the 6th March 1909 I have come to know that "clipto-graph" is an Italian invention a thief can not enter the room without disturbing one of the wires, and the machine then turns towards the point where the disturbance arises. Sets fire to a magnesium light, rings an alarm bell and takes a snap-shot of the intruder." I now therefore under instructions request your honour to be good enough to let me know the names and address of such company who may supply me the said machine (camera) complete with magnesium light and I shall feel obliged if you will secure his price-list if possible with full particulars regarding the said machine. Further I beg to state that it shall be great favour if you will kindly let me know the price of the said machine.—MAHAREJI RANCHOHO, Cutch, Bhuj, Bombay, India.

We are sorry we do not know the address of the maker, nor even whether the instrument has yet reached the commercial stage. Many pieces of apparatus of this class never go further than the patent specification of the inventor.

AMIDOL.—I am rather interested in chemistry relating to photography, and would much like to know whether you could inform me as to the composition of amidol. I have never seen its composition mentioned in any chemistry book I have come across.—E. E. WALKER.

Amidol is diamidophenol—C₆H₃ OH NH₂.

COLOURING PRINTS.—1. I have several military photographs (P.O.P.) which I have to colour in oil. I should be much obliged if you will kindly inform me whether the prints have to be prepared in any way before colouring? 2. Also if any preparation for water colouring?—HENRY ASHDOWN.

1. No preparation is required. 2. Again, none is necessary.

POLISHING GLASS.—1. By cleaning the glasses with "Bluebell" metal polish I find I get better gloss and less trouble in stripping post-

cards, etc., from glasses when glazing same. Is there any danger to permanence of P.O.P. prints by doing this? 2. Also please say best medium preparation for unbleached calico to be painted with flatted oil?—RISH.

1. We do not know the composition of the polish named. But we should think it would not have any injurious effect, unless it should contain a preparation of mercury. 2. After the fabric is strained on the frame, give it a coating of common size as sold at the oilshops. That is the only preparation that is required. The size must be melted and applied warm.

LENSES FOR COLOUR CAMERA.—Please advise me in your correspondence column where I can procure three lenses mounted for three-colour work as described in last "Colour Supplement" of the "B.J." as used by Andre Cheron and Sydney Young?—H. E. BLACKBURN.

Any optician would supply lenses in specially thin mounts for this purpose. We know of none on the market. We advise you to address a leading optical firm in your country.

AUTOCHROME AND APERTURE.—(1) I am working the Autochrome process with success by Watkins' method, exposing by meter and developing by his time developer. When the method was simplified and a new developer put on the market (Quinomet) a few weeks ago I tried it, but every time I tried a plate a patch of what to me appeared fog appeared in the middle of the plate. On reading this week's "B. J." (May 7), "Colour Supplement," page 40, in article on redevelopment of Autochromes, 13th line from top, solarisation is mentioned. Is that the fault of the enclosed plate? How is it caused, and what is the remedy? I may state that immediately following exposures giving that defect and developed by Quinomet, I give exposures similar in every way, but develop with Watkins' time developer and have never once got that result. It does not matter if it is under- or over-exposed, it comes just the same. The example I enclose is developed for $3\frac{1}{2}$ mins. at 65 degs., reversed and re-developed, not intensified. I have outlined the faulty spot with ink; it should contain brilliant roses at that particular spot. (2) Having bought a portrait lens, also a 12in. R.R. without any stops, I am going to make them myself out of sheet brass. It is for use in Autochrome work, and I must have stop apertures correct enough to work with the Watkins meter. I am not clever enough to work it out in a proper way, so would it be near enough if I focussed for infinity, which I find is exactly 7in. for the portrait lens from the slot in tube to the focussing screen? Should I divide this into 8, 7, 6, and 4 parts and make the aperture of stops to above for F8, F7, F6, F4, or should I measure from the back glass to the screen? Kindly let me know how I should proceed.—THISTLE.

(1) We do not see how the change of developer can account for the appearance. Are you sure that the effect is not due to a reflection of some foreground object in the front of the vase? With regard to solarisation, the abstract referred is not quite clear. The phenomenon might occur owing to bad over-exposure in the first instance, but our experience of it is confined to the effect produced by over-exposure prior to second development. The effect on your plate is not unlike that produced in this way. We are sorry we cannot give a more definite explanation of the trouble, but we can only suggest that it is far more likely to be due to some fault in manipulation than to the use of any particular developer. (2) Your method will give only approximately correct stops. They will all be a little too large. The measurement must, of course, be taken from slot, not from back lens, but the slot measurement is not necessarily correct. We should advise you to get a dealer to supply the stops. They will not cost much, probably less than the value of the time you will spend in making them, and they will be more accurate than your home-made ones are likely to be.

ARTIFICIAL LIGHT.—We are thinking of opening a branch studio, but find the place is so situated that it is impossible to obtain a good light. Would you be kind enough to give us the information we require, viz., what is the most useful electric light on the market for taking portraits from C. de V. to 12 x 10?—McNAMARA AND SON.

If the portraits are head and shoulders, or, say, three-quarter length, only one arc lamp of the enclosed pattern will be sufficient

with a reflector, or two arcs for groups. See our advertisement pages for announcements as to the Westminster, Jandus, and other arcs.

MINIATURE PAINTER.—(1) D. Brucciani and Co., Ltd., 254-258, Goswell Road, London, E.C. (2) Try Mrs. C. H. Dighton, 11, Bessborough Street, Westminster, or Miss Ramsay, Stoke Villa, Private Road, Honor Oak, S.E.

"BUSINESS."—Some makers, both of plates and papers and of apparatus, will not supply you if you sell below the standard price. That is the only restriction.

ARTIST.—The affairs seem to be somewhat complicated, and we should hardly like to express a very definite opinion. We should say, however, that you are entitled to full wages, not exceeding two months, prior to the bankruptcy. If more than that is owing, you will stand in for that with the other creditors, and will be paid by "C." If "C." or the purchaser of the business, agreed to continue you as their employee, you must look to them for your wages.

DAMAGED LENS.—I have a portrait lens by — offered to me very cheap. It is about $3\frac{1}{2}$ in. in diameter and 12in. focus. There are two chips in the back lens, one of which is about $\frac{1}{4}$ in. and the other not quite so large. Will you please tell me if these damages will prevent good picture being taken with the lens if it is well stopped down?—G. DOWNES.

The chips will make no practical difference in the performance of the instrument. The places should be covered with black varnish to avoid reflection. The only effect of the slight injury will be an almost imperceptible loss of light, nothing more.

COST OF STUDIO.—I propose erecting a studio for professional work on the top of the house. A small portion of the present roof will have to be removed and a staircase made to it. Will you please tell me the probable cost if the studio is made 25ft. long and 12ft. wide?—T. WARDELL.

We cannot. Sometimes the alterations, staircase, etc., come to more than the studio itself. Your best way will be to get out the plans of what is required, and then obtain an estimate from a local builder.

LANTERN SLIDES.—I want to make a few lantern slides from half-plate negatives, and I find that my camera is not long enough to permit the lens they were taken with being used. The only other lens I have is a quarter-plate R.R., $5\frac{1}{2}$ in. focus. Could that be used? I ask the question because I have heard that the same lens as the one used in taking the negative is the best for reproducing it.—AMATEUR.

The quarter-plate will answer the purpose quite as well as the half-plate one, and with it your camera will probably be of sufficient length.

O. P. Q.—We are sorry to tell you that you have no remedy, notwithstanding that you bought the business and all the copyright negatives. From what you say, we assume that the copyright in them was not legally assigned to you by your predecessor. That should have been done. As it is, although the negatives are your property, you possess no copyright in them. It would be useless to waste money by taking action.

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SUMMARY.

A preliminary first report on the Dresden Exhibition gives a description of the fine accommodation provided and of the general character of the exhibition. (P. 396.)

The R.P.S. makes an announcement with regard to a change of premises (p. 399). We comment on the importance of this step on page 393.

We reprint a paper by Paul Thieme, describing a form of apparatus for measuring shutter speeds. (P. 397.)

The first portion of a valuable paper on “Absorption Spectra,” by S. H. Wratten and C. E. Kenneth Mees, is reprinted on page 399.

The report of the National Photographic Record Association and an account of the annual general meeting appears on page 402.

An exhibition of child pictures has been opened at the galleries of Speight, Ltd., New Bond Street. A review appears on page 403.

“The Optician” utters a warning with regard to the injurious effects of strong light on the eyes. (Pp. 394 and 402.)

The Summer Exhibition of the Royal Society of Painters in Water-Colours is reviewed on page 394.

Our Patents Column includes one by Carl Zeiss, covering a new and important method of producing lenses with non-spherical surfaces. (P. 404.)

The programme of the Photographic Convention is given on page 401.

Our Correspondence Columns include letters upon Photographers’ Assistants, Focal Plane Shutters, Flashlight, and other interesting topics. (P. 410.)

The important question of “sale rights” is dealt with in “Answers to Correspondents” and in an “Ex Cathedra” note. (Pp. 394 and 412.)

EX CATHEDRA.

The R.P.S. Change of House.

The announcement made in the “Photographic Journal” of the early migration of the R.P.S. from 66, Russell Square, to No. 35 on the opposite side, marks an important stage in the history of the Society. It is no easy matter to find premises of a kind suited to the purposes of such a Society. Moreover, the end of a lease means dilapidations, therefore the members of the R.P.S. are very much to be congratulated upon the providential circumstances that have given them all the accommodation they can require with no increase of rent, and with a very material prolongation of lease from eleven to thirty years. These advantages have been acquired in consideration for surrendering the lease of No. 66, which house is required for other purposes, and the fact that it should have been so required at the present time almost looks like an intervention of Providence. Regrets will no doubt be felt at leaving the old house, with its historical memories and pseudo-historical associations with the Sedley family, and the ever memorable Becky Sharp; but in truth, in spite of its statuary, painted ceiling and palatial style, the old house has disadvantages. It is rambling and inconvenient in many respects, and the new one is planned in a more accommodating fashion. The dark-rooms will be reached by one staircase going down instead of three going up to the roof. The meeting-room will no longer be L-shaped, and worrying to speakers who never know which corner to speak into. Several extra rooms will be available if required. A studio will be provided, while last, but by no means least, the new house is on the quiet side of the square where motor-buses are not a perpetual nuisance. Possibly the announcement of the move will come as a surprise to some members who may have forgotten the preliminary notice given at the Annual General Meeting, but those acquainted with such delicate proceedings as the negotiation of leases will know that they cannot be conducted in public. Those who have brought the negotiations to such a successful and advantageous issue deserve the hearty thanks of the members generally for obviating what might have been a very disastrous state of things a few years hence. The odds against such an opportunity occurring again would have been immense, and the chances are that the compulsory move and incidental expenses—which would have been very large—would have seriously crippled the Society.

* * *

A “Rogues’ Gallery.”

Captain Cuppers, of the “Kaiser Wilhelm II.,” and the officers of the North German Lloyd, confided to a Plymouth correspondent a new method which they state they have adopted to warn passengers against ocean gamblers. It is the posting of

photographs in the first-class smoking-room. As warnings printed in various languages in big black type seem to be of no avail, the system of framed photographs of men whose methods are so well known that there can be no mistake will be installed. The photographs of the gamblers with their various aliases attached will be framed, and it is believed that no gambler whose face is pictured will dare to set his foot on the steamship that is so decorated. As the project was suggested only last week before the "Kaiser Wilhelm II." sailed for Plymouth, there was no time to introduce it on that voyage, but next trip passengers will probably be able to amuse themselves inspecting the "Rogues' Gallery." The express ships of the line will be first equipped, and if this proves a success all others will have the interesting bureaux of faces for travellers to scan.

* * *

Royal Society of Painters in Water-Colours.

The Summer Exhibition of this society is now open, and is worthy of the reputation of its forerunners. Picture-lovers turn always to the shows of this society in the sure and certain hope of seeing

the finest examples of water-colour pictures that this country produces. It stands head and shoulders above all other exhibition societies, and affords a finer show than the single room devoted to water-colour at the Royal Academy. The work of W. Eyre Walker is in itself a liberal education, for he gives us not only fine and noble subjects in landscape, with charming colour and pictorial qualities, but nature pure and unalloyed by convention also. The President, Sir A. Waterlow, is also a worker who never disappoints. His "River Path" (63) is particularly fine. The delicacy and masculinity of Robert W. Allen; the romantic dreams of Albert Goodwin; the richness and expansiveness of H. Hughes-Stanton; the popular charm of R. Thorne-Waite, all are here as usual. Only in a few cases must one regret the presence of works where the artist's motive and point of view seem to be at fault. Mr. J. Walter West is growing niggley and losing strength of design; Mr. Walter Crane begins to be downright amateurish, while Mr. Walter Bayes gains nothing by his aggressive pen outline. But there is no need to complain of such trifles where we have the set-off of such masterly work as Geo. Clausen's "Mill at Dusk" (261)—a monumental achievement—and such promise as Mrs. Laura Knight's "In the Orchard" (163), to say nothing of beautiful things by H. Clarence Whaite, David Murray, Robert Little, Rose Barton, E. J. Sullivan, Alfred Parsons, and others.

* * *

Sole Right to Photograph.

Pageants seem to be the order of the day just now, and it is very general for the committees that get them up to advertise for tenders for the sole right of photographing them, and in this way the profits of the show are somewhat increased. In some instances, the photographer who gets the concession makes a fair profit by it, and at the same time gets a good business advertisement if he is a local man—that is, if his pictures are good. Sometimes, however, he loses by the transaction, or, at least, to some extent, by his work being forestalled by enterprising outsiders who have got their pictures on the market before he has issued what he may have taken. Some who tender for these so-called "sole rights" seem to be under a misconception as to what they consist in, as evidenced by a correspondent we reply to this week in the "Answers" column. It must not be imagined that he who pays for the sole right can prevent other photographers photographing the scenes if they get the opportunity, and using their pictures for any purpose they may like. All he gets for his money is spe-

cial facilities and privileges in doing his work within the enclosed area, but they do not extend beyond that. Anyone can photograph the spectacle outside without hindrance, or even inside if it can be done surreptitiously. In most of these pageants the ubiquitous Press photographer is present with his hand camera, and if he manages to get within the enclosure it does not take him long to obtain what he wants, provided he is not observed. When he has secured his negatives the pictures appear in the papers next day, and the concessionaire can get no redress either from the snapshotter or the paper for which he works. As there is no copyright in the scenes themselves, the Copyright Act does not apply in any way whatever. What the one who buys the sole right should do is to see that a camera is not used in the grounds, and in this the committee should assist him. One sometimes hears that the sole right to photograph churches, ruins, and the like has been accorded to a certain local photographer, and no others are allowed to take pictures of them. In the case of interiors and enclosed grounds the owners can, of course, prevent cameras being used, if they are seen, by treating the parties as trespassers, and ejecting them by force, if necessary. But if they have already secured their negatives there is no law that will prevent the pictures from being published, even if they were obtained surreptitiously from private grounds. This is also the case with, say, the interiors of churches. If a person unobserved has obtained a photograph there is nothing to prevent him publishing it or making any other use he likes of it.

* * *

Photograph of a Ghost.

In the far West of England superstition still prevails to a great extent amongst a certain portion of the population. We read in the "Standard" of Saturday last that great excitement has been occasioned at Barnstaple by the appearance (alleged) of a ghost in an old disused burial-ground, and that large numbers of people have visited the place in the hope of catching a glimpse of the mysterious apparition. An enterprising photographer in the locality, according to the report, has turned the thing to a profitable account by photographing the ghost—"though nobody knows how or when"—and publishing picture postcards of it, which are said to be having an abnormal sale. The picture is thus described: "By the side of one of the tombs, as if rising from it, is a white apparition, but no form can be seen, whether man or woman." This photograph will no doubt be looked upon by many credulous people as a confirmation that the ghost actually exists in the same way as spiritualists look upon so-called "spirit photographs" as confirming spiritualism. It just occurs to us that it is quite an easy matter for a photographer in a district where superstitions prevail to make a little profit, and at the same time have a little fun to himself. All he has to do is to, say, photograph an old ruin or a churchyard under a dismal aspect and introduce a ghost or spirit by any of the well-known dodges. If the picture is given a night effect so much the better. Having secured his negative, all he has to do is to circulate a rumour that a ghost has been seen hovering about the place at night—such rumours quickly spread in places where credulity reigns. Considerable excitement is soon created, and then is the time for him to publish his postcards.

* * *

Effect of Light on the Eyes.

An article which we reprint from "The Optician" draws attention to the damage the eyes are likely to sustain by allowing strong light to fall directly upon them. The warning is a very necessary one to many who work with arc and other powerful lamps, for familiarity breeds care-

lessness, and the danger is often not realised until the damage is effected. Even the light of burning magnesium is capable of working mischief, and though the effects produced by a short exposure to it may soon wear off, yet it is not safe to submit the eyes to the strain repeatedly. By practice one can become accustomed to gaze at a powerful artificial light, and this is just where the danger comes in. We have known cases where the incandescent gas-light worked havoc owing to the direct observation of the naked mantle, and we have also known a lantern operator to be incapacitated for some weeks owing to giving too much close attention to an unsteady arc lamp in the course of an evening's exhibition.

SUN TROUBLES IN THE STUDIO.

As is not unusual at this time of the year, we have received several letters from correspondents asking the best way of stopping out the direct rays of the sun from the studio. There are few studios upon the roofs of which the sun does not shine for some portion of the day at some seasons of the year, and as it approaches its zenith it is a little more troublesome to deal with than when it is lower, unless one has a very perfect arrangement of blinds and screens. To meet the trouble now under notice, some have outside arrangements in the form of a large screen of sail-cloth that can be hauled up when the sun is giving trouble and let down when not required. Others have a permanent wooden hoarding, which slopes over the top of the studio and does not interfere with the proper lighting of the inside of the building, while it shuts off the direct rays of the sun from the highest portion of the roof. Although these appliances meet the trouble to a very great extent, there are times—when the sun is at its highest altitude—when they do not achieve all that could be desired. They are, too, often costly to erect, by no means sightly when seen from the outside, and are sometimes really dangerous during exceptionally high winds, unless they are very substantially fixed in the first instance.

We may now consider some of the methods of dealing with the direct rays of the sun from the inside of the building. One well-known way is by stippling the glass, on the under side, with white paint. This is very effective, but it is attended with some disadvantages. On long exposure to light, the paint is likely to become discoloured and acquire a dirty yellow tint, which, of course, very materially impairs the actinic quality of the light that passes through it. As the sun is usually a source of inconvenience only during a few months in the year, the obscuration is needed only for that period; at other times it is not only not wanted at all, but is really injurious by stopping out light that may be useful. Furthermore, it is a troublesome and messy work to clean paint off at the end of the summer season, or whenever it is no longer required.

A plan which is equally efficacious is to stipple the glass over with starch paste, mixed with a little common whiting. A bowl of starch paste, somewhat thinner than is generally used for mounting prints, is prepared, some whiting added and thoroughly incorporated with it. This mixture is applied to the glass, which should be previously cleaned, by dabbing it on with a fair-sized piece of sponge. Instead of starch, flour paste may be used: one is just as good as the other. A little Prussian blue, ground in water, as sold at the oil shops, may be added to tone down the glare of the white, though it serves no other purpose. As just said, this is equally as good as paint, while it has the advantage that it can be easily washed off if it becomes dirty, or at the end of the sunny season. It may happen, with some studios, that it is only about midsummer that the sun reaches the glass, and then only on a few panes at the ridges. In this case these few panes may have brown paper pasted over them or stuck

on the sash bars, or temporarily attached to them by drawing pins. Tissue paper pasted on the glass answers well, as also if merely attached to the sash bars with paste. The disadvantage of the latter method is that the paper, being thin and only attached by its edges, is liable to get accidentally torn, when it becomes very unsightly.

Another way of subduing direct sunlight is to have two or more light wooden frames (covered with tissue paper) at hand for use when the sun is causing inconvenience. If these are provided with a couple of screw eyes on either side, and the latter threaded on wires, strained tight along the roof of the studio, they can be pushed backward or forward by a long rod as occasion may require, or they may, if more convenient, be hinged to the ridge of the studio and pulled up by cords close to the sash bars when required, or left to hang down when not in use. These frames need be but temporarily fixed; they can be then readily removed.

Although tissue paper answers the above purposes very well, tracing papers or tracing cloths answer better. They are not so easily torn, do not hold dust and dirt as does the tissue paper, and when they get dusty the dust can be lightly brushed off without causing discoloration. Another advantage of tracing linen is that it can, if desired, be attached to rollers and used as ordinary blinds. Thin muslin, white or light blue, may be used instead of either of the above materials, and can, when no longer required, be washed and put away for another season. When this material is chosen the wooden frames may sometimes be dispensed with, rings being merely stitched along the long edges of the fabric, and these threaded on wires strained horizontally along the roof. Such curtains can simply be pushed forward or backward by means of a light rod.

In the foregoing we have been more particularly dealing with the sun on the roof of the studio at this season of the year. It may happen, however, that although it may not reach the sitter or the camera, it may cause trouble in other directions; for instance, when it shines on the sides of the studio or on the lower portions of the roof glass. The effect then is often that there is an apparent haze between the camera and the sitter. When this is the case it is impossible to obtain a brilliant image on the focussing screen, and, as a consequence, all negatives taken under these conditions will be poor and flat, and lacking in the usual brilliancy. This apparent haze is caused by dirt on the glass, and it is curious that that which is on the outside seems to have a greater effect than that which may be on the inside, but the two together, of course, increase the haziness. In these conditions, if the glass, outside and in, be cleaned, the haze will be got rid of, or at least be reduced to a very great extent; a thin muslin curtain, or better still, a good size screen, covered with muslin, that may be moved about as required, will do the rest. In an ordinary way, dirty glass causes no inconvenience beyond stopping out a certain amount of light; but when the sun is shining direct upon it, as we have just shown, trouble may arise in other ways. It is impossible in one article to give such directions as will meet all cases, because the aspects of studios, their forms, and their surroundings differ greatly, but sufficient has been indicated to enable anyone with ordinary intelligence to apply what has been said so as to meet all trouble arising from the sun at its present high altitude.

PIPE DREAM PHOTOGRAPHS.—We hear from the Tress Company, 4, Rathbone Place, London, W., that they are now prepared to supply a film negative to enable the photographer to print the "Pipe Dream" design and use any of his own negatives. They send two specimens, which are in every way similar to the design devised by Mr. Barefoot, and reproduced in our last issue. The price of the negatives is 2s. 6d. each.

THE INTERNATIONAL PHOTOGRAPHIC EXHIBITION AT DRESDEN.

A FIRST IMPRESSION.

THE 300-page catalogue of the Dresden Exhibition, to which reference was made under "Ex Cathedra" last week, showed that the organisers in Germany and their commissioners in other countries had brought together a very large collection of exhibits. It was possible from the catalogue alone to form a fairly accurate judgment of the extent to which the Exhibition can claim to be representative of the present position of photography, or rather, of its many branches, as well as to allocate the share taken by the various contributing countries. International the Exhibition certainly is; representative, too, of the modern developments of photography, of the photographic industry, and of the many applications of photography in science and education. As was inevitable, Germany is the largest and most important contributor in nearly every section, and the Exhibition affords a demonstration of her activity in the manufacture of photographic apparatus and materials, and of her patience in the scientific uses of the camera, but most of all of her powers of organising and arranging such a vast collection as this. Before saying a word as to one section of the Exhibition, it is necessary to digress for a moment and explain the conditions under which the Exhibition is held.

The park wherein stand the buildings of the Exhibition lies scarcely a mile from the centre of Dresden. Exhibition or no exhibition, it is a place of popular resort, a lung of the city, where of an afternoon or evening one may listen to good music, drink good Saxon beer, and sit with one's friends in an outdoor restaurant about the size of Trafalgar Square. The chief building is a stone palace beside which our own National Gallery would look small. Exhibitions have been held there before, and will again; and thus the interior, though greatly altered for the photographers, is specially suitable for the effective display of pictures and other objects. Apart from Dresden being the seat of the photographic industry—four of the largest houses in the trade are there—the organisers of the Exhibition have thus the enormous advantages, first, of a *locale* whither the 500,000 people of Dresden are accustomed to wend their way, and, secondly, of a building lending itself in every respect to the purposes of artistic display. Great were the opportunities, but greater still is the superb way in which every detail of the organisation has been carried out.

Imagine a building with a frontage as long as that of the Law Courts in the Strand. The central main entrance admits first to a circular vestibule, straight through which we come into the main hall, round which a broad decorative gallery has been built for the present year. Right and left of this hall stand two quadrangular series of halls, the full height of which in most cases has been reduced to about 15 ft. by a velarium, which also gives the most perfect lighting on the walls. In order to give an idea of the area thus afforded, it may be said that this series of velarium-lit rooms would, at a moderate estimate, amount to fifty such galleries as that in which the Royal Photographic Society hangs its pictorial section each year at the New Gallery. Here lay the opportunity of the organisers to achieve the direst failure or to give a demonstration of consummate skill in the furnishing and hanging of picture galleries. We think any visitor will concede that they have afforded the latter; and, without intending a back-handed compliment, we would say that the manner of the Exhibition takes equal rank with the matter. To explain this it is necessary to particularise.

Each room or salon of the great series we have described has been specially provided with both floor and wall coverings, both

of which in each case are chosen with regard to (1) the pictures to be hung on the walls, (2) to each other, and (3) to the coverings used in adjoining rooms. These plans were carried out under the direction of artists, to whom and to the craftsmen in carpeting or wall-decoration profuse acknowledgment is made in the catalogue. In most rooms the pictures are arranged in panels or are placed not more than two deep. In either case it is usual to run a deep plain frieze round the room, and to break up the area of the walls with pilasters. All this has been done with a most wonderful regard for colour harmonies; less frequently for colour contrasts. We learnt, however, in reference to this latter principle of decoration, that it was thought advisable in furnishing so many rooms, the contents of which were, in the main, similar in kind, to employ quite distinct schemes of colour for adjoining rooms, in order to avoid or disperse a feeling of monotony on the part of the visitor. Thus, where a colour scheme of light grey for the walls, buff for the pilasters, and dark grey for the floor will be found in one room, the next will perhaps have a floor covering of warm ochre, and the walls of a further room will be covered in bluish-green. The fabrics used throughout for the floor are of similar kind—a hard, coarse cloth, which allows of the most comfortable walking, and relieves the visitor of much of the fatigue accompanying the spending of a day in picture galleries.

The weather being cool at the time of this first visit, the unwarmed galleries were a trifle chilly; in the height of summer they will probably be pleasantly cool. When we have added that no single salon is without some article of furniture, such as a settee, a cabinet, or one or two chairs of nice design, perhaps a pot of flowers or a wreath of evergreens, we have perhaps said enough for the present as to the æsthetic mounting of the Exhibition and may proceed to give a brief impression of the collections which have been brought together.

The first two things that impress themselves on the visitor who makes a preliminary tour of the whole Exhibition—this will take an hour, even if one does not halt at all—is, first, the large representation of the German photographic trade. A large "Industrie Halle" accommodates the many firms who are thus bringing their manufactures before the public in ways of which we shall speak later. It would seem that not a single German house of any standing is absent, and many have gone to great expense in fitting up very elaborate installations, exhibitions, or bureaux. The second salient feature is the comprehensiveness of the sections devoted to the scientific applications of photography, in particular to photogrammetry, criminology, and medicine. Perhaps the next most prominent feature to the eyes of an English visitor is the size and number of the sections devoted to topography. The scenes and customs of their own and other lands evidently have an importance in the German mind which, if it exists in our own, does not find expression in our photographic exhibitions. Frankly, the exhibits in many cases are "just photographs," and often of not a very high order of merit; but they have a great interest for the public, are regarded as of educational value, and in some instances, notably that of Austria, do possess really great pictorial merit. Sir Benjamin Stone's photographs are the only ones in this section relating to England.

Of amateur and professional photography there is a great deal. Perhaps one sees so much of the former here that the many salons of it at Dresden do not impress us as they will the Germans. A small number of American, English, French, and

Austrian workers appear as the "Internationale Vereinigung der Kunstphotographen," in comparison with which sonorous title of a body specially called into existence for this occasion the name "amateur photography" of the other sections sounds poor indeed. The exhibits in both sections cannot be considered in the short space of this first impression. Of professional photography the Americans make a great show, though they have crowded their walls unnecessarily. The section in its own building devoted to photo-mechanical work is also most

representative, both of Germany and Austria, and evidently displays the most modern achievements of the reproductive crafts.

This brief first impression must suffice for our readers until in the immediately forthcoming issues the collections can be adequately reviewed.

English exhibitors will probably be glad to hear that sixty attendants keep watch upon the exhibits. This is exclusive of the 180 trade stalls, which have their own attendants.

ON THE MEASUREMENT OF THE SPEEDS OF INSTANTANEOUS SHUTTERS.

(A paper in "Photographische Mitteilungen.")

I.

THE object of the present communication is firstly the description of a method devised by the author for the measurement of the times of exposure given by instantaneous shutters, and secondly the comparison of this method with others usually adopted. The first experiments were made by means of an intermittent source of light obtained by the rotation of an ordinary ventilator in front of a Nernst lamp, the source of light being photographed through the ventilator by means of a moving camera. There is thus obtained on the negative a series of points from the number of which the time of exposure is calculated. For exposures as short as 1-1,000 of a second, namely, those given by the focal-plane shutter, the ventilating fan was not found to serve; it was necessary to replace it by a screen provided with a series of slits giving about 3,000 light-impressions per second. Under these conditions the movement of the camera and the release of the shutter at the right moment gave great difficulties. These have been overcome by rotating the plate in a stationary camera at the same moment as releasing the shutter. The author preferred this method to that just mentioned, for the reason that there was thus obtained in a very simple way an intermittent point impression of light in each instance lasting for the same time. A screen was divided into equal sectors, a slit of wedge shape made in each sector, and each slit given a slight radial shift. There thus results a screen of the form shown in Fig. 1. If this screen is placed in front

together in the slit as many points of light as there are slits in the screen. Obviously, it is only necessary to photograph the slit *b* in the ordinary way with the fixed camera in order to obtain from the number of points of light a measure of the time of exposure.

This is the principle of the method of measuring, and it only remains now to describe the most advisable arrangement of apparatus and its degree of accuracy. It is well to use a screen with 60 slits. When this is the case the time which one slit requires to come in front of the stationary slit is expressed by the following simple equation:—

$$\text{Duration of one point of light in seconds} = \frac{1}{\text{No. of rotations of screen per minute.}}$$

$$\text{or } t = \frac{1}{N}$$

For driving the screen an electro-motor is best, as it is easy to get it to run up to 3,000 revolutions per minute, the screen being attached direct to the shaft of the motor. The motor should not be smaller than 1-10th horse-power, and, preferably, should work with direct current for the sake of constancy of speed. A resistance is attached to the motor, allowing of the number of revolutions being adjusted to as low as 200 per minute. For ascertaining the speed of the motor there can be used either one of the ordinary revolution counters or a so-called tachometer, which is coupled to the shaft of the motor, and indicates directly on a scale the number of revolutions per minute. The Frahm's speed indicator, depending on a resonance method, is also very suitable. Direct indicating apparatus is preferable, for the reason that small motors may have their number of revolutions reduced by the ordinary counter, though probably only to some few per cents.

The illumination of the fixed slit must be both uniform and bright. The most simple arrangement is to direct the apparatus to a window so that the bright sky can be photographed through the slit. If an artificial source of light is to be used, the best for the purpose is an incandescent gas burner, placed close behind the rotating screen, or a condenser fitted with a Nernst or arc lamp, as for ordinary projection. A ground glass screen is placed on the side towards the rotating screen. The operator must remember that he cannot very well have too strong a light, since, at the highest speed of the motor, its action lasts for only 1-3,000th of a second. This is so short a time that the most sensitive plates and warmed developer are necessary to secure satisfactory density.

Figs. 3 and 4 show a convenient arrangement of the plate apparatus. Fig. 5 is a diagram of the resistance. A is the



Fig. 1.

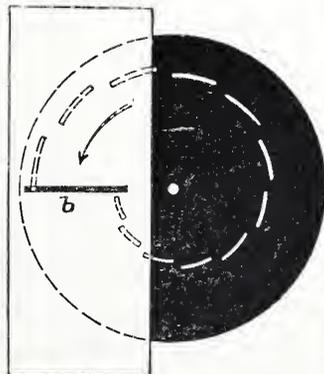


Fig. 2.

of a fixed stop provided with a slit *b* in the direction of a radius of the screen (see Fig. 2), and the screen then slowly rotated in the direction of the arrow, there appears in the slit a point of light moving from left to right, the eye being directed through the stop and screen towards a bright background. The point of light seems to make its appearance to the left, and to disappear to the right. On quickly rotating the screen there are seen to-

“anker,” F the field of the motor, W the resistance, S the fuses, D switch, K terminals.

In using the apparatus a rough idea is first obtained of the times of exposure to be measured. Assuming that a focal-plane shutter is being examined, this will be from 1-5th to 1-1,000th of a second. The greatest speed of the motor, working at 3,000 revolutions per minute, will thus indicate for each point of light 1-3,000th of a second. The greatest number of light-points which can be formed is 60, corresponding to the 60 slits in the rotating screen. If the screen be given a second revolution, this series of points appears a second time, but is not visible on the plate, as one series covers the other. An exposure which shows all 60 points is therefore not practicable; the highest number that can be obtained is 59—that is to say, with the speed of revolutions of 3,000 per minute one can measure exposures as long as 59-3,000ths of a second. For longer exposures the slower speed of 200 revolutions per minute is employed, and times down to 59-200ths of a second thus measured. Supposing that for the sake of accuracy the smallest number of points of light to be obtained is 10, then with 200 revolutions per minute, we can measure 10-200 = 1-20th of a second. Between 200 and 3,000 revolutions the motor can be worked also at 1,000 revolutions per minute, equivalent to recording exposures as long as 59-1,000ths and up to 10-1,000ths = 1-100th of a second. The whole range of the shutter is thus covered.

As to the accuracy of measurements there are two values to be determined from which the time of exposure is calculated, (1)

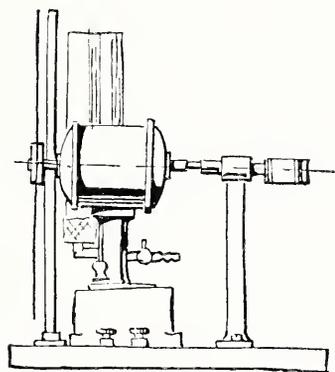


Fig. 3.

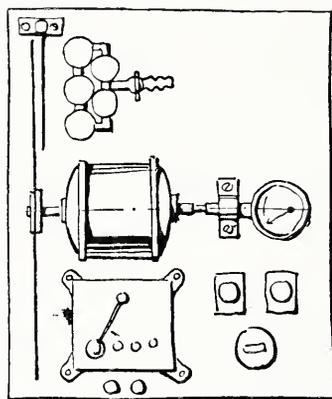


Fig. 4.

the speed of the motor, and (2) the number of points resulting on exposure. The number of revolutions per minute of the motor can be recorded with such accuracy that failures on this score are excluded. The light-points on the plate are further quite accurately counted, but it is necessary to discover to what degree these points of light accurately represent the time of exposure.

In the formula already given, $t = \frac{1}{N}$, it is assumed that a slit of the rotating screen illuminates the radial fixed slit during 1-60th of a revolution. This, however, is not absolutely the case, since the rotating slits, in order not to deprive the screen of its solidity, must be made shorter—in fact, by one-quarter of their ideal length—so that each slit corresponds with only 3-240ths of a revolution of the screen, whilst 1-240th remains for the interspace between two slits. If we now assume that an exposure has given two points of light, and notice from Fig. 6 the path which the rotating screen must at least have followed, it is at once seen that in any case the distance A must be reckoned as more than 1-240th of a revolution: we may assume at least 3-240ths. The path b may also be put down at 9-240ths, as also in this case only two points appear on the plate. It is, however, a special case in which b would so come that only two points appear. On making one or two further exposures with the same speed of shutter there would very probably be three points. If this is the case, the path has certainly become

greater than 7-240th of a revolution—that is to say, the action has taken place through the full length of slit No. 2, but only through one-third of their respective lengths in the case of slits Nos. 1 and 3. This will be shown in the exposure by the fact that the middle point will be of strong density, whilst those on the two sides are weak only. From the two values 9-240ths and 7-240ths the mean 8-240ths is 12½ per cent. in error, and therefore not sufficiently accurate. By choosing the conditions so as to obtain 5 and 6 points there is obtained a maximum of 21-240ths and a minimum of 19-240ths—that is to say, a mean of 20-240ths corresponding to an error only of 5 per cent.—quite accurate enough for the purpose. If 10 points be taken as the minimum number, and the control test is found to give 9, the mean of the two observations gives 36-240ths of a revolution, and a maximum error of only 2½ per cent. Tabulating these three results we get—

Points.	Revolution, mean.	Error, per cent.
2 and 3	8-240ths	12½
5 and 6	20-240ths	5
9 and 10	36-240ths	2½

It will thus be seen that the lowest number of points obtained on several controlled tests gives without further calculation the number of 60ths of a revolution which the screen has made during the exposure. Calling this lowest number of points z,

the time of exposure in seconds is $t = \frac{z}{N}$

For the shortest time of exposure of 1-1,000th of a second which

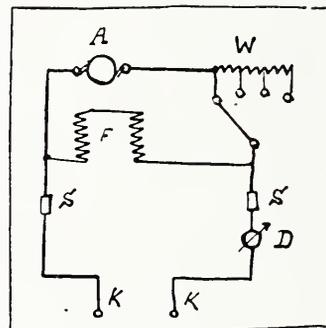


Fig. 5.

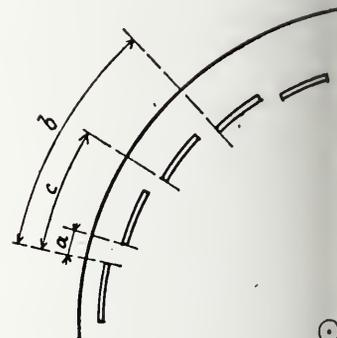


Fig. 6.

we have to measure 3 and 4 points would result according to this formula. That is to say, we can measure these shortest times with a degree of accuracy of 10 per cent., quite sufficient for practical purposes. If the speed of the motor was raised to 4,000 revolutions per minute, the accuracy would be within 6 per cent. Actually, it is not, however, necessary to measure the time of exposure of 1-1,000 directly, as will be seen from the following

These times of exposure correspond with a width of slit of 2 to 3 mm. If this width is doubled the time of exposure will be doubled, for even with those shutters in which the alteration of the width of slit involves a simultaneous alteration of the tension of the spring, there is in the case of the very small widths of slit such slight change in the tension that there is an exact proportion between the width of slit and the time of exposure. If we therefore make measurements up to 1-500th of a second using 6 to 7 points, and obtaining an error no greater than 4 per cent., we can calculate smaller times of exposure accurately from the narrower width of slit.

It will have been seen from the foregoing that the method is extremely simple in use, and gives very exact results; all that is necessary is to control the speed of the motor and to count the points obtained. Measurement of the image, necessary in most other methods, is dispensed with. The apparatus, having been once installed—it does not require much space—allows of the testing of any shutter in any camera without any previous preparation. The method is specially suitable for focal-plan

shutters, since the series of points which is formed parallel to the slit of the shutter possesses a diminishing extension in the direction of the movement of the shutter, so that any correction for the movement of the spindles is not necessary, as will be seen in an example to follow. In a later portion of the pre-

sent paper the results of testing a number of shutters will be given, from which it will be seen that there are considerable departures from the figures given in tables of focal-plane shutters or marked on the instruments themselves.

PAUL THIEME.

THE ROYAL PHOTOGRAPHIC SOCIETY.

CHANGE OF PREMISES.

THE following notice appears in the May number of the "Photographic Journal":—

In November last the Council was asked to exchange the Society's present house for one at No. 35, Russell Square. Inquiries were made and it was found that the house at No. 65, Russell Square, adjoining the Society's premises had been let on a building lease, and that proposals had been made to rebuild No. 67 on the other side of the Society's house. Apart from the serious damage likely to be done to the foundations of a very old house by these building operations, it was obvious that they would seriously hamper the Society's work and cause great inconvenience to the members.

The Council accordingly entered into negotiations with a view to obtain for the Society a suitable home, and at the same time to secure by an exchange of leases some permanent advantage for the Society. After prolonged negotiations the Council has entered into an agreement by which the Society will secure a lease of No. 35, Russell Square, for thirty years in exchange for the present lease, of which eleven years only have still to run. No. 35, Russell Square, having been built at a later date than No. 66 and being in a sounder state, will cost less for upkeep than the present premises. It offers better accommodation and in a more convenient way than the Society now enjoys. The rent will be the same as that which

the Society is at present paying. No. 35 will be put into a thorough state of repair inside and out, and so thoroughly redecorated that little expense for these purposes will be incurred by the Society for many years.

A studio will be provided in addition to the dark rooms, enlarging room and work room. The meeting room will be as large as the present one and of better shape; more and better library accommodation is provided and there are several rooms in excess of those at No. 66. The dark rooms, enlarging room and work rooms will be in the basement, and the studio will be over the basement, at the back of the house.

The agreement provides that the Society will pay no part of the costs in connection with the exchange of leases, the fitting up of the new house, and the removal of the Society's goods and furniture.

The dark rooms, enlarging rooms and work rooms at the Society's present house will be closed to the members after Saturday, May 22, but the remainder of the house will remain open till the close of the session on June 9, when the removing operations will be begun. The alterations will be pressed forward with all speed, and the date of the opening of the new house will be published in the "Journal."

ABSORPTION SPECTRA.

(A paper read by Dr. Mees before the Royal Photographic Society, and reprinted from the "Photographic Journal.")

THE connection between the colour of an object and its absorption spectrum must always be of considerable interest to those who have to deal with photographic matters, and the specific branch of it with which this paper is concerned—namely, the absorption of various organic dye stuffs—is of especial importance for the preparation of filters. Our laboratory has now devoted a considerable amount of attention to obtaining convenient methods for recording the absorption spectra of dyes, and some of the recent dye stuffs which we have obtained not being well known, it seemed to us that it would be useful if we were to publish a *résumé* of our more recent work on this subject, showing our experimental methods and the more interesting spectra which we have photographed.

A coloured substance may be defined as one which does not equally transmit all the constituents of white light, but which removes some of these constituents and appears to the eye to be coloured by virtue of the excess of the remainder. When such a coloured substance is examined in the spectroscope the absorption of some of the colours causes a black band to appear in the spectrum, and this is what is known as the absorption band of the substance in question.

An absorption band may be either sharp or shallow, but inasmuch as many absorption bands are broad, embracing a considerable portion of the spectrum, it is usual to use the sharp and shallow terms with regard to the *edges* of the bands, since many bands have one edge sharp and the other edge shallow. Rhodamine B, for instance, has an absorption band which stretches from 5,800 to 4,700. The edge of this at 5,800 is very sharp, while that at 4,700 is shallow and gradual (Fig. 1). That is to say, we pass very rapidly at 5,800 from a position of almost complete transmission to one of almost complete absorption, while at 4,700 the transmission is gradual, and a great change of colour takes place between the position where the transmission can be considered as reasonably complete, and that where it is nearly nothing.

Methods of Recording Absorption Spectra.

There are three main methods of recording absorption spectra. The first, by far the most accurate and most important, is the spectro-photometer. There are, indeed, only two objections to the spectro-photometer:—

1. That it is a comparatively slow method, *i.e.*, that it takes a considerable amount of time to measure the absorption spectrum of a dye.
2. That its use is limited to the visible spectrum.

The spectro-photometer consists in the first place of a spectroscope, usually fitted at the eye-piece with a narrow slit, which enables any



Fig. 1.

Dye wedge Rhodamine B.

particular portion of the spectrum to be isolated, and with a method of turning through the spectrum so that it is known which portion is being employed at any time. The field of view is divided horizontally into two portions, so that two spectra are observed, and it is necessary, if accurate measurements are to be made, that the two fields should be as near together as possible. One of these spectra is formed by the beam which is passed through the dye solution to be measured, the other is a beam which has not suffered any absorption, but of which the intensity can be diminished in a known manner. The spectro-photometer shown, and which we have chiefly

used, is the Huefner spectro-photometer, a full description of which has already appeared in the "Photographic Journal" for July, 1904 (Figs. 2 and 3).

In this instrument the upper beam passes through the absorption cell, which is arranged so that the top half only contains dye solution, the lower half being filled by a block of glass. The lower beam passes through the polarising nicol C. Both beams together after dispersion pass through an analysing nicol. The turning of this analysing nicol darkens the lower polarised beam only, and the

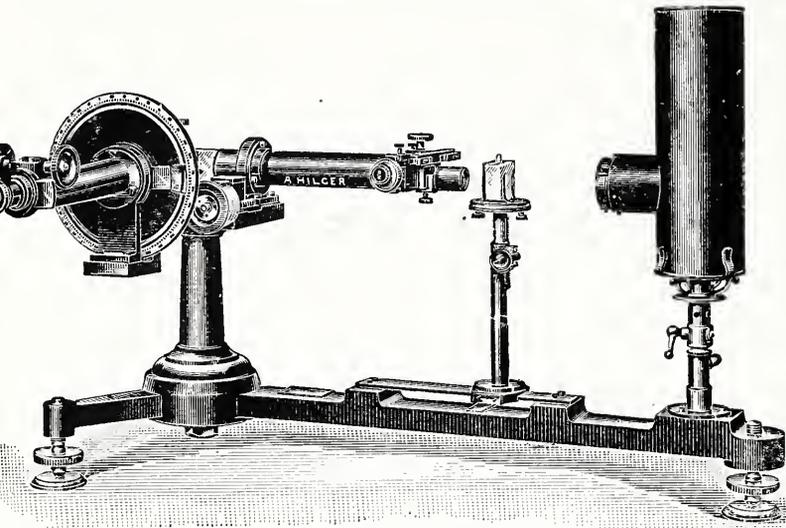


Fig. 2.

degree of darkening can be calculated from the angle through which it is turned. In order to make a measurement of an absorption spectrum, the lower half observed in the eye-piece is equated to the top half, a very narrow ocular slit being used, so that only a small portion of the spectrum is observed at a time, and the measurements so obtained are plotted against the wave-length of the light employed. The units of absorption chosen may conveniently be opacity logarithms, which are known in absorption work as extinction coefficients, and have the advantage that they are directly propor-

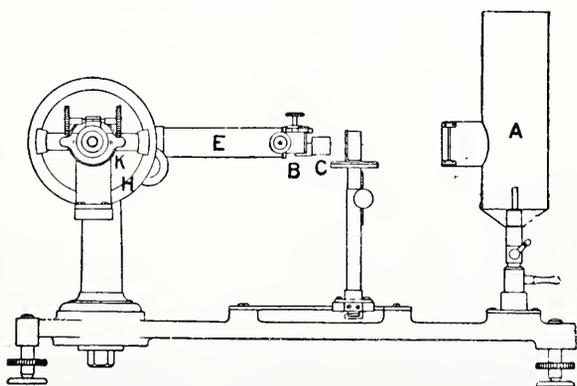


Fig. 3.

tionate to the weight of substance employed. The curve shown is the absorption curve obtained in this way for a 1 in 6,000 solution of potassium permanganate (Fig. 4).

This spectro-photometric method of recording absorptions is undoubtedly the most accurate, and in many ways the most satisfactory method which can be employed. It gives an absolute measurement independent of the light sources used and proportional to the mass of dye in solution. It can be used for the correct analysis of an impure dye. Suppose, for instance, that we have a commercial sample of methylene blue to use, and we wish to know the percentage of methylene blue contained in it. This can only be done chemically by a long and complicated analysis, but if we obtain a pure sample of methylene blue, either from another source or by purification of a small quantity of our sample, measure the density at a given point in the spectrum for a standard concentration, and then measure the density of the impure sample in the same concentration, the proportion between the densities will give the degree of purity of our sample.

But spectro-photometric methods of obtaining absorption bands have one great objection, they are comparatively slow, and while this is of no importance in research work, although it is to be noted that no long series of carefully measured absorption curves of dyes have yet been published, it is a great disadvantage when it is necessary to obtain a reference collection of the absorptions of as many dyes as possible. In order to prepare a great variety of filters for all purposes, we have made a careful study of the available dyes, and have obtained absorption spectra by the methods shortly to be described, of nearly 300; neglecting only those which seem to be

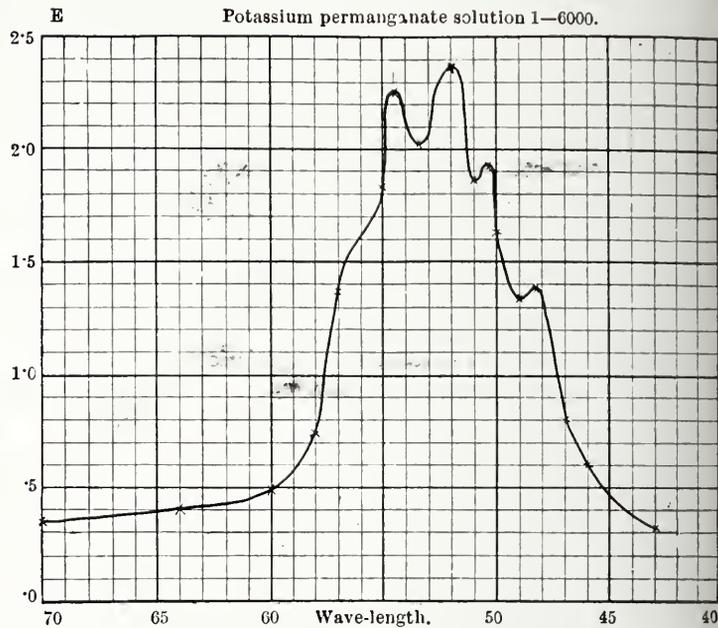


Fig. 4.

quite unsuitable for any purpose which was likely to interest us at present. We are hoping before long to publish these in some form, and we are only bringing before the Society to-night types of the absorption curves given by different groups of dyes, as we find that little has been published on the subject, and some curves which we have to show may be new to practical workers. We have purposely extended these observations as far into the extreme red and ultra-violet as possible, our spectrum being limited by about 8,000 on the one side and 3,500, where light is cut off by glass, on the other.

In order to obtain this great range it is, of course, necessary to use a photographic method, and there are three photographic



Dye wedge.



Black wedge.

Fig. 5.—Xylen red.

methods which can conveniently be employed for this purpose:—
 (1) One may take a series of photographs with increasing dilution of the dye; (2) One may take a series of photographs with a constant concentration of dye but an increasing thickness of the cell; (3) One may take a series of photographs with a constant concentration and constant cell thickness, but with a varying exposure. These three methods will all produce different results, though (1) and (2) are nearly equivalent to one another. (1) is a very slow method, and it would probably be quicker to use a spectro-photometer.

(2) and (3) though quicker are still slow if carried out as described. But if in method (2) instead of using varying thicknesses of cell we use a cell of which the thickness varies throughout the length, that is to say, a wedge-shaped cell placed in front of the slit so that the thickness of the layer of dye solution in front of the slit varies from end to end of the slit, the method resolves itself into taking only one or possibly two photographs of each dye. Method (3) is inferior to the other two methods, as it involves the interpretation of the photograph of the plate curve. It is, however, a convenient way of examining the absorptions of coloured films and finished filters. In order to carry it out rapidly, the black wedge which

ally absorbing dyes, was first inserted, which caused the plate to give an even spectrum from 7,300 to 5,200, after which it rises to the blue-violet maximum of the plate. Two cells containing a 1 in 100,000 solution of mandarin orange, and a 1 in 300,000 para-nitrosodi-methyl-aniline solution sufficed to subdue this blue-violet maximum, so that when a black wedge spectrum was taken of the plate through these screens it was found to be even in height from 7,300 to 3,800; falling off from 7,300 gradually to 8,000, and from 3,800 to 3,500, where the glass absorbed, and it ended. (Fig. 7.)

With this arrangement it was found that to get sufficient density upon a plate, an exposure of five minutes was required, and except

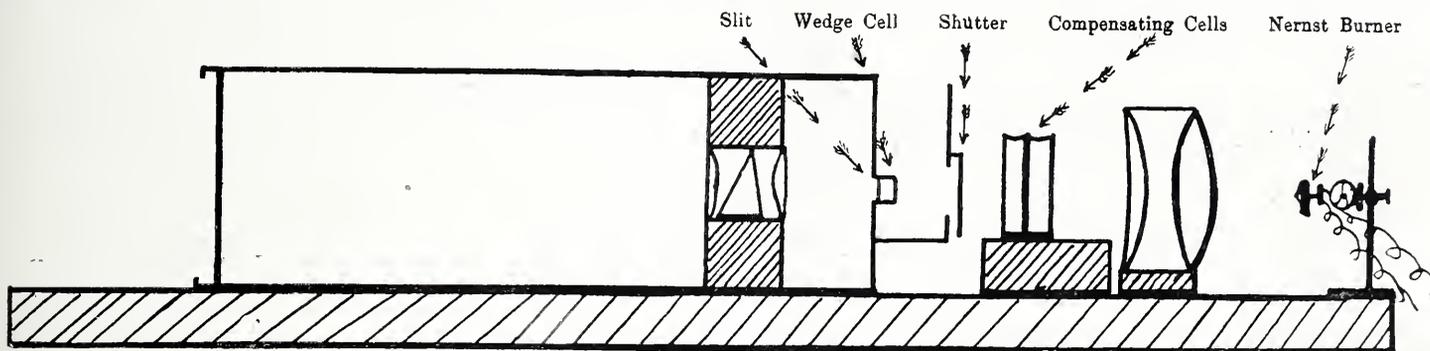


Fig. 6.

we have before described is used in front of the slit spectroscope, so that the intensity of light falling upon the slit varies from end to end of the slit. Fig. 5 shows the results obtained by methods (2) and (3) for a solution of xylen red.

The Apparatus Employed.

The apparatus employed consisted of a modified Tallent Spectrograph fastened down to a board, and with a scale in front of the plate. This scale in front of the plate makes it impossible to measure the density of the negatives, but as we do not wish to measure the density of the negatives, that does not matter. In order to obtain great light intensity, which is necessary because of the screens which are to be used, a Nernst lamp is placed parallel



Fig. 7.

Black wedge of screened plate.

to the horizontal slit, and a large condenser focusses an image of the filament upon the slit of the spectroscope. The width of the slit is about .2 mm. (Fig. 6). In front of the slit was fastened the wedge-shaped cell containing the dye solution.

The plates used were plates which are made specially for spectroscopic purposes, and which we call Spectrum Panchromatic. These plates have a very intense red-sensitiveness which spreads into the infra red, so that with long exposures they can be used up to 8,000 A.U. A blue screen empirically adjusted and made of gradu-

ally absorbing dyes, was first inserted, which caused the plate to give an even spectrum from 7,300 to 5,200, after which it rises to the blue-violet maximum of the plate. Two cells containing a 1 in 100,000 solution of mandarin orange, and a 1 in 300,000 para-nitrosodi-methyl-aniline solution sufficed to subdue this blue-violet maximum, so that when a black wedge spectrum was taken of the plate through these screens it was found to be even in height from 7,300 to 3,800; falling off from 7,300 gradually to 8,000, and from 3,800 to 3,500, where the glass absorbed, and it ended. (Fig. 7.)

Properties of Dyes which Render them Suitable for Filter Making.

Except in the rare case of special compensating filters, it is usually required that a filter should absorb as completely as possible the region which it is required to absorb and transmit as completely as possible the region which it is required to transmit. The degree to which a dye will do this depends mainly on the sharpness of its absorption band. The edge of an absorption band which is towards the red end of the spectrum is nearly always sharp, and such dyes do not absorb light other than that in their absorption band proper. A red dye having an absorption band in the yellow-green, or a yellow dye having an absorption band in the blue, are bright dyes transmitting the red or green and red portions of the spectrum completely, but if the absorption band faces the other way, as in the blue and blue-green dyes, it will generally be more gradual, and there will be a great absorption of the portion of the spectrum which should be transmitted. This is well shown in the case of the tricolour filters. The red tricolour filter will transmit about 75 per cent. of the incident red light, but the best green filter only about 35 per cent. of the incident green light, and a blue filter only about 16 per cent. of the blue light. When examining dyes for use with filters, the great object is to choose those which have the sharpest possible absorption and the least residual absorption in other portions of the spectrum.

S. H. WRATEN.

C. E. KENNETH MEES.

(To be continued.)

THE PHOTOGRAPHIC CONVENTION AT CANTERBURY IN JULY.

THE Handbook of the forthcoming meeting of the Convention at Canterbury in July, under the Presidency of Mr. H. Snowden Ward, is to hand, and judging from its contents conventioners should have an enjoyable and profitable time during their visit to that ancient and historic city. The Mayor, the Cathedral authorities, the Committee of the Chamber of Commerce, and the Canterbury Camera Club have all given their hearty co-operation, and everything gives promise of a very successful gathering. The headquarters of the Convention during the week will be at St. George's Hall. The following is the programme of arrangements:—

MONDAY, JULY 5.

Morning.—Members of the Camera Club will attend at St. George's Hall to conduct parties to places of interest in and around the city.

Evening at 8.—Reunion. The proceedings will open with a few words of welcome by his Worship the Mayor, Mr. F. Bennett-Gold-

ney, after which the President, Mr. H. Snowden Ward, will deliver his inaugural address. At the conclusion of the Presidential address Mr. and Mrs. Ward will be At Home to members and friends, after which the annual general meeting will be held.

TUESDAY, JULY 6.

Morning, at 9.30.—Excursion by brakes to Patricxbourne, Wingham, Wickhambreaux, and Fordwich, all of which possess interesting old churches, and the last-named a unique town hall.

Evening, at 8.30.—A lecture entitled "Canterbury and Its History" will be given by Mr. F. Bennett-Goldney, F.S.A., followed by a meeting of the new Council.

WEDNESDAY, JULY 7.

Morning.—Visit to the Cathedral, where the Rev. Canon Moore, D.D., on behalf of the Dean and Chapter, will hold an official reception at 11 o'clock.

Afternoon, at 3.—His Worship the Mayor, Mr. F. Bennett-Goldney, and the Mayoress will give a garden party at their residence, "Abbots Barton," at which the official Convention group will be taken by Mr. H. B. Collis at 3.30.

Evening, at 7.—The annual dinner at the County Hotel.

THURSDAY, JULY 8.

Morning, at 9.39.—Excursion by train to Rochester, which is particularly rich in objects of archaeological and historical interest, many of the former dating back to Roman and early Norman times. The cathedral, castle keep, and Eastgate House (now the museum), will possess special interest for students of architecture.

Evening, at 8.30.—A paper will be read by Mr. C. Welborne Piper, followed by a paper by Mr. C. H. Bothamley entitled "Some Aspects of Photographic Record Work."

Friday, at 9.40.—Excursion by train to Rye and Winchelsea. Rye is full of objects of interest, amongst which may be mentioned St. Mary's Church, with its ancient clock, the monastery, the Town Hall,

and the Ypres tower. Many fine views may be obtained from the harbour and the east and west cliffs. In Winchelsea, which is little more than a village, the chief objects of interest are the old church, the Court Hall, and the three gates; the surrounding country also is very picturesque.

Evening, at 8.30.—A paper will be read by Capt. Owen Wheeler on "High-power Telephotography," followed by a lecture by Mr. F. Martin Duncan on "Colour Photography Applied to Natural Science."

SATURDAY, JULY 10.

The last excursion of the Convention of 1909 will leave Canterbury by train for Maidstone at 9.40, where conventioners will be met by members of the Maidstone Camera Club, who will act as guides to the various places of interest in and near the town.

The handbook contains a list of the hotels and apartments where accommodation may be obtained, also a list of photographic dealers and dark-rooms in Canterbury, and other places visited.

INJURIOUS EFFECTS OF STRONG ILLUMINATION UPON THE EYE.

From "The Optician and Photographic Trade Journal."

ALTHOUGH everybody knows, or ought to know, that the eye should never gaze directly at an unprotected electric arc or incandescent filament, this rule is constantly broken by placing such lights where their rays fall directly on the eye; and we may attribute, in part, the injurious effects of direct radiation to the invisible ultra-violet rays or those that fall beyond the violet of a solar spectrum.

Although this invisible light provokes no sensation, it by no means follows that it is without physiological action, and we may inquire whether its effects on the eye may not be injurious. One has an instinctive apprehension of this when he thinks of the mercury-vapour lamps, sources particularly abundant in ultra-violet rays. We are reluctant to admit that their unnatural light is in conformity with the rules of hygiene.

In these conditions is it not to be feared that the continuous action of the ultra-violet rays emitted by our usual sources of light may present serious danger? Messrs. Schanz and Stockhausen have been trying to clear up this question by a study of electric arc and incandescent lamps. The former emit ultra-violet light in abundance, and the two physicists attribute to this fact the ophthalmia often caused by arc lamps. Again, after having shown that the crystalline lens of the eye is made fluorescent by the ultra-violet rays, they state their belief that this phenomenon may at length render the lens opaque and thus cause cataract. Incan-

descent lamps using metallic filaments are also sources of ultra-violet light, although they are less rich in it; and it is only fair to say that the glass of the bulbs and shades absorbs a notable part of the ultra-violet light.

But, it will be said, the sun's light, the ideal of all artificial illumination, is not without ultra-violet rays. Indeed, it is much richer in rays of this kind than arc or incandescent lamps. Should we conclude that the dangers of which we are warned by Messrs. Schanz and Stockhausen are imaginary? By no means. The solar light is rich in ultra-violet rays, but it is dangerous to receive it directly. No human eye is able to look steadily at the sun, and it is logical to attribute to the ultra-violet radiations a part of the disastrous results of such an act. The light that reaches our retina has been previously reflected and diffused in a thousand ways. It contains but a feeble proportion of the dangerous elements. On the other hand, in the case of artificial sources of light, we often receive their rays directly, and their continued action may, therefore, be injurious.

The conclusion to be drawn from these investigations is that it is important so to arrange our electric lamps that it will be impossible to see the arc or the bright filament directly; and in our interior installations we must use, as far as possible, indirect illumination, by reflection and diffusion of the light on large surfaces.

NATIONAL PHOTOGRAPHIC RECORD ASSOCIATION.

THE annual meeting of the above association was held at 4 p.m. on Tuesday, May 18, when the members and visitors enjoyed the hospitality of Sir Benjamin Stone at the Midland Grand Hotel, St. Pancras. The secretary read the report, which we reprint below, and then the President gave his annual address. This was partly devoted to a consideration of the progress of photography in general, as evidenced in the Dresden exhibition, at the opening of which Sir Benjamin was present. He described the English pictorial exhibit as representative of a large number of well-known exhibitors, but so overweighted with meaningless pictures as to lose all attraction. In consequence of this, he said, the room is nearly always empty, while the scientific section is much appreciated. The record exhibits in particular being peculiar to England attract much attention. Sir Benjamin concluded his address by strongly urging the organising of a similar exhibition in England. After the adoption of the report the Rev. F. C. Lambert moved the following resolution:—"That considering the ever-increasing uses of photography, the Government be urged to establish a photographic department where technical instruction may be obtained, and where historical photographs of passing events, customs, and other matters of interest may be

secured, indexed, and stored for public reference." This was carried unanimously and the meeting terminated, after the president, council, secretary, and treasurer had been re-elected for the next year and the customary votes of thanks had been passed. Among the numerous speakers were Major-General Waterhouse, Dr. Mills, and Messrs. John Spiller, G. A. T. Middleton, and G. A. Storey, A.R.A. Mr. Spiller suggested that possibly the first purely record photograph ever produced was one made by himself on May 8, 1860. In any case this was the first photographic record made by the War Department of shot marks on armour plates. The report of the Association is as follows:—

The Council of the National Photographic Record Association have now the pleasure of presenting their eleventh report, and although our own society has not received as many prints as we might have wished, it must be satisfactory to all interested in the subject to know that record work is being carried on vigorously by many photographic societies throughout the country, and that valuable prints are being deposited in many local and central museums and public libraries, and available for public reference.

Since our last report we have received 189 prints and 334 nega-

tives, from most of which we hope to be able to obtain prints for the collection, making the total number of prints received 4,367.

The President, Sir J. Benjamin Stone, has contributed 50, including a series illustrating an old custom in Lichfield—The Sheriff's Ride; a set of the old Gateways and Walls of York—St. Mary's Abbey, York; an Ancient Cross and Stocks at Ripley, and other photographs from Worcestershire.

Mr. G. Bingley has forwarded 39 prints including a set of Ludlow Castle, Glastonbury Abbey and the old George Hotel, Stokesay Castle, Wenlock and Buildwas Abbey.

From Mr. Welch, of Belfast, we have received 22 of his celebrated Irish photographs, including some studies of the people and their houses, and various views of some of the ruins of the old churches.

Mr. H. W. Fincham has forwarded 27 prints, including views of Walpole House, Chelsea, and 4, 5, and 6, Cheyne Walk, and some of St. John's Gate, and St. John's Church, Clerkenwell.

Mrs. M. Powles has favoured us with views of Littleham Church, Devon, and Dunning Church, Perthshire.

Mr. Brace has secured an interesting record of a part of the old London Wall, unearthed when making an excavation in America Square, Minorities.

Miss Niblett has again contributed some prints, including a set of Compton Wingates, where four sovereigns are reported to have stayed, viz., Henry VIII., Elizabeth, James and Charles, also some views of the Scilly Isles.

The Hon. Secretary, 25 of the Essex churches, including Thaxted, Great and Little Samford, Great Leighs and Bradfield, and the old Moot Hall at Thaxted.

The Council are much indebted to Mr. G. H. Fowler Jones, who has forwarded 334 negatives, taken by his late father, Mr. George Fowler Jones, architect, York. They are of particular interest, first from a photographic point of view, as Mr. Jones was a friend of Fox Talbot, and worked with him occasionally, and as the negatives date from the year 1843 down to 1904, they practically form a history of photographic progress, but they are also interesting as records, comprising as they do views of Kirkham, Kinloss, Melrose, Muckross, Dunblane and other abbeys, Cawdor, Conway, Craig Miller, Lilleshall, Urquhart, and other castles, and many of the churches and interesting buildings of Yorkshire and the North.

The London County Council have set a good example to other municipal bodies by making a collection of photographs of interesting old houses and other buildings in their district that have to be removed for street improvements, and the prints are stored in the library of the County Hall, Spring Gardens. With regard to work being carried on by other societies, the premier society, the Survey Society of Warwickshire, President, Sir J. Benjamin Stone, Hon. Sec., George Whitehouse, continues to do splendid work in the county, and they now have a large and important collection at the Central Reference Library, Birmingham. The Photographic Survey and Record of Surrey, H. D. Gower, Hon. Sec., have received 456 prints during the year, making a total of 2,381, which are preserved at the Town Hall, Croydon, under the charge of the chief librarian, J. Stanley Jast, Esq., and it is particularly gratifying to find the public are appreciating the value of the collection, as 1,215 references to the prints were made last year. This year their annual excursion is arranged for Saturday, May 22, to visit Barnham and the vicinity, a part of the county practically unrepresented in their collection. The Survey of Sussex under the Presidency of the Duke of Norfolk, J. C. Stenning, Esq., Hon. Treasurer, are getting together a good collection of photographs, which are deposited in the Public Library, Brighton. The Photographic Survey of Essex, V. Taylor, Hon. Sec., have now a considerable collection, which are deposited at the Essex Museum of Natural History, Stratford, and the societies of Kent, Leicester, Worcestershire, the North Middlesex Photographic Society, Edinburgh and District, and many others are making good progress.

By special invitation the National Photographic Record Association have arranged and forwarded to Dresden for the important photographic exhibition now being held there, a series of photographs illustrating the record work being done in this country, and the Council are indebted to the London County Council, the Survey Society of Warwickshire, and of Surrey for having lent a selection of their prints, and also to Messrs. Welch, G. Bingley, H. W. Fincham, and the Hon. Secretary, who have also contributed. The President,

Sir J. Benjamin Stone, has also exhibited a large collection of his well-known photographs of old customs, and was by special invitation of the King of Saxony, present at the opening of the exhibition.

We regret to have to record the death of Mr. Hector Maclean, a gentleman who had taken the greatest interest in our Association, and was an enthusiastic supporter of record work generally, and only a week before his death he took the chair at the meeting of the Photographic Survey of Surrey and gave an address upon the work being done. In it he referred to the deplorable destruction of so many grand old structures during the 19th century and suggested that possibly many photographs were in existence taken before works of restoration were commenced. In 1851, with the advent of the collodion process, there was an immediate expansion of the art of photography, and the same time was the commencement of the period of church restoration, and he took the opportunity of appealing most earnestly to all men of intelligence, who are interested in the country, to rummage amongst their portfolios and albums, and those of their friends, for old photographs of persons, places, and things. This appeal we most cordially endorse, and would again urge all interested in the history of our country to have another search amongst their old photographs and negatives, as it is well known that not only is there very much valuable matter hidden away in private collections, but also that there still remains a large number of negatives that have not even been printed from.

In conclusion, the Council would wish to draw attention to the fact there are two classes of members of the National Photographic Record Association, one whose qualification shall be a contribution of not less than six prints per annum, and another class who qualify by a subscription of 10s. per annum. At the present time we should be glad to have some additional subscribers, as we have to find means for printing some 250 from the negatives presented to us by Mr. F. Jones, in addition to our ordinary expenses.

Warm thanks are again due to Mr. George Scamell for his continued assiduity in directing the work of the Association, and for his additional contributions, which now form a considerable portion of the British Museum Collection.

FAIR CHILDREN.

UNDER this title an exhibition has been opened at the galleries of Speaight, Limited, in New Bond Street. A one-firm show of professional photographs, at a charge of one shilling to the public, is something new in photography, and the promoters are, at any rate, putting what is known as commercial work upon a footing hitherto occupied entirely by photographs of pictorial pretensions. We congratulate them upon the idea, as well as upon the results they show. The handsome gallery is tastefully decorated and hung, and the pictures are in most cases worthy of attention, from the pictorial standpoint alone.

Messrs. Speaight are famous for their child-pictures, yet, for our own part, we are not a little grateful for the mothers that sometimes come in as mere supports. They fill this rôle with artistic, as well as domestic, grace.

"The nobility and gentry" of the world are figured in profusion, Mr. Richard Speaight having visited Germany, Sweden, and Spain for commissions which are the distinguishing points of this aristocratic collection. Nevertheless, it must be admitted that the most successful works are those which are in reality more frankly pictures than likenesses. Such are the charming "Children at Play," two nude figures contesting for a basket of flowers, which the taller holds high over head; "Richard Langford Speaight and his Mother," a well composed, airy interior, where the mother plays a spinet and the child plays on the floor; also "Ave Maria, Gratia plena," a little girl kneeling at prayer, with head bent low and hands together. Some of the likenesses are also remarkably full of the pictorial feeling without which a portrait is often an arid performance. For example, the way in which the Crown Princess of Sweden holds up her lively baby is quite in the manner of Reynolds. "John, son of Mrs. Ernest Pitman," recalls a Hoppner by reason of the costume of the boy. The old-established "family group" occurs only once or twice. In most cases the children play naturally with skittles, or fish-bowls, or "teddy-bears"; but where the mothers are included the posing is always feelingly managed, and the composition tastefully managed. As to the quality of the prints, one can scarcely speak too highly.

They all have a fine, quiet richness, without any undue forcing, and their old-world air is carried out happily in the mounting, with hand-drawn and hand-lettered mounts and appropriate frames. There is also a collection of exquisitely worked miniatures, the natural flesh tints of which may be taken for granted when it is understood that they are the work of Mrs. R. Speaight, whose reputation is well founded.

Photo-Mechanical Notes.

The Residues in Wet-plate Work.

In a little book published by Mendel, called "Traitement des Résidus Photographiques," per L. Mathet, there is given the following simple method to recover the silver from residues in wet collodion work, a plan that might be adopted by any photo-engraver to his profit. The used fixing baths, and also the drippings and first washing waters from developments, are collected in a vessel, and there are then introduced some pieces of copper sheet, the surfaces of which have been previously very thoroughly cleaned. The silver will be thrown down by the copper in the metallic state. From time to time, say every two days, the copper is scoured with a hard brush to detach the silver veneer from the copper surface. When the vessel is full all or part of the supernatant liquid is syphoned off and further solution added and treated in the same way. When it is judged that there is sufficient silver collected, it is separated from the liquid by filtering on a closely woven cloth. After washing and drying the deposit can be further treated, fused, or converted into silver nitrate, or, what is probably better, may be at once sent to the refiners.

Improvements Relating to Photographic Printing Apparatus.

Three patents, Nos. 23,684, 23,690, 23,701, 1908, have been granted to William Carl Huebner, of 32, Laurel Street, and George Bleistein, of 197, Main Street, both of Buffalo, New York State, U.S.A., for improvements in apparatus by means of which prints can be made on litho stone or metal plates, sensitised to receive a photographic image from either a negative or a positive. It is claimed that the apparatus enables the print to be made with great certainty and accuracy in a very expeditious and inexpensive manner; and, moreover, several prints may be made on the same or different portions of the same surface exactly where required without any difficulty. With the great increase now being made in the use of photo-lithography there should certainly be room for some apparatus to enable the print or prints to be quickly and satisfactorily made on the stone or plate.

Collotype for Amateurs.

In reference to our recent paragraph respecting the Procédé Cello, M. H. Calmels writes, taking exception to the opinion of our contributor that this process is not one by which a professional photographer would make much money. That, of course, is only a matter of opinion and of local circumstances, but we ourselves feel that if only a few prints are required a pure photographic process will be the most economical, all things considered; while if very many prints are required from an occasional job it will be more economical to place the work with firms making reproduction their special business. If there are continuous jobs of such a character, of course the photographer may be advised to install a proper plant, but then he would rely on "Collo." M. Calmels is mistaken when he says it does not pay to work collotype in the ordinary way for less than 1,000 prints. We can assure him he will not have the slightest difficulty in placing orders for as many jobs as he likes for 500 prints per subject. M. Calmels is also ungenerous, as well as in error, in supposing that our contributor reviewed his book without having read it.

FORTHCOMING EXHIBITIONS.

May 20 to 27.—Malvern Camera Club. Sec., J. B. Nickolls, The Exchange, Malvern.

July 7 and 8.—Canterbury Camera Club. Entries close June 23. Sec., B. J. Fisk-Moore, St. George's Gate, Canterbury.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents have been received between May 3 and May 8:—

PROJECTION SCREEN.—No. 10,541. Improved screen for optically projecting on to in an illuminated room. William Cecil Jeapes, 85, Tulse Hill, London.

ANIMATED PHOTOGRAPHY IN COLOURS.—No. 10,542. Improved method of producing moving pictures in natural colours. William Cecil Jeapes, 85, Tulse Hill, London.

CINEMATOGRAPH-PHONOGRAPH.—No. 10,543. System for producing synchronism between talking-machine and moving-picture machine. William Cecil Jeapes, 85, Tulse Hill, London.

COLOUR PHOTOGRAPHY.—No. 10,611. Improvements in three-colour photographic processes. Rodolphe Berthon, 7, Southampton Buildings, London.

PANORAMIC PICTURES.—No. 10,669. Panoramic pictures. Edward Nelson White, 33, Cannon Street, London.

COLOUR PRINTING.—No. 10,716. Method of printing in natural colours on paper, cardboard, wood, ivory, or porcelain. Sir Louis Augustus Gordon, Bart., 9, Pall Mall, London.

CINEMATOGRAPHS.—No. 10,859. Improvements in and relating to cinematographic effects. Horald Dorman Patterson, 1, Queen Victoria Street, London.

ACETYLENE GENERATORS.—No. 10,880. Improvements in and relating to acetylene gas generators and like containers. Ernst Arthur Nier and Johan Michael Ehmer, 322, High Holborn, London.

FRAMES.—No. 10,908. Improvements in the manufacture of photograph frames. George Moore, jun., Prudential Buildings, Corporation Street, Birmingham.

FOLDING STEREOSCOPE.—No. 10,916. Folding stereoscope for viewing with natural colour effects stereoscopic photographs that are printed in sheets. Gilbert Dyas, 9, St. Mary Street, Dublin.

CAMERAS.—No. 10,922. Improvements in or connected with the adjustment of photographic cameras. David Borland Russell, Catkin Avenue, Rutherglen, Glasgow.

MOVABLE BATHS.—No. 10,928. Improvements in movable baths for photographic and similar purposes. Iliffe and Sons, Ltd., and Thomas Bush, 18, Hertford Street, Coventry.

CAMERAS.—No. 10,938. Improvements in cameras. Joseph Somers Goodwin, 40, Chancery Lane, London.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable; price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

A METHOD OF PRODUCING LENSES BY SUBSIDENCE.—No. 3,444. 1909 (February 12, 1909). The invention relates to the manufacture of glass lenses, which have only one spherical surface, whilst the other one is a non-spherical surface of revolution, the axis of which passes through the middle point of the spherical surface. Under lenses are also to be understood those bodies of revolution which are to be silvered on one surface, so that this surface may act as a reflecting surface. The expression spherical surface is intended to include the special case of a plane surface.

A proposal has already appeared in the American Patent Specification, No. 4,786, of overcoming the difficulty of manufacturing a non-spherical surface in the kind of lenses described, by first of all producing a lens of deviating form with two spherical surfaces and thereupon transforming this primary lens into one of the desired form by subsidence by heat, the mould surface being spherical and differing from the spherical lens surface to be produced only in the algebraic sign of the radius. As far as the dimensions of the primary lens are concerned, its thicknesses at the vertex and at the margin are not at all or inappreciably different from the

respective thicknesses of the final lens; its two radii, however, have to be suitably selected. A closer investigation of this process shows that the eligibility of the two radii is insufficient to produce lenses at will with a spherical and a non-spherical surface of revolution, even though only profile curves be admitted for the surface of revolution, the radius of which increases or decreases steadily from the vertex to the margin.

This known process is therefore in the present invention developed so that the calculated or otherwise prescribed profile curve of the surface of revolution can be realised with greater approach to accuracy than heretofore. If obtaining the spherical surface of the final lens immediately by the mould be dispensed with, and the course be rather to produce the final spherical surface after subsidence by grinding, the radius of the spherical mould surface offers itself as a third eligible element. Four forms of the new process can be differentiated, according as, on the one hand, the mould surface be concave or convex, and, on the other, as its radius be shorter or longer than the radius of the final spherical surface. In two of these four cases—namely, a convex mould surface of enlarged radius and a concave mould surface of diminished radius, producing the final spherical surface by grinding can only be carried out when the thickness at the vertex of the primary lens has been correspondingly enlarged. In the other two cases the marginal

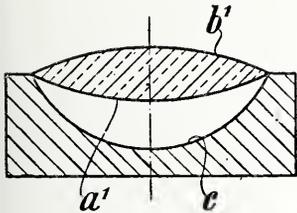


Fig. 1

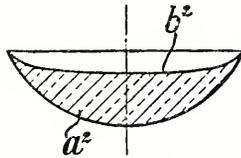


Fig. 2

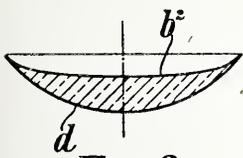


Fig. 3

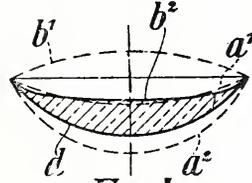


Fig. 4

thickness of the primary lens must be correspondingly greater than that of the final lens.

In the drawings two examples of the new process are illustrated, in Figs. 1 to 4 the production of a collective meniscus by means of a spherical mould surface, and in Figs. 5 to 8 the production of dispersive menisci with the aid of a duplex mould, the two mould surfaces of which are made after the same non-spherical surface of revolution.

Fig. 1 shows a symmetrical double convex lens, the surfaces a^1 and b^1 of which are spherical, as the primary lens laid upon a mould with concave spherical mould surface c . The result of the subsidence is shown in Fig. 2. A meniscus is the outcome, the upper surface b^2 of which closely approximates to the prescribed non-spherical surface of revolution, whilst its lower surface a^2 corresponds exactly to the spherical mould surface c . The lens has now to be ground, in order to replace the surface a^2 by the final spherical surface d , which, as shown in Fig. 3, is weaker convex, so that the final lens, d b^2 , with equal diameter, and with the same marginal thickness, zero has a smaller vertex thickness than the primary lens a^1 b^1 . In Fig. 4 the changes undergone by the lens are given at one view.

If the primary lens had been already given the final vertex thickness and the mould surface the weaker curvature corresponding to the final spherical surface d , grinding would have been saved, the known process mentioned in the first paragraph above only being applied. It is, however, easily seen from Fig. 4, that in this case a non-spherical surface of revolution would have resulted, the profile of which had differed from that of the surface b^2 by a smaller vertex radius and a slower reduction of the radius towards the margin of the lens.

In the example, according to Figs. 5 to 8, two similar primary lenses, each with two spherical surfaces of infinitely large radius, are contained in a glass plate with parallel plane surfaces e^1 and f^1 . This plano-parallel plate is, according to Fig. 5, laid upon a mould having two similar, concave, non-spherical surfaces of revolution, g g , and may be held firmly in position at the margins by a frame (shown in dotted lines). After subsidence the plate has

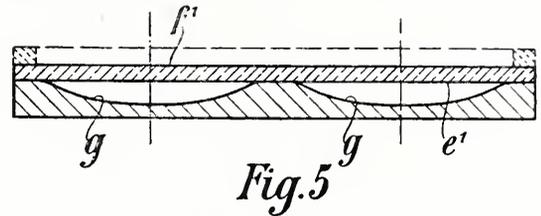


Fig. 5

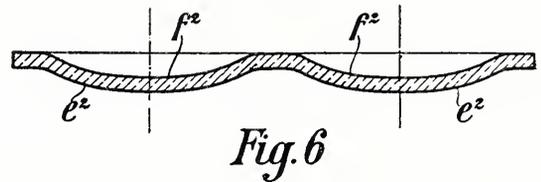


Fig. 6

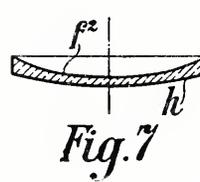


Fig. 7

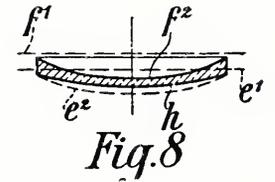


Fig. 8

taken up the form represented in Fig. 6, in which it contains two lenses, each with a final non-spherical concave surface, f^2 , of prescribed profile, and a similar convex surface e^2 , which is immediately produced from the concave mould surface, g . Fig. 7 shows the cut-out lens, after in place of the surface e^2 the final spherical surface h has been produced by grinding. In Fig. 8, as in Fig. 4, the steps in the development of the lens are represented again at one view. Carl Zeiss, Carl-Zeiss-Strasse, Jena.

SYNCHRONOUS CINEMATOGRAPH AND TALKING MACHINES.—No. 11,333. 1908 (May 25, 1908). In order to obtain an exact combined action or synchronism in the production of living pictures and in the reproduction of voices, either singing or speaking, it is necessary that both apparatus should run perfectly equally. The devices hitherto employed for attaining this object were mostly constructed by an electric contact apparatus being inserted between the talking machine and the reproducing apparatus or cinematograph. This arrangement has, however, the drawback that in the case of fluctuations in the current an irregular running of the two apparatus easily arises; on the other hand, interruptions in the working frequently arise, which can only be removed with a comparatively large expenditure of time, even by a skilled mechanic, who is not always available, so that serious interruptions arise in the representations. By reason of the great distance between the two apparatus the operation in common of both apparatus by means of a flexible shaft is also inadmissible, and again the separate parts of the shaft make more or fewer revolutions, so that a uniform rotation at both ends of the shaft cannot be attained.

By the arrangement which forms the object of the present invention the drawbacks hereinbefore mentioned are avoided in a simple manner, the adjustment taking place by means of two indicating devices provided with indicating parts which are clearly visible, one of which devices is operated by the operating mechanism of the talking machine and the other from the cinematograph or reproducing apparatus operated by hand. For the purpose of producing the synchronism or equal running, the operator of the cinematograph has only to take care that by a suitably rapid rotation of the operating crank of the reproducing apparatus he brings the indicating part of the respective indicating device into constant coincidence as regards the actual position of both parts with those of the indicating apparatus operated by the talking machine.

In the operating-room there is a reproducing apparatus (cinematograph) the film feed drum of which carries a chain or cord wheel or pulley on a prolongation of its shaft. By means of a

chain or, if preferred, a band, cord, or the like, a shaft provided with a chain pulley is operated, on which shaft a worm is provided, which worm is in engagement with a worm wheel. On the shaft of the latter there is a pointer and dial, provided with divisions or marks. The pointer, with the arrangement belonging to it, is preferably arranged in the inspection aperture or peep-hole, through which the person operating the cinematograph observes the picture.

On the stage facing the operating chamber there is the projection surface or screen, near which the second indicating device is so arranged that it may be easily observed by the person operating the cinematograph. The operating mechanism of the talking machine, erected in proximity to the stage, has a long shaft or the like, which, under the intermediary of a worm gear, rotates the operating shaft of the indicating mechanism. On the operating shaft a non-transparent disc is mounted provided with a radial slot, the periphery of which disc is surrounded with a number of slots provided in a disc corresponding to the number of the marks or the like, of the disc. In the interior of the indicating mechanism one or more sources of light are rays which penetrate to the outside through the radial slot and the smaller slots, and may be seen by the operator in the operating chamber. The slots round the periphery of the disc may be replaced by dark lines, dots, or other markings.

The non-transparent disc, which constantly rotates during the running of the talking machine, informs the operator in the operating-room, through the illuminated radial slot, constantly as to the extent of the forward movement or progress of the plate or roller of the talking machine. The speeds of rotation of the disc and the pointer are so attuned by a suitable selection of their operating mechanisms that the uniform running of the reproducing apparatus and talking machine necessary for the exact demonstration of the pictures is obtained when the indicating mechanisms of both indicating apparatus always have the same uniform relative position in their axes of rotation. In order to obtain and maintain the uniform running it is thus only necessary for the person operating the cinematograph to rotate the crank of this apparatus at such a speed that the angular velocities of the indicating mechanisms are constantly the same.

In place of the radial slot a black pointer might also be employed, which rotates in front of an illuminated surface, or a white pointer illuminated from the front, which pointer rotates in front of a black surface.

Instead of giving the indicating mechanisms a rotary motion they may also move in a straight line or be arranged so as to rock, in which case the marks or slots must be correspondingly arranged in a straight line and a circle respectively; they may, however, also be entirely omitted. The respective movements of the parts may be obtained by a suitable selection of the operating mechanisms without further difficulty. Heinrich Bayer, 4, Sturmstrasse, Nuremberg, Germany.

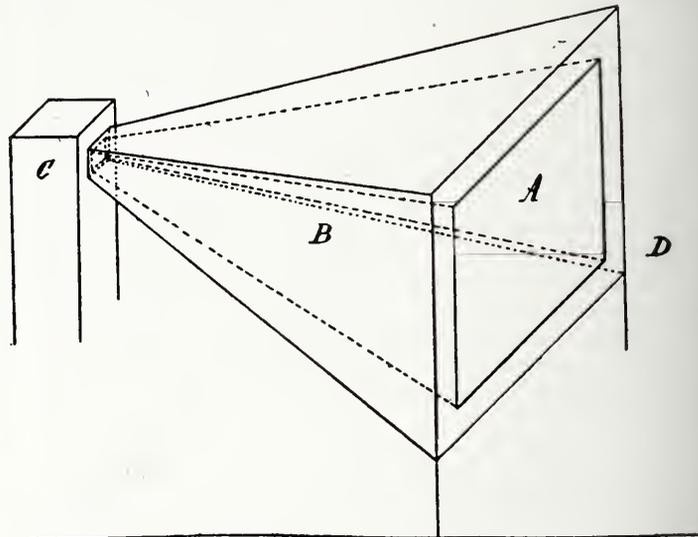
LANTERN PROJECTIONS VISIBLE IN FULL LIGHT.—No. 27,376. 1908 (December 16, 1908). The invention relates primarily to an improved process of obtaining, on a suitable screen, stationary or moving projections visible in full light, that is, in a lighted room or even in the open air in diffused sunlight; this process avoids the drawback of being obliged to darken the room or theatre, and does away with covers, reflectors, illuminating combinations, etc., arranged in the room.

Behind the projection screen a dark chamber is formed, in which the projection is directly effected, and of which the screen forms the front face separating this dark room from the spectators. According to the invention the projection is made by means of a lantern placed outside the projection chamber, which has an orifice through which only the luminous rays projected from the lantern can pass. The projection screen is constituted by a sheet of dull glass or its equivalent, the unpolished face being turned towards the spectators. As this translucent screen only receives light from behind according as the parts of the images projected are more or less clear, these appear very visibly on the front face, notwithstanding the lighting of the screen from the front. In certain cases, for limiting the quantity or the intensity of light coming from the front into the dark chamber through the translucent screen which constitutes the front wall, it is advisable to double the projection screen at the side next the spectators by a slightly

smoked sheet, which only slightly weakens the intensity of the white lights, and improves the projection.

The annexed diagram illustrates the means for carrying out the invention.

The screen A, of transparent but dull material, lined or not with a slightly smoked glass sheet, constitutes the translucent front face of a dark chamber B, whose other, opaque, faces are formed either by a darkened cabinet, or by bellows or other casings, or



in any other manner: the lantern placed at C projects the images on the screen A, which makes them visible to the spectators situated at D.

This device thus enables the spectators to be in full light, the dark chamber alone sufficing to give the projections the necessary strength. Antoine Jacques Michel Poch (engineer) and Prosper Jacques Pierre Poch (banker), of 16, Boulevard Saint-Denis, Paris, France.

New Trade Names:

ALLIANCE (LABEL DESIGN).—No. 312,008. Photographic dry plates and films and all other photographic goods included in Class I. Ilford, Ltd., Britannia Works, Roden Street, Ilford, London, E., manufacturers of photographic plates, papers, and films. April 5, 1909.

Analecta.

Extracts from our weekly and monthly contemporaries.

Soft Water and Lead Pipes.

The following note appears in "Photography and Focus" for May 18: "That the pipes through which it is conveyed may contaminate water is well known. Many photographers have traced black spots on their prints to particles of iron in the water, particles derived from the metal pipes through which it has been supplied. It is not so generally known, perhaps, that while lead or 'compo' pipes will serve very well for hard water, they are not suitable for soft water, which dissolves the metal and rapidly corrodes them. The explanation of this is a curious one. Hard water contains sulphates and carbonates, which soon form a protecting crust on the inside of the pipes, this crust consisting of lead carbonate or lead sulphate or both, which salts are insoluble in the water. Soft water, on the other hand, contains air, which forms lead oxide on the inside of the pipes, which oxide, being slightly soluble in the water, is dissolved, leaving a fresh surface of the metal to be attacked. It is well to bear this fact in mind in settling upon the pipes for the water supply of the dark-room."

Art and Photography.

Photographers must needs learn about art (says a writer in the "Bulletin of Photography" for May 5) both inside and outside their studios. What we mean by that is that photographers, as a

rule, even those who are known as artistic photographers, are too apt to study art through the one eye of their cameras instead of studying it through the two eyes in their heads. They get so used to the photographic rendering of certain effects of colour, light, and shade that they forget to look at them with the eyes of an outsider, and get to regard the photographic rendering as right because the lens and camera produce it so. It would be well for every photographer who wishes to keep ahead to join some art class or school and study art independently of photography, as well as studying those books which are devoted exclusively to art photography, and to learn to look at it from an outsider's point of view.

This advice will, we know, be particularly irksome to those who always want to go the quickest way to work, and who, unless they see some immediate advantage in it, will not care to try it. But there is no short or royal road to knowledge, and experience must be gained by long and often irksome effort.

Orthochromatic Plates in the Studio.

One can easily understand (writes Mr. Charles R. Ogilvie in "Camera Craft" for April) that a better rendition of flesh tones and shadows therein will result from the use of colour-sensitive plates. White drapery and flesh tints will retain in the negative their relative values. The steps of gradation will be greater, and, of course, more roundness secured. Slight, almost imperceptible, patches of yellow or red, such as are present in almost every face, do not come out as spots of soot in the negative. They are rendered as the eye sees them, barely perceptible. The retouching is minimised accordingly. Different fabrics have their individual depth of tone. Velvet looks as such, not as if it were a metal surface with strong highlights and coal-black shadows. Still another great advantage lies in the uniform good results with any reasonable exposure. An ordinary plate and short exposure gives a certain result, because some colours are rightly exposed, while others have been sadly under-timed. With the correct colour plate every shade and colour takes the benefit of the latitude of the plate uniformly.

New Books.

"Observing and Forecasting the Weather. Meteorology without Instruments." By D. W. Horner, F.R.Met.Soc., etc. Second edition. Price 6d. net. (Witherby and Co., London.)

A second edition of this book is before us, and though it contains nothing of a photographic nature, yet there is much in it useful to photographers. The weather is certainly a matter of moment to them, and they will find a perusal of Mr. Horner's little treatise both interesting and profitable. It contains several good photographic illustrations of snow, frost, and fog effects, the frontispiece, "Above the Fog in Long Mynd," forming a very striking picture.

"Barnet Handbook." No. 4. "Barnet Ortho Plates and their Use." (Messrs. Elliott and Sons, Ltd., Barnet.)

Messrs. Elliott and Sons, Ltd., send us a copy of their latest handbook, No. 4, entitled "Barnet Ortho Plates and their Use." This is a brief and clearly written little booklet on orthochromatic photography, coupled with a price list of plates and screens, its object being, as stated on front page, to help beginners by telling them how to avoid mistakes, and how to select and use the right kind of plates. Dealers are supplied with a stock of these books for distribution among their customers, while a copy will be sent direct to any applicant on receipt of stamp to cover postage.

PHOTOGRAPHIC TRADE IN BRAZIL.—All the best known brands of photographic dry plates are finding a market in Sao Paulo. Although the total demand for this class of goods is not yet very heavy, by judicious pushing and advertising new brands easily find a sale here. An Austrian representative came out recently and did very well. The trade is principally in the hands of German importers, wholesale and retail, although of late some of the Italian firms are also introducing these articles on their own account. So says the Austro-Hungarian Consul at Sao Paulo. But surely the majority of the best known brands of photographic dry plates are of English manufacture, in which case it is pertinent to ask how it happens that the trade is principally in the hands of German importers.

New Apparatus, &c.

Studio Furniture. Sold by Messrs. O. Sichel and Co., 52, Bunhill Row, London, E.C.

Messrs. Sichel are introducing studio furniture of Chippendale design, and send us photographs of a chair and settee, the latter of which we reproduce. The price of the settee is £4 4s., while the



Chippendale Settee, £4 4s. 0d.

chair (which is of the same pattern) is £2 12s. 6d. These should form handsome accessories in the studio, where commonplace furniture is very inappropriate.

New Materials, &c.

"Cascafoam." Manufactured by the Cascade Manufacturing Company, and sold by Kodak, Limited.

This product is described as a photographic stain-remover, and a trial shows it to be remarkably effective in its action upon stains of various descriptions, whether on dishes and measures or on the hands. It is put up in tins with airtight, close-fitting covers, and is in the form of a paste of a soapy nature. When applied with a cloth or flannel—using warm water if the hands are the subject of the cleansing operations—the stains rapidly disappear. In a very short time some of our measures presented a most abnormal appearance of perfect cleanliness, and we fully appreciated "Cascafoam" as a most welcome addition to our dark-room equipment.

"Klimax" Dry Chemicals. W. Butcher and Sons, Limited, Camera House, Farringdon Avenue, E.C.

These are a series of developers and toning baths packed in a new and very convenient manner. Each carton holds three cubical packages, each of which contains the materials for making up a definite quantity of solution. On pulling a tab the cubes appear one at a time, so there is no difficulty in manipulating the carton in the dark-room. The chemicals are in powder form, not compressed tightly, but only to an extent sufficient to make the bulk conveniently small; they therefore dissolve very readily. They are very efficiently protected by two wrappings of paper and one of tin-foil. Metol-quinol, pyro-soda, and hydroquinone cartons are sold at 6d. each, and gold-toning and fixing cartons at 9d. Each cube makes about 4oz. of solution of normal strength.

Sanders' Green Stain. Messrs. Sanders and Crowhurst, 71, Shaftesbury Avenue, London.

Messrs. Sanders and Crowhurst have put upon the market a dark green stain, which anyone can apply to his own camera and tripod if he wishes to attain an inconspicuous dark finish similar to that of the Birdland camera. The colour produced on quite white wood is a very dark "invisible green" admirably suited to apparatus used by naturalists. The stain is strong, and one application with a stiff brush is almost sufficient, while two we found to give as dark a finish as we desired. It is stated that the stain will stand rain

and sea-spray without running. An obvious use for the stain is to be found with picture frames, and for them the colour is a very good one. The price is 1s. per bottle, postage 3d.

"Hydroquinone Special." E. Merck, 16, Jewry Street, London, E.C.

We have received a sample bottle of this brand of hydroquinone, which for purity of colour and for fineness and regularity of crystals leaves nothing to be desired. The name of the manufacturer is a sufficient guarantee of the quality of the preparation, the introduction of which is welcome, in view of the important part that hydroquinone plays in photographic development.

CATALOGUES AND TRADE NOTICES.

THE CITY SALE AND EXCHANGE, of 90 to 94, Fleet Street, London, E.C., have just issued an up-to-date catalogue, which is abundantly illustrated, of the apparatus, materials, and accessories which they are prepared to supply, amongst which they include the principal makes of cameras, lenses, shutters, enlarging apparatus, tripods, etc. It is impossible to describe the list, which runs to over 300 pages, in detail, but it would appear to include practically everything that the photographer, be he amateur or professional, can need for his work, and copies may be obtained post free on application to the above address.

The same firm also send us a copy of their spring list of bargains in new and second-hand goods, in which a quantity of first-class apparatus is offered at prices considerably below the original cost. This also may be obtained on application to the above address.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

SATURDAY, MAY 22.

Handsworth Photographic Society. Excursion to Wootton Wawen.
Hackney Photographic Society. Outing to High Beech.
Southend-on-Sea Photographic Society. Visit to Epping Forest.

MONDAY, MAY 24.

Cripplegate Photographic Society. Annual General Meeting.
Southampton Camera Club. Demonstration of the Use of the Club's Enlarging Lantern. C. M. Cooper.
Marylebone Pres. Church Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.

TUESDAY, MAY 25.

Royal Photographic Society. "Toning Bromide Prints." Henry W. Bennett.
Hackney Photographic Society. Negative and Print Display by G. Capper, W. A. Hensler, A. J. Linford, J. Linley, W. Rawlings, and W. H. Witts.
Kinning Park Co-operative Camera Club (Govan). Club Meeting.
Wallington Camera Club. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.

WEDNESDAY, MAY 26.

Sale Photographic Society. L. and C. P. U. 1909 Portfolio.

THURSDAY, MAY 27.

Handsworth Photographic Society. Demonstration—"Passe-partout Mounting." A. E. Cope.
North-West London Photographic Society. Portfolio Night.

ROYAL PHOTOGRAPHIC SOCIETY.

LANTERN meeting, held May 18, Mr. Furley Lewis in the chair. Mr. C. W. Forbes lectured to a crowded audience on "Some Ancient Abbeys and Churches of South Essex." A large number of slides testified to the industry of the lecturer, and proved that the ground covered by him is very rich in churches of a more than usually interesting character and history. The lecturer's comments kept up the interest in the subject, and doubtless the district described will soon be popular with other photographers, who will profit by Mr. Forbes's example.

MANCHESTER AMATEUR PHOTOGRAPHIC ASSOCIATION.—A crowded meeting of members was held on May 11 to see Mr. C. F. Inston, F.R.P.S., hon. secretary of the Liverpool Photographic Association, give a demonstration on oil printing. The demonstrator first gave a brief outline of the process, and then proceeded to produce several pictures by its means. He showed clearly to what a large extent the work is under the personal control of the manipulator and how printing in oil permits to a greater extent than any other photographic process the expression of the worker's own artistic individuality. The prints produced and the specimens exhibited on the

walls showed Mr. Inston to be a thorough master of his subject, and the audience followed his remarks with the keenest attention, and expressed an earnest hope at the close that it would not be long before they had the pleasure of welcoming him again to Manchester.

Commercial & Legal Intelligence.

DIVIDENDS.—Notice of intended dividends are given in the case of (1) Edgar Wilkinson, 1, The Arcade, Norwich, photographer. Proofs to be lodged with Mr. E. H. Hawkins, 4, Charterhouse Square, E.C., on or before May 25. (2) Mrs. F. P. Brown (carrying on business under the name of Mrs. F. W. Brown), Liphook, Hants, photographic chemist, etc. Proofs to be lodged with Mr. W. F. J. Hunt, Cambridge Junction, High Street, Portsmouth, on or before May 26.

A first and final dividend of 2s. 7½d. in the pound has been declared in the case of Walter George Lewis, photographer, 1, Seymour Street, Bath. This dividend will be payable at the office of the Official Receiver, 26, Baldwin Street, Bristol.

A dividend is to be paid in the case of Joseph Harriott, photographer, 10, Chapel Street, and 15, High Street, Warwick. Proofs must reach the Official Receiver (Mr. C. J. Band), 8, High Street, Coventry, by May 29.

DISPUTED ORDER.—At the Manchester County Court, before his Honour Judge Parry, Messrs. Lafayette, Limited, photographers, brought an action against Mr. Franz Bohem, Consul for Honduras in Manchester, to recover nine guineas, the price of two dozen photographs. Mr. Dehn appeared for the plaintiffs, and Mr. Oppenheim for the defendant. The plaintiffs' case was that the defendant ordered a dozen photographs of himself and a like number of his wife, and that he had declined to pay for more than half the number. The defence was that only half the number charged for was ordered. During the hearing of the case a question arose as to a conversation over the telephone, and the Judge said some day the Court of Appeal would have to decide what was evidence in regard to such conversations. Judgment was entered for the plaintiffs for the amount claimed, with costs.

NEW COMPANIES.

C. MITCHELL AND Co., LTD.—Registered May 1 by McKenna and Co., 31-4, Basinghall Street, E.C. Capital £60,000, in £1 shares (20,000 Preference). Objects: To adopt an agreement with L. O. Johnson and to carry on the business of advertisement agents and contractors, photographers, photographic and general printers, stationers, lithographers, etc. Private company. The first directors (to number not less than two nor more than five) are L. O. Johnson (permanent governing director and chairman), J. Strong, and W. Wellsman. Qualification of ordinary directors, one share. Remuneration of L. O. Johnson, £250 per annum. Registered office, Mitchell House, 1 and 2, Snow Hill, E.C.

TALBOT AND EAMER MIRALS, LTD.—Registered April 21. Capital £1,000, in £1 shares (650 Preference). Objects: To acquire the business carried on at 54, Seel Street, Liverpool, as Talbot and Eamer; to adopt an agreement with M. M. Robertson and to carry on the business of photographic manufacturers and dealers, opticians, photographers, etc. Private company.

AN HOSPITABLE ORDER.—According to the "Dewsbury Reporter," Lord Egerton of Tatton has issued orders to his cottagers not to supply refreshments. The notice sent out is a remarkable one—viz.: "Lord Egerton of Tatton will not permit any cottagers to receive any person, whatever, into their cottages for the purpose of the sale or consumption of any refreshment. Any cottager infringing this rule will get instant notice to quit. After reading this notice you will return it signed as an acknowledgment of your agreeing:—I agree to abide by the regulations contained in this notice." This notice affects the whole of the village of Rostherne, which is close to his lordship's home, and which in the summer time attracts thousands from various parts of Lancashire and Cheshire, and the Manchester district in particular. The object of this strange proceeding is not apparent, but evidently photographers must be prepared for a period of total abstinence in the village of Rostherne unless they elect to carry their own refreshments.

News and Notes.

CAMERA REPAIRS.—The Tella Company inform us that they are now making a speciality of camera repairs, which are conducted at their own works, where the Tella Reflex is made. They state the average time for repair work will be two days.

THE QUEEN'S GIFT-BOOK PHOTOGRAPHS.—The interesting photographs which appeared in Queen Alexandra's Gift-Book have now been reproduced, by special permission, in the form of picture post-cards, in photogravure, on plate-sunk mounts. The prices of the cards are 2d. each, or the complete set of forty-six cards, 7s. 6d. With each complete set is presented a full-length autograph portrait of her Majesty the Queen, in photogravure, size 11in. by 8½in. Messrs. A. V. N. Jones and Co., 112 and 113, Fore Street, E.C., have published the cards and the portrait.

THE CINEMATOGRAPH OUT OF DOORS.—A novel entertainment—a cinematograph performance by daylight and in the open air—was given on the 14th inst. for the first time in the grounds of the Middlesex Hospital. The idea of the entertainment is to provide a little diversion for the more able-bodied of the patients, but owing to the cold weather it was thought inadvisable to take the sufferers out of the building. Nurses and medical students were therefore invited to see the animated picture display, which will be repeated before its intended audience when the warm weather returns.

ANOTHER CANVASSING FRAUD.—At St. Rollox Police Court, Glasgow, William Bell, a middle-aged man, was sent to prison for fraudulently collecting money from householders on the pretext of booking an order for photographs. He presented cards bearing a close resemblance to the business cards of Mr. Drummond Shiels, Jamaica Street, the name, however, being mis-spelt "Shields." There is some reason to fear that others are engaged in this swindle, and Mr. Shiels wishes it to be known that no person on his staff is empowered to collect money away from the studio.

THE YORKSHIRE UNION.—The tenth annual meeting of the Yorkshire Photographic Union was held under clouded circumstances, due to the death of the president, Mr. Charlesworth, of Sheffield. The meeting, at the rooms of the Leeds Camera Club, was presided over by Mr. W. Bagshaw, J.P., Batley, one of the vice-presidents, and he asked for more enthusiasm on the part of the societies. Every society should have an annual exhibition, as it was a real stimulant to the members to do work, and when the time came for a greater exhibition, or a request from the Union for some fixtures, the nucleus was there.

YE OLDE NAPIER.—Ye Olde Napier Tavern, High Holborn, an old building standing on the site of a chapel, and lately the headquarters of the London and Provincial Photographic Association, was practically destroyed by fire early in the morning of May 14. The flames spread so rapidly that the occupants had to rush out into the street in their night apparel. Messrs. Henekey's wine shop adjacent was threatened, and the people sleeping in the rooms above were roused by the firemen and took refuge in neighbouring houses. The roof of the wine building caught fire, but was quickly put out, and little damage was done. While working inside the Napier Tavern Superintendent Gosling and Fireman Cook were hurt by falling wood.

A PHOTOGRAPHIC LOAN EXHIBITION.—We see from the "Eastern Daily Press" that the Castle Museum Committee at Norwich have accepted on loan from the Norwich and District Photographic Society a selection of the prize prints which won the East Anglian award at Ipswich. The collection includes the work of Mr. and Mrs. Edward Peake, the former of whom won the affiliation plaque for 1909. Mr. W. L. Clutterbuck is also represented, with numerous other workers. These photographs are hung on a temporary screen, which has been placed in the water-colour rooms. The museum is open free to the public from 10 a.m. till 5 p.m. every day, with the exception of Tuesdays and Fridays, when a charge of 3d. is made. The museum is also open on Sunday afternoons from 2.30 until 5 o'clock.

INTERNATIONAL PHOTOGRAPHIC CONGRESS.—An International Congress of Applied Photography will be held in Dresden in July, 1909. The Committee of Organisation includes Prof. Miethe, of Berlin; Prof. Eder, of Vienna; and Prof. Luther, of Dresden. The lectures to be delivered on all branches of applied photography, while of

scientific character, will be adapted to general comprehension. Since the International Photographic Exposition at Dresden from May to October, and the jubilee of the University of Leipzig the latter part of July, will bring many visitors to Saxony, the Congress will probably attract attendance from all over the world. The Society for the Promotion of Travel will afford all possible assistance and information to those attending the Congress. Explicit information on all points concerning the Congress may be had from Dr. H. Weisz, Dresden—A., Winckelmannstr., 27.

RIVER POLLUTION BY PHOTOGRAPHIC WORKS.—At the meeting of the Thames Conservancy on Monday the River Purification Committee reported that a notice was served on the Uxbridge Rural District Council in respect of the pollution of the Frays River by the effluent from the settling tanks and filters constructed to deal with the trade refuse from the Rotary Photographic Works at West Drayton, and by the discharge from a 12in. surface water drain situated immediately above the filters. On the expiry of the notice on November 12 last it was found that certain measures had been taken with a view to dealing with the pollution, but as these were ineffectual proceedings were instituted against the Council. An adjournment of the summons was granted, however, pending a meeting between the Council's surveyor and the Conservator's chief inspector.

THE BOLT COURT SCHOOL.—We learn from the "City Press" that, in a report to the Education Committee, the Accommodation and Attendance Sub-Committee state that on various occasions they have had under consideration the question of the unsuitability of the accommodation now provided for the L.C.C. School for Photo-Engraving and Lithography. The present buildings in Bolt Court, which are rented on a yearly tenancy of £300 by the Council from the City Parochial Foundation, are cramped, likely to be very dangerous to life in the event of an outbreak of fire, and altogether quite unsuited for continued use as a technical institute. They have considered the merits of various sites and buildings, and have come to the conclusion that the existing site is by far the most suitable. It is situated in the centre of the photo-process trade, and the position of the school is now very well known to employers. Further, the cost of erecting a new school on the site would be very little more than the cost of a building on any other site in the same locality. It may be possible to arrange with the freeholders, the central governing body of the City Parochial Foundation, to acquire the whole of the site at a price which the Council could be advised to accept. The estimated cost of erecting a suitable building on the site would be about £20,000. The Sub-Committee have been instructed to report as to the steps necessary to acquire the site for the erection of new premises.

A MAGIC PORTRAIT (?)—The "Daily Chronicle" records the following, naïvely commenting that the facts are remarkable, and the interesting phenomenon will probably arouse much interest in photographic circles:—

"Quite unconsciously a Kentish Town lady has taken a portrait of herself without the use of a camera.

"What apparently happened was this. The lady, wearing an ordinary pair of spectacles, was reading the other evening about the hard lot of Mr. Milton Wellings, the composer, whose famous song, 'Some Day,' is fraught in her own case with many painful memories.

"Behind her, on the table, was a small paraffin lamp, which threw a light over her right shoulder. As she read, a tear stood in each eye. Almost simultaneously the lens in the line of the lamplight became blurred. She thereupon removed her spectacles—to find the blur an excellent snapshot of herself in profile.

"The lady has been interviewed by a representative of the 'Daily Chronicle,' and the spectacles have been submitted to a well-known oculist for examination. He was unable, however, to express any definite opinion as to the process by which the picture appeared on the right lens. He suggested that tears may have trickled down the lady's cheek on to the lens, and that in wiping it she had unconsciously caused the formation now upon it.

"In regard to this suggestion, the lady declares emphatically that no tears trickled down her cheek, and that she made no attempt to wipe the lens. Moreover, when she is wearing the spectacles there is an appreciable space between her cheek and the lower rim of the lens, so that it could not catch any falling tears."

Apparently the mystery is not yet solved, at least not to the satisfaction of the lady.

Correspondence.

- We do not undertake responsibility for the opinions expressed by our correspondents.
- Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

"ANOTHER ETCHING MACHINE."

To the Editors.

Gentlemen,—I notice in your journal there is a slight error in your account of "Another Etching Machine"—viz., it is the invention of my son, Harold Holt. I enclose you the specification, which kindly return at your convenience. I should be glad if you will be kind enough to correct this statement in your next issue, and oblige.—Yours, etc.,

W. HOLT.

May 14, 1909.

PHOTOGRAPHERS AND THEIR ASSISTANTS.

To the Editors.

Gentlemen,—As I believe that the topic of this letter will prove of interest to many photographers and their assistants, I hope you will grant it the hospitality the correspondence columns of your valuable paper afford.

A friend of mine had the misfortune to personally answer an advertisement for "a good retoucher who could take charge of studio when necessary," and after having satisfied the manager of the firm as to his qualifications, he was offered 30s. a week on condition to work from 9 a.m. to 9 p.m., and every alternate Sunday.

When my friend had recuperated from the shock, he ventured to opine that this would mean literal slavery, and that he would not accept such terms for double the salary; so the manager good-naturedly smiled and said that they could get all the hands they wanted, and before long "even the best assistants will be glad to work for us under these terms, for in whatever district we establish ourselves no other photographer can exist very long—he must either pack up or get broke."

For obvious reasons, my friend did not want to have his name published; therefore I have undertaken to write this letter, and I hope that every photographer's assistant, and even some employers, will think it nigh time to do something that will prevent these sweaters from exploiting the poor assistant and from ruining the fair trader.—Yours, etc.,

A. REDMOND,

Process Photographer's Assistant.

4, Mildmay Grove, N.
May 14, 1909.

THE EFFICIENCY OF THE FOCAL-PLANE SHUTTER.

To the Editors.

Gentlemen,—A perusal of your valuable and very complete article on the "Speed of a Focal-plane Shutter," in last week's issue, certainly seems to confirm my original remark that the subject in all its bearings is undoubtedly complex. I read that the definition of "speed" given fully allows for the vignetting alluded to in my letter of the 23rd ult., but I do not see how this can be the case. Mr. Stokes points out that the extent of such vignetting, practically speaking, cannot be considered apart from the luminosity of the object photographed. Quite so. If there is anything at all in the point raised, then for equal "speeds," as defined by you, there may be variable amounts of blur purely dependent upon variation in brightness of a rapidly moving object.

I note that you state that "the light effect should be fairly uniform over the plate, even though oblique pencils may be vignetted by the lens mount, and the efficiency thereby increased (not decreased, as stated by Mr. Salt) towards the margin of the plate." Please accept my thanks for the correction, which unfortunately loses some of its force owing to the fact that I never made the statement alleged, or in any way dealt with the particular point raised.

The paragraph, as it stands, is somewhat ambiguous, though its meaning is evident. It is also a little paradoxical. No doubt the efficiency of the shutter increases under the conditions given, as the slit traverses the margins of the plate. It logically follows that the more the oblique rays are obstructed by the lens barrel the higher the efficiency of the shutter. If the rays were altogether stopped,

from a purely mathematical standpoint would it be unreasonable to assume an efficiency of 100 per cent?—Your faithfully,

Sanderstead, Surrey.

E. A. SALT.

[We fear we do not quite follow the argument with regard to the vignetting effect. The case we considered was that propounded by Mr. Salt in his lecture ("B.J.," page 289). Here it is evident that the point F is reached by light for a time equal to that required for the slit to travel twice its own width. For only one moment is F exposed to the full aperture of the lens, and for all the rest of the time it is reached only by light that is cut down by vignetting. This affects efficiency, and is, of course, the factor governing efficiency, but we cannot admit that it has any practical effect on duration. With regard to Mr. Salt's second point, we were certainly under the impression that he made this suggestion in his lecture, but our memory seems to have been at fault, for which we apologise. As to his last point, we do not think his assumption at all unreasonable. There would, of course, be no light, but that is another matter. We are not, however, prepared to enter in a discussion that involves the consideration of the infinitely small.—Eds. "B.J."]

CHROMIUM INTENSIFICATION.

To the Editors.

Gentlemen,—I note in your issue of March 26, page 252, "Chromium Intensification." I would point out, as a result of some experiments I made some considerable time ago, that the degree of intensification obtainable appears to depend very largely on (a) the amount of washing before development, (b) the composition of the developer used. Prolonged washing before redevelopment gives but slight intensification. Rinsing for a few moments before redevelopment gave the greatest degree of intensification.

The hydroquinone metal developer gave less intensification than the pyro soda, but doubtless by varying the composition of these developers different results will be obtainable. Over-exposed and under-developed negatives which are thin and unprintable can be rendered crisp and contrasty by this method. By a variation in treatment, negatives can be (a) reduced, (b) reduced in contrast using the same solutions. I am of opinion that staining is caused principally by imperfect washing before bleaching—i.e., trying to bleach negatives which have not been well washed.—Yours truly,

Rue des Alpes, La Tour-de-Peilz.

EDGAR SIMPSON.

May 13, 1909.

SUNLIGHT IN STUDIOS.

To the Editors.

Gentlemen,—As an old reader of your paper for the last thirty years perhaps you will excuse me taking the liberty of writing to you on a subject which I see very often in the column "Answers to Correspondents"—"How to stop the sun in the studio." We are not all able to get studios with north light. My studio is built due east, so I have the sun to contend with every morning. I tried all kinds of dodges, but I found with a great many of them that I lost a certain amount of light which is very valuable in the evenings. But I am glad to say that I have overcome the difficulties by adopting the following method. I generally buy a quire of the best white tissue paper, threepennyworth of castor oil, and half-pint of petroleum. For use I take equal parts of each. Get all the papers ready laid on each other, after having cut them to the size required, then brush them over with the above solution. But before putting it on the glass see that it is clean, and also gum the edges of the glass so that the paper will stick. This method gives a very transparent paper and no loss of light, and also the papers will keep white for the whole season. I have adopted this method now for years and find it answers all that is required.—Yours truly,

D. G. THOMAS.

25, Chester Street, Wrexham.

AN ELECTRIC DEVICE FOR FIRING A FLASHLIGHT.

To the Editors.

Gentlemen,—I was interested in reading Mr. D. W. Gawn's letter in last week's "Journal," p. 390. I refer particularly to the latter part of same, where he recommends a sparking-plug for igniting flash powder. I am able to say that the ideal plan is splendid, but it will not work. About a month ago I was commissioned to photograph a large dramatic group of amateurs. I had the same idea in every detail as Mr. Gawn, but I happen to possess a small motor

car, so that I had all the appliances at hand. I hunted up a spare sparking-plug and coil and a four-volt accumulator, and connected them up with the switch exactly as Mr. Gawn suggested in his letter, and, having flash powder, I put some around plug and switched on, but there was no powder ignited. I could see a good spark. I could also see the powder had been driven away from the points of plug into a hollow around same. I then took the plug and dipped it into small heaps of the powder; it would not allow the powder to be anywhere near it. I then disconnected the coil and put in a fuse wire in circuit with the accumulator with a switch. I then put a rather large heap of powder covering the fuse wire, and switched on and found the fuse was burnt off, but none of the powder ignited. I tried again, and found that if I passed my finger over the top of fuse wire so as to leave the top of the wire exposed to the atmosphere, it would explode the powder every time.

I have no doubt Mr. Gawn is a good electrician, but I do not think that he has tried the experiment he recommends, or he would have found a surprise.—Yours, etc.,

JOHN BELL.

Frome.

May 18, 1909.

Answers to Correspondents.

All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.

For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

E. Saville, 1, Schofield Street, Mexborough, Yorkshire. *Four Photographs of Win. Hague, known as "Ian" Hague, Champion Boxer.*

H. Greenway, 27, Abington Street, Northampton. *Photograph of the Northants Cricket Club and Australians.*

EXCELSIOR.—You cannot do better than apply to the firm you mention, who manufacture the particular substance. The address is Messrs. Hopkins and Williams, 16, Cross Street, Hatton Garden, E.C. We cannot give you prices, but they will no doubt do so by return post.

STAINED NEGATIVE.—We should be greatly obliged if you could tell us of any method of getting rid of stain on plate enclosed herewith. It is several years old, and mark is due probably to its not having been washed sufficiently.—**PERPLEXED.**

We think that yours is probably the true explanation of the stain, and fear that the case is hopeless. Bleaching in potassium bichromate and hydrochloric acid, followed by redevelopment, will sometimes improve matters, but in this case the negative has been retouched, and any chemical treatment will possibly ruin it. We suggest that retouching is the only remedy.

STEREOSCOPY AND AUTOCHROMES.—1. I have been taking Autochromes with a little stereoscopic camera, size 107mm. by 45mm. Is it necessary to cut the plates and reverse the two pictures right and left, and, if so, why? The picture opposite the right eye is the one taken with the right lens, and that opposite the left eye the one taken with the left lens, and I concluded, therefore, that cutting the plates and reversing the pictures was unnecessary, especially as the pictures, being taken through the glass, are, on the film side, each in itself correct as regards right and left. On looking at the views so taken in an ordinary stereoscope—the lenses of which are, of course, more widely separated than the lenses of the little camera—the images blend and only one is seen. But I am puzzled by the appearance presented by the planes of the view. The objects in the middle distance stand out in relief in front of the objects in the foreground. I should be much

obliged if you will be good enough to tell me in the "British Journal" why this is and how it may be avoided. 2. I use, for developing, the Lumière Company's new Quinomet formula, and find it an inconvenience to work out for each degree Centigrade the alterations in the total time of development called for by variation of temperature. Can I use the Watkins time developer with the same results as the Quinomet, and can it be used for the second development as well, and if not, can rodinal? 3. A friend who works Autochromes tells me that he *always* intensifies. My positives, erring probably on the side of under-exposure and possibly under-development, are quite strong, and do not seem to need any intensification. Would not intensification add to the already sufficient strength, or would it improve the colours also? 4. I am a bad hand at flowing varnish over a plate, never having been in the habit of varnishing my negatives. Ridges form on the plate when I flow over it the Lumière Company's varnish. Can I apply, with a brush, celluloid dissolved in amyl acetate, in what proportions, and with what kind of brush?—**TIRESIAS.**

1. The mistake you have made here is a very usual one. The uncut stereoscopic Autochrome corresponds to an uncut transparency printed direct from a stereoscopic negative, and it shows pseudoscopic relief in just the same way. In a properly cut and mounted stereo slide you will find that the two images of a near point are closer together than those of distant points, but if you apply the same test to the uncut print you will see that the near points are farther apart. This is the cause of the effect. If you want to avoid cutting it is a good plan to expose two lantern plates side by side and then mount the two in proper relative positions on a cover glass. 2. It seems to us that the working out of the variation is no more difficult with the Quinomet developer than with any other, but you might use the Watkins thermo-indicator with Quinomet to save trouble. To do this you must find the right time for one temperature by experiment, and then use the scale to adjust for variations. The developers you mention can certainly be used, but the Quinomet being especially adapted to the plate will probably give more satisfactory results. 3. The Autochrome plate, as now made, does not always require intensification, but in our opinion the early plates were always the better for it. Intensification brightens colour as well as adding to the strength. 4. We prefer the celluloid dissolved in amyl acetate to any other varnish. It must be made with amyl acetate only, no spirit being added. There is no need to worry over proportions. Make a thick syrup by adding cut-up films to amyl acetate, and then for use thin down with more amyl acetate until of convenient consistency. It can be applied with a brush, but flowing is best. This varnish does not give ridges very readily, as it dries rather slowly. If a brush is used it should be a big soft camel-hair brush. It can be cleaned in spirit, but after cleaning it must not be used again until the spirit has completely dried out.

DUPLICATE NEGATIVES.—I have several negatives—half-plate—of churches in Cornwall. I wish to sell duplicates of them. What price is reasonable to ask? I should make the duplicates by reversal process, so that only one plate is required.—**NEG.**

A reasonable price would depend a great deal on the quality of the negatives, which would probably not be very high if they were made by a reversal process. Your question is one that you should be better able to answer than we are, as you know the cost, the subjects, and the possibilities of sales.

PHOTO-MECHANICAL PUBLICATIONS.—Would you be kind enough to state, in the valuable columns of the "B.J.," names of a few weekly and monthly papers or journals on photo-mechanical, photo-lithography, or half-tone work?—**INQUIRER.**

The following list should meet your requirements:—"Process Engravers' Monthly," 6d., Dawbarn and Ward, Ltd.; Penrose's "Process Work," monthly, 1s. per annum; "Modern Lithographer," monthly, 4s. per annum, published by the proprietor, at 119-125, Finsbury Pavement; "American Photo-Engraver"; "The Engraver and Electrotyper" (American); "The American Inland Printer" also publishes every month a page of photo-mechanical notes; French "Le Procédé," published by H. Calmels, 150, Boulevard du Montparnasse, Paris; German "Zeitschrift für Reproduktionstechnik," 16s. per annum.

FLASHLIGHT.—We find there is a practically smokeless powder for flashlight being used, and as we have tried most on the market

which are not smokeless, and have a difficulty in finding the powder in question, we shall be glad if you can assist us.—**ENQUIRER.**

We cannot tell what particular powder you refer to, as there are so many "practically smokeless" powders. We do not know of any powder that is absolutely smokeless, and it is quite impossible for us to say which of the numerous powders available gives the least smoke. Perhaps some of our readers can help you. But why not make direct inquiries of those you know to be using the powder in question.

RETOUCHER.—Your retouching is merely second-rate, lacking in modelling and general finish; but a few postal or personal lessons from a really skilled teacher would soon make a great improvement in your work, and enhance your value as a retoucher.

S. T.—1 and 2. Yes, by Oscar Hermann Stendel, Dornblüthstrasse, Dresden. No. 10,051, 1906. See "B.J.," November 9, 1906. 3. The only complete list will be the Abridgments published by the Patent Office at 1s. per volume. Five volumes of this publication cover about twenty years. For thirty years back you want the last seven volumes. You can obtain them by writing to the Patent Office.

REFINING SILVER AND GOLD.—We find the pure silver, as sold in the market, contains traces of copper, and the gold of silver. We shall feel obliged if you will kindly inform us the method of removing these traces and getting the metals chemically pure for photographic purposes, through your valuable journal.—**S. M. AND SON, India.**

To remove the copper from the silver dissolve in hot dilute nitric acid, filter, and then precipitate the whole of the silver by adding more copper. Copper wire twisted into a spiral may be put into the solution and left until no more dissolves. The wire will require brushing occasionally to remove the silver that adheres to it. Afterwards let the silver settle and pour off the blue solution of copper nitrate, fill up with water, stir well, allow to settle again, and then decant off the water, repeating this series of operations until the water contains no trace of copper. The remaining residue should be pure silver. The gold can be treated by dissolving in hot nitric and hydrochloric acid and filtering off the yellow solution which contains the gold only. About three parts of hydrochloric acid to one of nitric will be required, but the best proportions vary with the relative amounts of gold and silver present. The gold can be recovered from the solution in the form of powder by precipitating with iron, or the solution can be evaporated down until it crystallises. The gold chloride thus obtained should be dissolved in distilled water, and recrystallised if it is to be used for photography.

SOLE RIGHTS.—We are applying for the sole photographic rights on the occasion of a Royal visit in June next, and we should like your opinion on the following points:—1. Would the sole right preclude papers such as the "Mirror" or "Graphic" sending down men for pictures? 2. Would it stop amateurs from sending snapshots (we presume we cannot stop them using hand cameras) to the papers? If they do so, whom could we recover compensation from—the paper or the amateur? 3. Again, if any pictures not taken by us are published in, say, postcard form can we claim the copyright or compensation, or would all these matters have to be fought out between ourselves and the committee? 4. Some of the papers, such as the "Stockbreeder" and similar journals, send their men down with small cameras with which they take the prize stock, these being used to illustrate the next issue. Can we stop this kind of thing if it is done whilst the show is on, if we have the sole right? 5. What would you consider would be a reasonable price to offer? There will be, of course, the usual snapshots of the proceedings with the Royal party in them, and possibly an arranged group. There would be a demand for postcards, and also copies of the groups, besides the press illustrations.—**LEGAL.**

1. It would not preclude the papers sending men down, and it would rest with the authorities and you to prevent them from obtaining the photographs. 2. No. If they succeed in securing pictures they will have the right to send them to the papers if they think fit. You will not be able to obtain compensation from either the one or the other, as, although you may get the "sole rights," there is no copyright in the scenes. 3. As just said, there is no copyright in the scenes, so you cannot claim compensation under the

Copyright Act. Unless you can show that the committee were negligent in not preventing the pictures being taken we expect you will get nothing. 4. Only by preventing them by obstruction or otherwise from using their cameras. 5. You can certainly better estimate the value the concession would be to you than we can. We do not reply to correspondents by post. See also page 394, where we deal with the same subject.

STORING RAIN WATER.—I lately bought a galvanised iron cistern (new), and after a thorough scrubbing, filled it with clean, clear rain water. After standing a week or two I find the water clear, but a copious heavy flocculent deposit on the sides and bottom. Would you kindly tell me if you think this is due to any chemical action? I enclose a specimen of the deposit. When wet it is of a blue-grey colour and is fairly heavy. Is the clear water likely to be unfit for photographic use?—**W. C. C.**

The cleanliness of rain water depends on the manner in which it is collected, and it looks as if your water has taken up some impurities on the way to the cistern. If these impurities have been precipitated by the metal of the cistern, then the clear water left is probably quite good enough for use, though the cistern may be damaged. We should clean out the cistern again, using water only for the operation, and then refill. If the water supply is quite clean possibly the effect will not occur again. If it does, we should test the water. A well galvanised cistern should have no effect on clean water, but it can easily be attacked by impure water, and if the zinc coating is eventually destroyed you will have trouble with iron spots, etc. You can prevent any such effect by painting the cistern with a good bath enamel, but this will, of course, not help to purify the water.

LENS FOR COPYING.—Would you kindly advise me what kind of a lens I should require for ordinary copying purposes, say for enlarging from C.D.V. to cabinet?—**BEGINNER.**

A good rectilinear or (preferably) an anastigmat of 7in. or 8in. focal length should do all you require.

O. BAINES.—We are not sure that plain salted paper as used in the days of old is an article of commerce at the present time, though papers giving results similar in appearance are on the market. Failing to get it ready salted, the formula you enclose would be as good as any if used with Saxe paper.

LENS.—Not long ago I bought a lens at a pawnbroker's for 10s. It bears the name of J. H. Dallmeyer. The back glass is larger than the front one, and between the two there is a much smaller one. It gives a very sharp image on the focussing screen, but not so brilliant as my R.R. by the same maker. Can you tell me anything about this form of lens, and what purposes it is made for, as no one who has seen it can enlighten me on the point. The diameter of the back glass is about 2½in.—**HANTS.**

The lens is the old form of triplet, and is a very useful instrument. We are not sure that it is made now, as it was superseded many years ago generally by the Rapid Rectilinear, which has a larger aperture, and, consequently, is quicker acting. The aperture of the triplet is about $f/10$, while that of the R.R. is $f/8$. On reference to an old price list of the maker's, we see that the lens with back glass the same size as yours has a focus of 15in., and is intended for 12 x 10 views.

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SUMMARY.

The Dresden Exhibition. The first part of the review of the scientific section of the International Exhibition at Dresden commences on page 417, and deals with the exhibits relating to teaching, the detection of crime, balloon and military photography, and the use of the camera by librarians, in scientific laboratories, and for illustrative purposes.

The section of photographic chemistry in the Congress of Applied Chemistry, which opens to-day (Friday), meets under the presidency of Sir William Abney. About thirty papers are down for reading. (P. 412.)

A note on the method employed at the National Physical Laboratory for the measurement of both efficiency and speed of shutters appears on page 414. A description of the method is shortly to be read before a learned society.

A note by Mr. W. Thomas on page 421 describes the simplest and best way of removing the wrappings from a box of plates when the latter have to be re-packed after exposure.

The conclusion of a recent paper by Dr. C. E. K. Mees and Mr. H. Wratten appears on page 422. In it are described the properties of the principal dyes used in making light-filters for orthochromatic and three-colour photography.

Two further methods of preparing screen-plates for colour photography, in neither of which registration is necessary, are described under "Patent News." (P. 425.)

Among other topics in "Photo-Mechanical Notes," an alternative method of placing the back of the camera parallel with an original when working away from the "process" studio is given. (P. 425.)

A recent paper before the Royal Dublin Society by Mr. E. E. Fournier d'Albe deals with the method of making positive copies direct from drawings, etc., by utilising the light reflected from the original on the lines first adopted by the late Mr. Hort Player. (P. 420.)

Mr. Gustav Dietz, in "The Camera," suggests how a lens of short focus and very large aperture may be usefully obtained from one of such longer focus by means of a couple of supplementary glasses. (P. 414.)

Some of the many matters which go to make the studio of the photographer comfortable and attractive in appearance are dealt with in an article on page 416.

EX CATHEDRA.

The Chemical Congress. As already announced, the meetings of the International Congress of Applied Chemistry made a formal commencement yesterday, but business begins in earnest to-day (Friday). The meetings of the photographic and photo-chemical sections are held in the physical lecture theatre of the Imperial College, South Kensington, being held from 10 to 1.30 to-day (Friday), and from 10 to 1.30 and from 4 to 6 on Monday and Tuesday next. It is intended to take the more technical papers in the mornings and lectures of more general interest in the afternoons. Mr. Chapman Jones, the secretary of the section, informs us that some thirty papers are to be read, and the meetings should prove of exceptional interest. On Saturday morning the members of the section will visit, at their individual choice, either the Bolt Court School of the London County Council or the Regent Street Polytechnic, by invitation of Mr. A. J. Newton and Mr. Howard Farmer respectively.

* * *

Effect of Washing with Chromium Intensification. In our last issue a correspondent, Mr. Edgar Simpson, referred to the fact that in chromium intensification the amount of density gained is very little if washing is too prolonged before re-development. This we also have found to be the case, and the reasons for it seem to be somewhat difficult to understand. As the result of very much prolonged washing plates have been known to become quite undevelopable, and this complicates the matter somewhat. To a certain extent the diminished intensification may be due to the decomposition of the chromium compound upon which the effect of intensification mainly depends; also, if the washing is conducted in the light over-exposure or "solarisation" may, and probably does, tend to prevent subsequent development. Lack of density may then be due either to a change in the chromium deposit or to incomplete development. These two factors, however, do not appear to be sufficient to explain all the facts observed. We understand that the phenomenon in question has recently been investigated in connection with another process, and that the results, which will shortly be ready for publication, show a third cause of a very unexpected nature. Possibly when details are available further light will be thrown upon the intensification problem.

* * *

Cinematograph and History. It has been recently affirmed by a promoter of an exhibition that "There is no limit to the possibilities of the cinematograph as an educational factor." He is no doubt quite right if desirable and undesirable possibilities are taken together. When one considers the difficulty of reconstruct-

ing episodes of history so as to eliminate the anomaly, the anachronism, and the solecism, there seems to be some demur as to the statement that it will be easier to make clear to a child's mind the story of Magna Charta if it is shown on the screen while the teacher is explaining it. In the first place, the cinematograph is nothing if without action in its pictures, and action full and free at that. We can imagine all the actors and supers in the display doing their best according to their lights in this direction, and if a little educational enthusiasm be allowed for the operator who puts the film through, we can imagine, further, a lively knock-about scene between John and the barons which would afford the youngsters much more delight than precise information. Our writer instances also such episodes as King Alfred "seen actually burning" the cakes. That promises some effective by-play for the old lady whose hospitality and pastry was abused. But really, is this history? Do not children fasten on to this and similar incidents quite disproportionately already, and is there any need to spend time and energy upon such amusements? History is something more than a string of tales, nine-tenths of which are unauthenticated. But enthusiasm knows no bounds. "The boy stood on the burning deck," it is stated, "is merely a phrase as it stands. On the cinematograph film the incident becomes an example of heroism." Well, in our humble opinion this is a case where the least imaginative child could make more of the "mere phrase" than he could of a bioscope presentment of such an obviously faked-up scene, which would certainly either send him into fits of terror, or else invoke the barbaric glee of Guy Fawkes Day.

* * *

The Uses of Supplementary Lenses. As a general rule, supplementary lenses are only used for the purpose of varying the focal length so that we may obtain sharp images of near objects with fixed-focus cameras, or larger images of distant objects when the camera is a focussing one. In the one case we add a lens to shorten the focal length, and in the other one to lengthen it. Incidentally, such an addition must cause the f value of the aperture to alter, but this alteration is seldom taken into consideration; that is to say, we seldom add a supplementary lens for the express purpose of altering the relative aperture. In "The Camera," Mr. Gustav Dietz suggests that at times this alteration of aperture is a very useful feature. He points out that if we add a 16-in. lens to both back and front of a 9½-in. lens working at $f/6.8$, then the focal length is reduced to about 4½ in., and the aperture increased to $f/3.5$, or thereabouts; and he gives excellent examples of photographs obtained with this very rapid combination. It is obvious that the use of supplementary lenses for this purpose may at times be very advantageous, therefore the effect produced upon aperture is one not to be disregarded. The corrections may be disturbed to a certain extent, but in the examples given there is little fault to find with the definition. Any way, it is better to put up with a little loss of definition if the only alternative is no result at all, which may easily be the case if the light is bad and the exposure very short. In the case quoted, the increase of rapidity is 3½ times, which, of course, may make just the difference between a passable and a useless result.

* * *

Wood Engravings. Photography has practically killed hand-engraving. Photogravure, to all intents and purposes, has taken the place of line as well as mezzotint engraving for the reproduction of paintings, while process blocks have superseded wood-engraving for book illustrations and similar purposes. It may be interesting to our readers to know that a fine collection (proofs) of wood-engravings, printed on India paper, by the Brothers Dalziel, has been presented by Mr. Gilbert

Dalziel to the borough of Hampstead. There are some 250 of them, and they will form a permanent exhibition at the Hampstead Central Public Library in Finchley Road, where they can be seen by anyone. Many of the present generation have but little conception of the excellence to which wood-engraving was brought by our best men, and they will do well to pay a visit to the collection of prints now at Hampstead. Artists much regret that photogravure has killed line-engraving as well as mezzotint-engraving, for there is no gainsaying the fact that there is an excellence and charm about a fine line-engraving, or in a mezzotint, of a painting that we do not get in even the best photogravures. Yet the old engravers have died off, and there are none to take their places, simply because, in face of the perfection to which photogravure has been brought, the future prospect was not sufficiently encouraging to younger men. The way that the works of the old engravers are prized at the present time is evidenced by the prices they realise at auction sales. Will photogravures in the distant future ever fetch anything like such sums?

* * *

Measuring the Efficiency of Shutters. It is often stated that what we want to know with regard to a shutter is the efficient exposure, not merely the duration.

This is not always the case, as we pointed out recently when referring to the focal-plane shutter, but, still, a knowledge of the efficiency is often a very desirable thing. Unfortunately, however, it is not an easy thing to determine accurately, excepting in special cases. We can measure the duration pretty easily, but unless we assume a constant rate of movement for the shutter, and a shutter aperture of simple and invariable shape, we cannot measure the exact efficiency without indulging in complexities. At the National Physical Laboratory the method employed appears to be the only one that can give accurate results. The area of the aperture is measured at definite intervals of the exposure, and from these measurements the efficiency is calculated. Obviously this is not a simple operation. For practical purposes, however, we do not want to compare shutter with shutter, but different settings of the same shutter with one another, and, therefore, the simpler methods commonly adopted, such as Mr. Salt's method, for example, are often capable of giving very useful information. In some cases the assumption of uniform speed is quite warrantable, as, for example, in the case of a focal-plane shutter with narrow slit, and then we can arrive at a near approximation to the truth with a minimum of calculation. But when dealing with a lens shutter with an opening of irregular shape the matter becomes very complex, and so also does the method of measurement. We understand that full details of the N.P.L. methods will be published before long, and the description will doubtless form a very valuable addition to the literature on the subject of shutters.

* * *

Some Stereoscopic Matters. We see that in a contemporary Mr. W. I. Chadwick criticises some of the statements in "Stereoscopic

Facts and Figures," given in the "Almanac." First the one "use light or dark mount according as subject is lighted from front or back." He advises dark mounts in all cases, and remarks that according to our advice, "as the majority of subjects are lighted from the front the mostly light coloured mounts are to be used." But we do not agree that the majority of subjects are lighted from the front, and do not favour the general adoption of light mounts any more than he does. We have, however, found that in some cases light mounts give a distinctly better effect than dark ones, and consideration of the conditions led to the advice we gave. A stereoscopic

view is essentially realistic, and any small matter that looks not quite reasonable spoils the effect to some extent. As a rule, the mount is visible, and the effect produced is that of looking at the subject through an aperture in a screen. If the object is a near one photographed indoors, and is strongly lighted in front, perhaps by a window behind the operator, an actual screen existing between the subject and the camera will also be lighted in front, and if we use a very dark mount an anomalous effect is produced that is often disturbing. To us the dark mount only gives a quite satisfactory result when the existence of a dark screen is perfectly natural, and the abbreviated rule we gave is a very useful guide to deciding upon the right tint of the mount. With a number of general outdoor subjects the dark screen is perfectly reasonable, for many of these views might easily be views seen through an open window, but with others it is not reasonable, and then the safest course is to select a tint that will satisfactorily accord with the lighting of the subject. The other criticism needs little reply. It is that we are wrong in stating that the horizon should be opposite the centre of the eyes. In nature this is the only level that it can occupy, and, therefore, any other position is unnatural. It does not follow that it must be in the centre of the picture at all. We regret to see that Mr. Chadwick deprecates the adjustable front. Apparently, he thinks it unnecessary, because nature has not provided us with an adjustable interocular distance, but this happens to be one of the reasons why it becomes necessary in the camera. With it the use of the camera is extended, and also greatly facilitated. Instead of being an added complication it is really a simplification; moreover, it renders some work possible that is impossible without it.

* * *

Red, Yellow, and Blue. It seems curious that it should be necessary nowadays to write a book for the express purpose, as set forth on the title-page, of correcting the "commonly held theory" that red, yellow, and blue are the primary colours, yet from a note in "The American Printer" we learn that such a book, by J. Arthur H. Hatt, has just appeared. We read that the book is intended especially for artists and students, architects, colour printers, decorators, and costume designers, but we presume that it is not suggested that all these various workers are still in the dark ages with regard to the primaries. They are not so in this country, at any rate, and we have, of late years, often been agreeably surprised to find how generally the true facts with regard to the primaries are known. No doubt this advance in general knowledge can be attributed in no small measure to the teachings of the photographic press, which has insisted upon the truth of the matter for a very long time. The scoffers who were so numerous twenty years ago seem now to be almost extinct in this country, and if they still flourish in America we can only suggest that it is high time they were either converted or extinguished.

* * *

Artist Judges. At a recent exhibition we are informed that an artist judge officiated, no photographer being appointed to assist him. This may have been only an experimental arrangement, but it does not strike us as particularly wise to ignore photographic judges altogether. Photographers seem very apt to forget that there are so many ways of making pictures, that the results can only be judged by those who have not only full cognisance of all the ways and means that were at the disposal of the producer, but also a practical knowledge of the limitations that served to guide him. Each method of picture-making requires a special apprentice-

ship, has special possibilities and limitations, and without understanding the details peculiar to the method it is impossible to arrive at a fair judgment. It is a very difficult thing to find the ideal judge, but we certainly think a skilled photographer with a theoretical knowledge of pictures forms a better judge than a skilled painter with only a theoretical knowledge of photography. Possibly, as things are, it is best to have judges of both kinds, for the average photographer's knowledge of pictures is usually very elementary. He has picked it up in odd moments, whereas the painter has devoted years of thought and observation to acquiring it. Possibly the judge selected at the exhibition referred to is as skilled a photographer as he is an artist, in which case he must, of course, be an ideal judge; but such a combination is so very unusual that we may be pardoned for assuming the contrary as more likely to be the case.

* * *

Single Lenses for Portraiture.

Some persons seem, notwithstanding all that has been written on the subject, to be under the impression that to take portraits successfully a portrait lens must necessarily be employed. That is not so, as portraits can be taken with any form of lens whatever. Anent this subject a correspondent—a professional portraitist—writes: "Seeing an answer to one of your correspondents a few weeks back, in which you say that a landscape lens 4in. in diameter and 20in. focus could be used for groups out of doors on 12 by 10 plates, and that if the fixed stop were enlarged it would still yield fair definition, having had by me a similar lens (by A. Ross) for many years and never used by me, I thought I would try it for large heads in the studio. I managed to get out the fixed stop, and made some cardboard ones, with openings equalling $f/11$ and $f/8$ and smaller to fit in its place, and fixed the lens on a 12 by 10 outdoor camera, as my studio camera is only a whole-plate one. On trying it with the $f/11$ stop I was surprised at the definition it gave, and its depth of focus. On the 12 by 10 plate I can get $3\frac{1}{2}$ in. or 4in. heads better than I can get $2\frac{1}{2}$ in. ones with my —'s whole-plate lens. I shall now make a feature of large portraits, which I have hitherto been unable to do on account of the cost of a portrait lens for the purpose, etc." We merely quote this letter to show that costly portrait lenses are not actually necessary for large portraiture. Large portrait lenses are necessarily expensive, and the advantage of them is their rapidity in action, but it is found in practice, in order to get the different planes of the picture in focus (depth of field), they have to be considerably stopped down, hence their great rapidity is much discounted. Sometimes with large portraits, in order to get the necessary depth, the lens has to be stopped down to $f/8$ or $f/11$; then, of course, it is no more rapid than a single lens with a similar aperture. The front lens of a portrait combination does not differ much, if anything, from the old form of landscape lens, and may be used for the same purposes. Anyone who has, say, a whole-plate portrait lens can use the front combination for about 12 by 10 pictures, as it has somewhat more than double the focal length of the entire combination. It may be mentioned that many of the late Mr. Valentine Blanchard's figure studies were taken with the front combination of a French portrait lens, and, by the way, by the old wet collodion process, which was exceedingly slow as compared with gelatine plates. It may also be mentioned that all the earlier pictures of the late Mrs. Cameron were taken with an old Ross landscape lens: the stop was entirely removed, and the lens used without any stops at all, but the definition under these conditions was not such as would satisfy portrait photographers or their customers.

NEATNESS IN THE STUDIO.

TAKING it all round, we are inclined to think that the photographic studio is the most difficult place imaginable to keep clean and tidy. Do what you will, the general effect after taking a few sitters is more reminiscent of a rag shop than the most important room in a presumably artistic establishment. Certainly, public opinion rather expects untidiness in such a place, but a lady client in an expensive dress would much prefer cleanliness, whilst orderliness is essential if operating is to be conducted with any degree of comfort and despatch. When one is obliged to store canvas conservatories that rival Kew, palatial palaces, and weird woodlands in one and the same place, as well as broken balustrades, stone steps, garden seats, oak settles, several varieties of chairs, not to speak of the amount of space occupied by small headgrounds, reflectors, and stone, the general effect is bound to be somewhat incongruous. Try as one will, it is impossible to carry out the theoretical idea that a studio should resemble an ordinary room. To secure the most pleasing results, both in the sitter's expression and subsequent order, every effort should be made to make the studio as inviting as possible. Many people are affected to a remarkable extent by their surroundings, and most are more susceptible than usual when visiting the photographer's, for even now our craft is still tinged with the mystery of the unknown.

It is essential that the general scheme of decoration be extremely reserved and subdued, and as harmonious as possible. A bold scheme, however pleasing it would be in a private room, with a carefully selected suite of furniture, would appear merely as a discord when so many varying articles are collected within it. The usually advised grey walls we do not care for: they are too cold, and likely to prove quite out of keeping with any upholstery. It may, however, be necessary to use this colour if the studio is narrow and reflected light essential. When a free hand can be taken, a green or a brown scheme appears to us to be much more cheerful and has the advantage that drapery, curtains, etc., can easily be obtained to match. To make a studio at all presentable every opportunity of securing repetition should be taken in order to give the general appearance a feeling of unity. Variety there will be and to spare without seeking for it. If the walls are plaster, a good matte paper, devoid of pattern, should be used with perhaps a quiet stencil for frieze. Many studios have matchboard partitions; than which nothing looks worse. They are, however, remarkably easy to treat, since anyone of average intelligence can apply a fabric wall-covering, skirting-board, and picture rail to such an amenable base. The art canvas in various colours supplied at about 1s. 8d. per yard of 52in. wide may be stretched and tacked in position, or the fabric hangings sold under various fancy names and prepared for pasting on the wall may be used. They are only 36in. wide and more expensive per yard, but we find them very much more durable and really easier to hang. If the ordinary art canvas is used, it is essential that the matchboard be first papered over, preferably on both sides of the partition, with some cheap paper; ordinary brown will do. If this is not done, dust will work through the joint of the boards and make dark streaks on the canvas. The doors and other woodwork should be painted a shade darker than the wall-covering, but never have the doors picked out in two shades.

Floor covering is another important item. Without any hesitation we recommend a good linoleum. It is easy to keep clean, castors on the various accessories run easily on it, dropped chemicals will not affect it, if good it is extremely durable, and, lastly, thoroughly artistic designs can now be had. Cork carpet is very warm and elastic to

the tread, but we find the colours apt to become dirty and degraded in parts. We do not care for perfectly plain, self-coloured floorcloths, since they are monotonous and show the dirt badly. Any bold pattern is to be avoided, especially geometrical and floral designs. A small indefinite pattern of a slightly darker or lighter shade than the ground are quite inoffensive; but, as a general rule, at the risk of being called over the coals by the purists for advising an imitation, we cannot conceive a more admirable material than inlaid linoleum in simple parquet designs. Of course, a real parquet floor is the height of one's ambitions, but very few photographers are in a position to, or would be justified in, having one laid. When selecting a design, it must not be forgotten that parquet patterns are innumerable, and that the majority are unsuitable for photographic purposes. One or two small rugs will be required to break up the floor space, and if of an almost plain design will be useful for interiors. Here, again, we prefer to match the general colour scheme rather than employ Oriental rugs, rich as they appear to the eye, but totally unsuitable for inclusion in a picture.

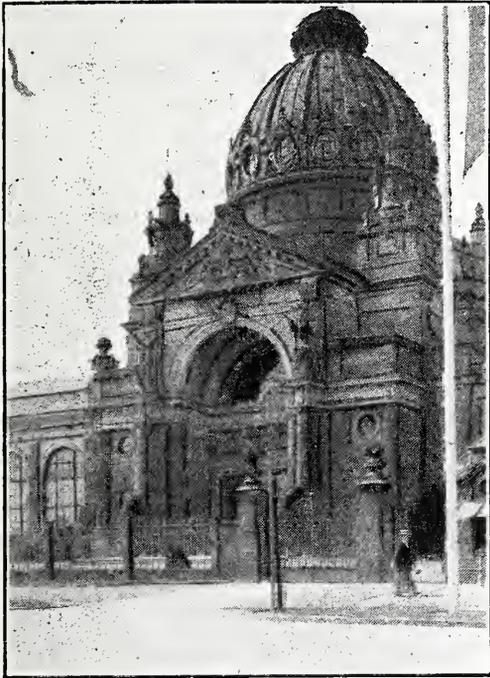
The skylight blinds are usually black, and this from practical motives is advisable. Any other curtains, however, should be in a plain, unpatterned material of the prevailing colour. In place of the usual black camera cloth, we have one made out of the same fabric as our curtains.

The trite old saying, "A place for everything and everything in its place," should occupy a prominent position in that imaginary spot known as one's mind's eye. It will often be found that orderliness and neatness take the place of muddle merely by changing about the usual position of accessories: this stool will go under that chair, this chair under that table, and so on. It is foolish to keep any unused lumber; its room is of greater value.

Backgrounds are perhaps the most insistent sign of photography in the studio, and too often their general appearance brings them into undesirable prominence. One of the first moves in the improvement of the studio should be some neat and compact system of storing the grounds. For headgrounds, experience persuades us that for simplicity and utility a headground stand of the kind described by Mr. Foster Brigham in the "B.J." for December 15, 1905, p. 989 (see "B.J.A.," 1907) cannot be beaten. The roller scheme described in the same place is also about the neatest method for large grounds. The rolled-up ground does not look particularly pretty, however, and we find it adds to the appearance if a wide piece of moulding, preferably on the same level as the frieze moulding, is fixed in front of them to hide them when rolled up. Grounds on stretchers are ungainly and very frequently an eyesore, owing to ragged edges, crooked rows of tacks, and bare white stretcher or stretcher edges showing. The two latter defects are overcome by painting the frame before stretching the background, and the two former by tacking three-quarter inch black tape over the lines of tacks and cutting off any ragged edges of background not covered with a sharp knife. After executing these permanent aids to neatness, the more frequently-needed attentions of the char-lady should not be forgotten. The floor should be washed at the very least once a week, whilst the upholstery should be brushed, and the camera, furniture, and ornaments dusted every day. Above all, do not leave lying about stray negatives, printing frames, prints, drying racks, mounts, blotting paper, or any of the innumerable articles connected with the manipulative branch of the work. Of course, some studios are obliged to use the studio as a general workroom, but some scheme should be devised to keep such signs of one's business as unobtrusive as possible.

THE DRESDEN EXHIBITION.

IN continuation of the general survey published in last week's "British Journal of Photography," we proceed to deal with the exhibits in more detail, although the size of the collec-



Entrance to Exhibition Palace.

tions in many cases makes it compulsory to select for mention only a few items of especial interest. In some sections, too, particularly those devoted to pictorial and record photography,



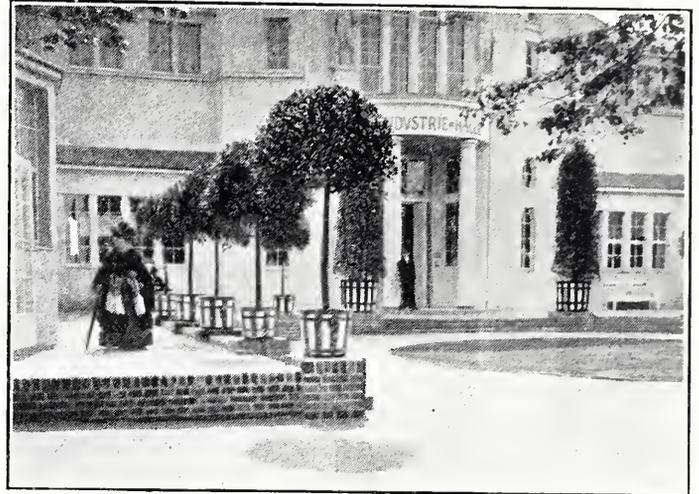
In the Exhibition Grounds.

any detailed review would be most unprofitable, on account of the number and sameness of the photographs, and it will be sufficient and of greater service in these instances to describe

THE SCIENTIFIC AND TECHNICAL SECTIONS.

Undoubtedly the chief interest of the Exhibition is centred in this section, which is divided into seventeen different departments contained in as many rooms, or rather more, for several of the collections occupy several separate galleries. The whole section is housed in communicating rooms in the centre of the left-hand quadrangle of the main building, and is thus bordered by the galleries containing the works of amateur photography.

the general character of what is shown. As we have already said, the chief interest of the Exhibition is centred in the scientific and technical section, and we shall therefore first deal with the seventeen sub-sections into which this large collection is divided. While a detailed description may give some idea of the labour of the organising committees, it cannot describe



The Entrance to the Trade Galleries.

the great excellence of the size, arrangement, and mounting of the whole Exhibition. One or two photographs here reproduced may perhaps give some suggestion of the scale upon which things have been done at Dresden. They show the main entrance to the building in which the scientific, amateur and professional, exhibits are arranged, the front of the large hall or series of galleries specially built to accommodate the 186



The Restaurant in the Exhibition Grounds.

trade exhibitors, and also give two glimpses of the very pleasing garden grounds and restaurant which intersect the various buildings.

The following are the sub-divisions of the section:—

- | | |
|---------------------------------|-----------------------------|
| 1. Teaching and instruction. | 10. Astronomy. |
| 2. Research and experiments. | 11. Colour photography. |
| 3. Botany. | 12. Press photography. |
| 4. Zoology and anthropology. | 13. Mineralogy and geology. |
| 5. Detection of crime. | 14. History of photography. |
| 6. Bibliographical photography. | 15. Photogrammetry. |
| 7. Physics and chemistry. | 16. Balloon photography. |
| 8. Pathology. | 17. Military photography. |
| 9. Meteorology. | |

Of these sub-sections those dealing with the detection of crime, with photogrammetry, and with pathology were by far the largest and most interesting and important. Sub-section No. 1, devoted to the teaching of the principles of the graphic arts, deserves, however, a very special reference, since it provided an exhibition of great popular and educational character. We will, therefore, first refer briefly to it, for we hope to deal more adequately with it in a later issue.

"Press-Button" Science Teaching.

In a room opening out from that in which the pictorial work of the "International Vereinigung" is shown there is a sound of light-running motors: the whirr of the wheels is just enough to remind the observer of the American photographs that Art is not everything. Tracing it to its source, we find forty-four separate cabinets, each measuring about 20 inches high, 12 inches wide, and 12 inches deep. They have the look of those boxes in which, at railway stations and other places, the public is offered the inspection of twelve pictures reputed to represent gay life in Paris. But the contents of the Dresden cabinets are of a different order. Each of the forty-four contains the apparatus for a demonstration of some basic fact of photography or vision in such a state that pressure on a button, or turning of a handle, allows the observer to perform the experiment himself. Brief printed directions are affixed to each cabinet, and state not only the mode of using the apparatus, but succinctly explain the fact to which it is related. We spent a most interesting hour in examining the contents of all the cabinets, and propose in a later issue to describe the manner in which this series of experiments has been given popular form. We may select two examples to show how the Germans have contrived to make, say, phenomena of the eye interesting. Cabinet No. 4 is to show the contraction of the iris of the eye when in strong light. On applying one's eye to the peep-hole, the reflection of it is seen in a mirror. In accordance with the instructions, a button is pressed and a second incandescent lamp caused to illuminate the eye. The iris is then seen (in the mirror) to contract. No. 6 illustrates the falsity of impressions received by one eye. On looking through a small circular peep-hole (large enough for one eye only), there is seen what appear unmistakably to be three solid white cubes and one pyramid. On pressing a lever, a shutter falls back, both eyes come into play, and it is instantly seen that the apparently solid bodies are hollow paper shells, really the halves of the figures they seemed when viewed with one eye. The difference is most startling, and although every cabinet does not contain so pretty an illusion as this, the whole series affords a very instructive exposition of elementary facts of light and colour. Perhaps the most eloquent testimony to the cleverness of Dr. Goldberg and his students at the Leipzig School of Graphic Art, where the models were made, was the interest with which ladies and children were seen to make the tour of the cabinets.

Photography in the Detection of Crime and in Municipal Legislation.

Three large rooms are required to accommodate the collections brought together in this section under the superintendence of Herr Koeltigg, head of the Dresden Police Service. In a brief introduction (page 62 of catalogue), Herr Koeltigg refers to the growing use of the camera in making records of railway accidents, in the prevention of these latter by the detection of defects in materials, by recording nuisances caused by smoke, etc., and in many other ways in which the German proverb, "Die Sonne bringt es an den Tag," assumes a new meaning. The majority of the exhibits illustrate the use of photographic methods in the registration of criminals and suspected persons, and in the detection of crime. The Police Service of St. Petersburg show a collection of photographs illustrating the method employed in registering the features of persons with the object of their identification at any time—a task with which no doubt the police authorities in Russia constantly have their hands full. In addition

to the verbal particulars, the Russian form of identification includes the prints of the four fingers and thumb, and photographs of the face, full and profile, and of the whole figure, three in all.

The most interesting exhibit is that of the Service de l'Identité Judiciaire, of the Paris Police Department. The details of the elaborate system worked out by M. Bertillon are here shown. Basing the classification of faces first on the shape of the nose, it is explained how the three large classes of faces are those

in which the nose is straight (1),

in which the nose is concave or retroussé (2),

in which the nose is convex, broken, or hooked (3),

each of which is divided into five other sections, according to other features. One photograph shows a class of French police officers receiving blackboard instruction in making a mnemonic note of the features of a person on these lines. An album showing faces arranged according to this system supplies a most impressive indication of the thoroughness of the French methods.

Examples are also shown of the Bertillon method of preparing from a photogrammetric negative a plan of the scene of a murder. The employment of the finger-print system is illustrated by a series of photographs, the first of which shows the scene of a murder in a café. A half-drained glass stands on the table, and the next photograph is of the impression of a finger on the side, which impression, in comparison with one in the police records, is shown to identify the suspected person. Similar examples are shown by the Imperial Police Department of Vienna. The exhibit of the Berlin police "Präsidium" shows the enormous scale upon which the work of this department is done. The headquarters of the police authorities include a huge chemical laboratory devoted to criminal investigations, whilst the photographic department installed in the same suite of buildings comprises a studio and other work-rooms equipped for the making of photographic records of criminals. The table whereon the finger-print impressions are taken is shown, as is also a full-size camera and tripod used in photographing the position of a body as found by the police. The tripod is a solidly constructed apparatus which permits of the camera being pointed vertically down upon the body from a height of twelve feet or so. One leg is therefore built as a ladder, and the photographer thus enabled to mount to the focussing screen. The outfit is issued commercially by the Dresden firm H. Ernemann and Co., and appears to be somewhat largely used for such specialistic purposes. The Berlin police also exhibit photographs from hand-camera negatives showing bookmakers and pickpockets engaged in their occupations. Another photograph represents a travelling studio, which can be drawn on wheels to the scene of an accident or crime, and a photograph thus made of a subject which could not be removed to the permanent studio. Part of the Berlin exhibit also is a model of a court of justice, showing a projection lantern being employed for the purpose of describing facts to the jury or judge.

Unofficial exhibits are found in the third room devoted to this section. Dr. Jeserich, who was a pioneer in the use of photography in detecting forgery, identification of blood-stains, of human hair, etc., shows a large number of photographs and photo-micrographs, many going back for a number of years. Dr. Popp, a professional "detective chemist" of Frankfort-on-Maine, shows photographs illustrating the use of photographic and microscopic methods, and the town of Dresden shows numerous photographs recording municipal improvements.

Balloon Photography.

This is only a small section, the chief exhibitors being the Military Geographical Institute of Vienna, the Saxon Society for Aerial Flight, Dresden, and Sir William Lockyer, who sends four photographic enlargements of views taken from a balloon of South Kensington, the East End of London, and Roehampton. The chief exhibit in the section is an actual projectile or rocket camera constructed and shown by Maul, of Dresden, and designed

to allow of photographs being taken at much less cost and with much greater expedition than can be secured by the use of a balloon. The apparatus consists of a stout iron stem about twenty feet in length, carrying a camera, and discharged into the air from a vertical framework of about the same length as itself, the whole outfit being capable of transport within reasonable distance by two men. On being shot into the air by an explosive contained in a lower chamber, the "rocket" rises to a height of about 500 yards, and a parachute attached to it then allows of its slow and safe return to the earth. Apparently the camera is provided with mechanism which causes the exposure to be made at the maximum height of the projectile. The photographs taken with it show that it is capable of very practical results, and we were informed that it was the intention to obtain by its means pictures of the exhibition grounds at intervals during the summer.

Military Photography.

The chief exhibitor in this section is the Imperial Military Technical School of Charlottenburg, at which establishment extensive use has been made of the principle of photographing bullets, etc., in their flight by the use of the electric spark as devised by Professor C. V. Boyes some years ago. The Charlottenburg experimenters, however, have carried out their researches on a very comprehensive scale. They have devised what is described as a ballistic cinematograph, by means of which a large number of exposures may be made in very rapid succession—that is to say, at the rate of about 5,000 per second. With this instrument they investigate not only the flight of bullets, but also the stages of the firing of different types of guns, the photographs, which are, of course, shadow pictures (no lens is used), showing every stage of the action which takes place in the breech of the gun, and thus allowing of the most exact and valuable comparisons being made between different types of instruments of warfare. In the case of the series (No. 388) of the firing of a self-loading pistol there are 370 separate pictures, each of the full cinematograph size, and taken at intervals of 1-5,000th of a second. A number of other photographs, each measuring about 8 by 5 inches, and being, presumably, enlargements from the smaller negatives, show the various stages of firing in the breech of a pistol. The same apparatus has also been applied to the measurement of the speed of shot from a gun, also to showing the discharge of unburnt particles from a gun, and the different manners in which the bullet emerges from the barrel of the gun. Messrs. Krupp have several exhibits showing the application of photographic methods to the testing of guns, including one descriptive of a method of measuring the angle of fall of a distant projectile in its course from a gun. Three cameras are used, provided with electric release. The middle one is fitted with a sensitive film mounted on a rapidly rotating drum, and the three successive exposures at a very brief interval of time serve to show the amount of drop of the projectile.

A number of other exhibits in this section are connected chiefly with the engineering industry, and consist for the most part of photographs of apparatus during manufacture or under test. The German Admiralty exhibit a fine number of photographs showing the stages in the building of a battleship, and the Imperial establishment for the Testing of Materials show photo-micrographs illustrating the methods of testing steel and other materials for defects of manufacture.

In this section, too, is a small exhibit by the Baese Photo-sculpture Co. It consists of medallions, frames, etc., produced in somewhat shallow relief and in different scales of enlargement. It suggests that the method, which now dates back to some three or four years, is being successfully used for commercial purposes.

Bibliographical Uses of the Camera.

This section, though not large, is of interest from the fact that similar uses of photography for purposes of public in-

struction are little heard of in this country. It is produced under the direction of Professor G. Krumbacher and Herr K. W. Wolf-Czapek. It represents a collection of specimens of apparatus illustrating the uses of photographic methods in preparing reproductions of ancient deeds and documents, and in other ways multiplying originals which, on account of their rarity or value, cannot be generally placed at the disposal of the public for consultation. The most usual method of reproduction appears to be the making of a single negative copy on bromide paper directly in the camera, the white-on-black copy of a document being quite as serviceable for purposes of consultation as a positive facsimile. Two models of cameras suitable for making these copies are shown, in both cases being fitted with a roll-holder taking a spool of negative paper sufficient for fifty whole-plate exposures. The cameras are the work of Ernemann and Wünsche respectively. One is so built that the original may be laid flat upon the horizontal board or table, and the camera, which is held vertically, pointed down upon it. The operator can take a lofty position on the stand of the camera, which necessarily is of substantial construction, and, by actuating a winch-screw, can raise or lower the original in relation to the lens. It would appear from the references to apparatus of this kind in the catalogue that they are extensively used in public libraries in Germany. Of the exhibits Professor Krumbacher contributes an example of the zyklograph, an instrument for obtaining a flat complete photographic representation of the design of a vase at one exposure, the vase being automatically rotated so as to present the whole area of its design to the lens (No. 191).

In an exhibit by the Hof- und Staats-Archiv of Vienna there are some specimens of reproductions of ancient MSS. in which advantage has been taken of the gum-bichromate process to secure a facsimile copy of the original—the first instance we can call to mind of any industrial use of the gum process. One exhibit of Professor Krumbacher consists of photo-micrographs of a tiny portion of text (a line subject) reproduced by different processes—namely, collotype, half-tone, photo-zinco, and Spitzertype. It is seen that the finest "resolution" is that given by the zinco line-block, the Spitzertype block coming next, whilst the collotype has its definition much broken by the grain of the plate, and the half-tone more so still by the structure of the screen. For comparison with these photo-micrographs are actual reproductions of handwriting in the four respective processes (No. 191).

Professor Gradenwitz and E. Pringsheim show a series of transparencies explanatory of the means taken to decipher by a photographic method the writing of palimpsests. A negative, A, is first made on an isochromatic plate with a yellow screen, receiving a full degree of exposure, and developed so that a somewhat flat negative is obtained. This gives the older writing as rather weak, and the newer as stronger. A second negative, B, is made on an ordinary plate, and developed to full strength. In this the older writing is stronger, and the newer weak. From this second negative a vigorous positive transparency, B¹, is made on glass. A and B¹ are placed together in the camera, when the older writing is very plainly seen, the newer almost disappearing. A negative, C, is then made from this combination of negative and positive, and used for contact prints or collotype plates.

Photography in Physics and Chemistry.

The use of the camera in investigation of chemical and physical subjects does not provide a large section. One of the most interesting exhibits is that of Professor O. Wiener, illustrating the use of a photographic method in recording the diffusion which takes place between two liquids over a period of time. The image of a fine slit about 10 cm. in length is cast by a lens through a cell containing the liquids on to the sensitive plate. The diffusion of the liquids causes a gradual distortion of the image of the slit, and a series of exposures made upon one plate serves to record the progress of the diffusion.

Press Photography.

Under the direction of Herr August Scherl, proprietor of the German newspapers "Die Woche" and "Der Tag," and of other publications which have led the way in Germany in the direction of using ample illustration, a very large amount of illustrative matter is crowded into a small space. Many of the frames contain perhaps one hundred photographs, and the two galleries, therefore, of the press photography section represent an enormous volume of illustrative material, which in every case is of a high order as regards quality. Most of the photographs are of events of the day, or of portraits of people in the public eye, and the collection is quite international in its character from the fact that the exhibits come not only from Germany, but from London, Paris, New York, Spain, Norway, Italy, Holland, and other European countries. The collection shows the firm hold which photography has taken in the illustration of newspapers. The

two most interesting exhibits in the section are, first, that by Dr. Neubronner, of Cronberg. This consists of the actual tiny cameras which, attached to carrier pigeons, are used to obtain photographs during the flight of the birds. The actual negatives measure only about $1\frac{1}{2}$ inches square, and, to judge from those exhibited, are not of a very high order of definition, inasmuch as the enlargements, about 6 inches square, are rather more diffused in definition than would be usually exhibited. The results, however, are a tribute to the ingenuity of the inventor, who, we noted, had devised a stereoscopic carrier pigeon camera. The telegraphic transmission of photographs by the Korn method is represented by a complete working installation, the actual production of a telegraphed picture being demonstrated twice weekly in the exhibition. A number of reproductions showing the photograph before and after being telegraphed by the Korn method forms part of this exhibit.

(To be continued.)

ON PHOTOGRAPHY BY REFLECTION UNDER CONTACT.

[In the following paper, recently read before the Royal Dublin Society, the author describes the process of printing by contact from opaque positives, which he appears to have worked out without knowledge of what had been done by the late Hort Player. The paper is accompanied by a supplemental plate, showing the satisfactory reproductions obtained in this way of line subjects.—Ed. "B.J."]

In the usual methods of contact photography, a copy is taken of the original or negative by allowing light to pass through the latter on to a sensitive surface. The resulting picture is due to differences in opacity in the various points of the original or negative.

The new method to be described consists in transmitting the light in the reverse direction, and producing a picture, not by differences of opacity, but by differences of reflecting power in the original.¹

The obvious objection to such a method is that the sensitive film, being exposed to a uniform incident illumination coming through the back of the plate, will be uniformly "fogged"; and the resulting positive will be marred by a brightness which invades and partly obliterates all the dark portions. If this difficulty can be overcome, we obtain a method of copying any flat picture or design without a camera; and we avoid the difficulties of distortion, curvature of field, chromatic and spherical aberration, flare, astigmatism, and lack of uniformity of illumination, which beset all but the best lenses, and which cannot, in practice, be simultaneously reduced to a negligible amount.

When the original to be copied has no half-tones, it is possible, by suitable exposure and development, to eliminate the fog entirely. The general principle is to employ exposures and developers which in ordinary photography "suppress the detail in the shadows," or, in other words, confine the developed image to those portions which have received the maximum illumination. In copying a line-drawing, a page of print, or similar full-toned matter in this manner, the areas of maximum illumination are those which are illuminated by the incident light *plus* the light reflected by the white paper. The areas in contact with the black portions of the original are only illuminated by the incident light *plus* the small proportion reflected by the black ink. The incident light greatly exceeds the reflected light in amount; and the difference in illumination relied upon to produce the necessary contrast does not, in most cases, exceed 5 per cent. With this small margin of additional illumination it is found possible, however, to obtain a contrast in the negative

amounting to as much as 40 or 50 per cent. Once this is obtained, the negative may in turn be used to produce a transparency in which the contrast is further increased by a second application of the same treatment. Workable lantern-slides are obtained in this manner; but much better results, comparable to the best lantern-slides obtained with the camera, are secured by two additional reversals, to which the same principle is applied.

Instead of making a number of successive reversals, the fog may be eliminated by reduction and subsequent intensification. Howard Farmer's reducer (potassium ferricyanide and hyposulphite of soda) dissolves away the fog more than the full-tone if sufficiently concentrated. The negative is intensified with mercuric chloride and silver nitrate.

The best results are obtained with slow plates of the "photo-mechanical" class, and the developer used was the following:—

No. 1.—Hydroquinone	80 grs.
Potassium metabisulphite	120 grs.
Potassium bromide	10 grs.
Water	10 ozs.
No. 2.—Caustic potash	200 grs.
Water	10 ozs.

Equal parts of both solutions are mixed.

The best fixing agent is potassium cyanide, on account of its solvent action on thinly deposited silver. But I used the ordinary "hypo" bath.

Other Applications of the Process.

Excellent paper negatives are obtained with rapid bromide papers, and also with gas-light papers.¹ On printing positives from them in the ordinary way, the grain of the paper negative disappears, as it is automatically compensated by the grain within the paper which gave rise to it. Printing-out papers also give negatives which can be used for printing positives on bromide paper without previous toning and fixing. But the exposure has to be very long.

Bichromated gelatine plates give a good relief by this method, and, unlike the usual printing with bichromate, the more insoluble portion of the gelatine is nearest the support, whether glass or paper. Direct positives may be obtained either by over-exposure (fifty times), or, better, treating ordinary plates or

¹ Such a reflection process was devised in 1897 by J. H. Player (see "The Photographic Journal," 1897, p. 222). He used bromide paper, and transmitted the light through a green glass. He "could not succeed with plates." It is said (*ibid*) that positive copies of maps were for some time made in the French army by contact with Ilford process plates, but no details are given.—E. E. F.

papers with a 10 per cent. solution of potassium bichromate, and exposing them for the period usual in bichromate printing. The action in this case is as follows:—The bichromated gelatine which receives the reflected light is rendered more insoluble than that which adjoins the black areas. Only the latter, therefore, absorb the developer; and the whole film being “fogged,” a direct image of the black portions results.

The Active Agent.

The very striking results obtained with bromide paper are attributable to the double absorption undergone by the incident light in penetrating the developed film and returning to the eye of the observer. There appears to be in reality nothing but a purely optical effect. The suggestion was somewhat obvious that some radiation from the pigment of the original, usually, perhaps, intercepted by a slight thickness of air, might inhibit the reduction of the silver salts. This, however, is rendered very improbable by the following observations:—

1. On impregnating paper with sugar, glycerine, mercuric chloride, uranium nitrate, and various other substances which do not produce a visible effect, it is found that paper so treated has the same photographic action as the original paper.

2. The gradation of colours is found to be the same as that obtained with the camera.

3. Red has no special inhibiting action. On applying this process to a deep red paper printed with black lettering, a faint negative was obtained, in which the black printed whiter than the red. Had red light exerted any inhibiting action, the fog should have been reduced, and the red should have appeared whiter in the negative.

In applying the process described to black and white originals, certain advantages are gained over the ordinary methods with the camera:

1. The reproduction is of the exact size of the original;
2. The sharpness of definition is only limited by the size of the silver grain in the plate;
3. All differences in the angle of reflection of light by the original are avoided, all the effective light emerging at right angles to the surface.

This last circumstance places at our disposal a delicate and accurate method of comparing the reflecting powers of surfaces for vertical incidence. It consists in mounting the surfaces in the same plane side by side, and exposing a plate with its film in contact with both. If the surfaces are large enough, a slight gap may be left between the sensitive film and the surfaces to be tested, so as to eliminate photographically active radiations or emanations from the surfaces.

E. E. FOURNIER D'ALBE, B.Sc., A.R.C.Sc., M.R.I.A.

PACKING PLATES EXPOSED ON TOUR.

THE usual way is to cut or tear open one end of cover-paper and draw out the box. This is all right when the plates are to be exposed and developed straight away, but if it be intended to replace them in the box after exposure, and keep them secure pending future treatment, then tearing open the cover-paper is all wrong; it makes a clumsy, untidy mess, and when work is being done in the dim light of some strange dark-room, to replace the plate-box inside the remains of the cover-paper is not always an easy thing to accomplish.

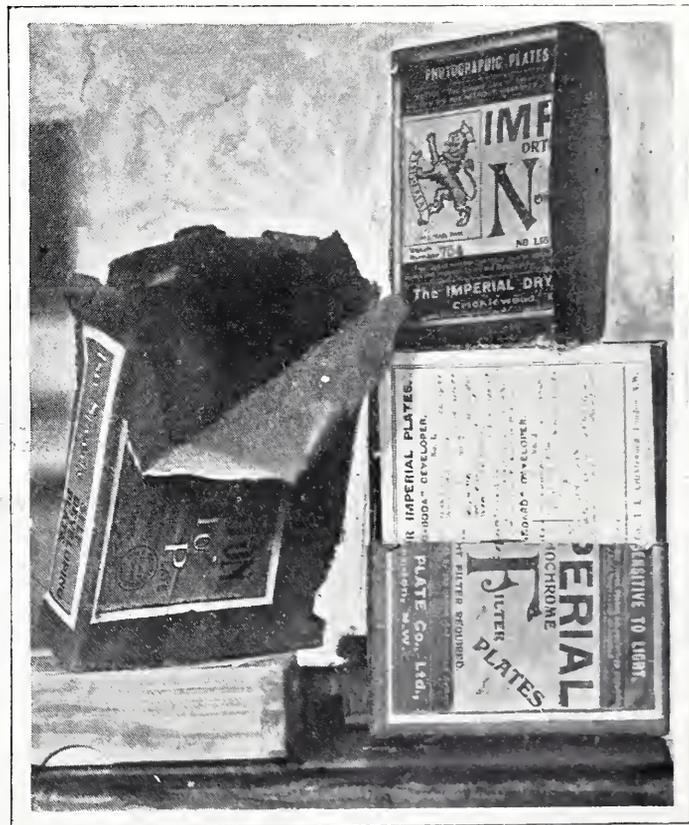
The Best Way to Open a Plate Box.

Take the unopened box as received from the dealer, and with a sharp knife make a clean cut right round the middle of the package. When this is done, the two halves of the cover-paper will quite easily slip off each end. Then, when it is required to re-pack the plate-box away securely, all that is necessary is to replace the two halves of the cover, when a piece of adhesive paper, such as used for binding lantern slides or passe-partouts, stuck round where the cut was made, will join both cover parts together, and the plates are as secure and safe from injury as when first received from the makers.

The illustration shows the two methods, the left-hand side being that of a box opened by tearing the cover; that on the right being the other method described.

As regards the plates themselves, quite the safest plan is to put them face to face and wrap tightly round in the brown paper originally packed in. They are then quite safe once inside the box and the outer covering fastened with gummed paper as described above. Since adopting this plan I have not had a single accident with plates packed on holiday tours.

W. THOMAS.



THE ENSIGN ROLL FILM COMPETITION.—Mr. A. C. R. Righi, Woodlands Hotel, Darjeeling, India, is the winner of the Ensign roll film competition for May. Houghtons Ltd. offer a three-guinea camera every month for the best negative on “Ensign” film. The entries close on the 3rd of the month. Entrance is free, and a competition form is enclosed with every spool of “Ensign” film.

THE WAKEFIELD PHOTOGRAPHIC SOCIETY has recently made several changes in its constitution. The meetings are held as heretofore in the Church Institute on Fridays at 8 p.m., but the office of president is now filled by Mr. J. H. Chaplin and that of secretary by Mr. G. W. Johnson, to whom communications should be addressed at Lindale Villas, Newton Hill, Wakefield.

ABSORPTION SPECTRA.

(A paper read by Dr. Mees and Mr. S. H. Wratten before the Royal Photographic Society, and reprinted from the "Photographic Journal.")

II.

The Absorption in Special Regions of the Spectrum.

The first region in which absorption may be required is the extreme red and infra red, from 8,000 down to 6,500. We have, indeed, been very urgently requested to make a filter which absorbed from 8,000 to 7,000, but did not absorb the red proper

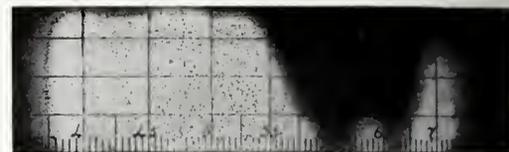
absorption than the common variety; toluidin green, Hoechst, toluidin blue, which is a permanent dye absorbing the extreme red, and not absorbing ultra-violet or violet, and which has just been put on the market by the Hoechst Dye Works; and the still later filter blue-green of the Hoechst Dye Works. Unfortunately the attempt to obtain a dye which had its maximum above 7,000 was a



Naphthol green $\frac{1}{1000}$. Red end only.



Toluidine green $\frac{1}{2000}$. Red end only.



Methylene blue $\frac{1}{2000}$.



Naphthaline green $\frac{1}{1000}$.



Victoria blue $\frac{1}{2000}$.



Rapid filter blue $\frac{1}{1000}$.



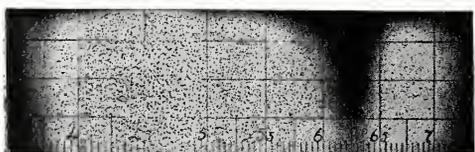
Toluidine blue $\frac{1}{1000}$. Red end only.



Filter blue-green $\frac{1}{1000}$. Red end only.



Patent blue $\frac{1}{1000}$.



Erioglaucin $\frac{1}{1000}$.



Methyl violet $\frac{1}{1000}$.



Rhodamine 6 G $\frac{1}{1000}$.



Uranine $\frac{1}{2000}$. Blue end only.



Monobromo-fluoresceinate of sodium $\frac{1}{1000}$.



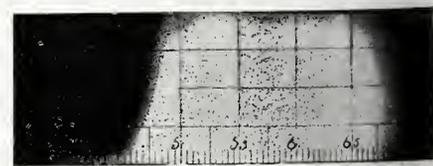
Tetraiodo-fluoresceinate of sodium $\frac{1}{1000}$.



Rose bengal $\frac{1}{1000}$.



β Naphthol-di-sulphonic acid $\frac{1}{2000}$. Blue end only.



Picric acid $\frac{1}{1000}$.

Fig. 8.

below 7,000, and that request was really the commencement of this series of observations.

In order to investigate the matter, the ordinary compensating filters were removed and a special compensating filter composed of methylene blue at first, and later of toluidin blue, together with the red tricolour filter, was used in order to enable us to work satisfactorily fully up to 8,000 A.U. The dyes investigated were naphthol green, both the commercial variety in which the hydroxyl and sulphonic acid groups occupied the second and seventh positions, and another variety given us by Dr. Koenig, in which the groups are in the second and sixth positions; this last having less blue

failure. All the dyes named have their maximum about 6,700 to 7,000, except toluidin blue and green, where the maximum is lower still. Much the most satisfactory of the green dyes is the new filter blue-green, which has only a slight absorption in the violet.

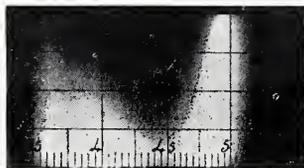
For making blue filters, toluidin blue is of great use, although its shallow absorption, like that of toluidin green, renders it less useful than if it had a sharply cut band. In the extreme red, methylene blue has a unique absorption, showing a double absorption band, of which the stronger member has a maximum at 6,800, while the weaker has a maximum at 6,100. Unfortunately, methylene blue is very sensitive to heat, like auramine, and while it is

fairly permanent to light, it cannot be trusted because of this sensitiveness to heat. Indeed, methylene blue is almost the only dye which we would always avoid, on the ground of permanency, if it were possible to do so. The patent blue series, which were originally Hoechst dyes, give a most valuable series of sharp absorptions in the red. One of the members of these series, erio-glaucin, made by Geigy, of Basle, is particularly noteworthy for its single sharp absorption band, with its maximum at 6,250. The Hoechst red-absorption dye naphthaline green, has a very bright and sharp absorption, but of course has the disadvantage that it absorbs the extreme violet and ultra-violet. Its curve is not as sharp as erio-glaucin.

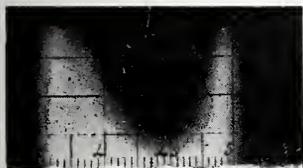
The difficulty of the next group of dyes, those absorbing the spectral yellow and orange regions of the spectrum, is that they are nearly all basic dyes, and as basic and acid dyes cannot be used together, and as, moreover, basic dyes frequently give much trouble with gelatine, it is better to use acid dyes if possible. We have now succeeded in almost completely eliminating basic dyes from our filters. These blues, as they may be called, comprise the Victoria blues, which are the sharpest-cut of them, and of which there are a great many varieties, the methyl violets, which are of but small use, owing to the superiority on the one side of the Victoria blues and Patent blue series, and on the other the rhodamines



Mandarin orange $\frac{1}{1000}$.
Blue end only.



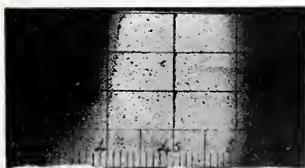
Tartrazine $\frac{1}{1000}$.
Blue end only.



Para-nitroso-di-methyl-aniline $\frac{1}{1000}$.
Blue end only.



Filter yellow K $\frac{1}{1000}$.
Blue end only.



Esculine $\frac{1}{1000}$. Blue end only.
Fig. 8.

and rapid filter blue Hoechst, which has the advantage of being an acid dye and quite permanent, but is of very shallow cut. The methyl violets can be well replaced in filter making by the acid violets, which are of even sharper cut in the deep red, and are much easier to work with.

For the absorption of the green proper, there are two groups of dyes of the same chemical type:—the fluorescines, which are acid, and the rhodamines, which are basic. Fluorescine itself, or uranine, absorbs only the blue-green, and as the molecule is weighted by the addition of chlorine, bromine and iodine atoms, the band moves towards the yellow; so that the heaviest member of the group, rose bengal, has a sharp band with a maximum at 5,600. Rose bengal is still probably the best dye for the red filter in tricolour work. It is not quite permanent any more than most of the dyes which have been discussed, but it will stand full daylight and sunlight for three months, which is all that can be asked of any filter except possibly an orthochromatic filter.

Of the rhodamines, rhodamine B is the only one in general use, though very many varieties are made, the others do not seem to offer advantages over the corresponding fluorescines. But there is one dye which can be taken as belonging to both the rhodamine and fluorescine groups, and which has only recently come to our notice, which we consider of the greatest possible importance. This is xylen red from Hoechst. It is both an acid and a basic dye,

works perfectly with gelatine, and will mix with the acid dyes, It has the sharpest absorption band towards the blue which we know, and makes a very nearly perfect complementary-to-green dye.

Mandarin orange has an absorption band in the same position as uranine, transmitting the extreme violet, but the only yellow dye absorbing the violet satisfactorily and still transmitting the ultra-violet, is Wood's para-nitroso-di-methyl-aniline. Tartrazine has the defect of not completely absorbing ultra-violet, but still it absorbs a great deal. Filter yellow K completely absorbs the ultra-violet except in dilute solution, in which case picric acid is better, though this cannot be used for making orthochromatic filters, as it rapidly goes brown on exposure to light. For the absorption of the ultra-violet from 3,900, aesculine is the only known substance, but if the extreme ultra-violet from 3,600 to 3,000 only need be absorbed, beta-

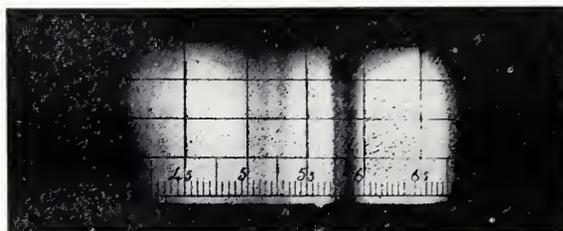


Fig. 9.
Didymium glass absorption.

naphthol-di-sulphonic acid is a more satisfactory substance, and does not darken in light nearly so quickly.

In order to make a filter which transmits the ultra-violet but does not transmit the visible spectrum, it is necessary to use para-nitroso-di-methyl-aniline with blue-violet dyes, and unfortunately these blue-violet dyes always strongly absorb the ultra-violet, the rhodamines and xylen red having an absorption band there. In order to avoid this difficulty we have obtained from Schott and Genossen, of Jena, some of their blue uviol glass, which is extremely transparent to the ultra-violet; by cementing the film between two pieces of this glass, a satisfactory ultra-violet filter can be prepared.

Special Absorptions.

A useful filter is a piece of didymium glass, also obtainable from Messrs. Schott and Genossen, as the absorption bands from this are very narrow and sharp, and can be well used for roughly scaling or setting spectroscopes (Fig. 9). The band in the yellow will also

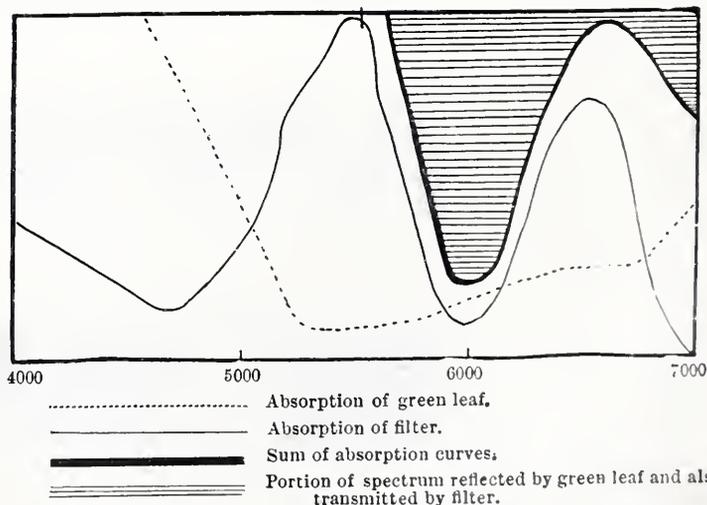


Fig. 10.

completely remove the sodium and mercury yellow lines, and a filter made by cementing a strong yellow film between two pieces of didymium glass of a thickness not more than 1 cm. will transmit only the green line, and this almost undiminished, in a mercury lamp. In this way the most powerful monochromatic light source that we know can be obtained.

We have prepared a number of interesting filters having double-banded absorptions and transmissions. One which we prepared some time ago had the interesting effect that while it was either a black or a green filter, it made the green of trees and grass appear red.

The filter was one which had two transmission bands, one in the red, one in the blue-green, there being a strong absorption band in the yellow-green, and the depth of the two transmission bands was modified until the whole filter appeared black when looked at, the red and blue-green bands balancing each other. Now the green reflection from a leaf has in it very little blue or blue-green; it consists of the central green and yellow-green of the spectrum, and of a considerable amount of orange. The yellow-green and central green are absorbed completely by the filter while the orange is

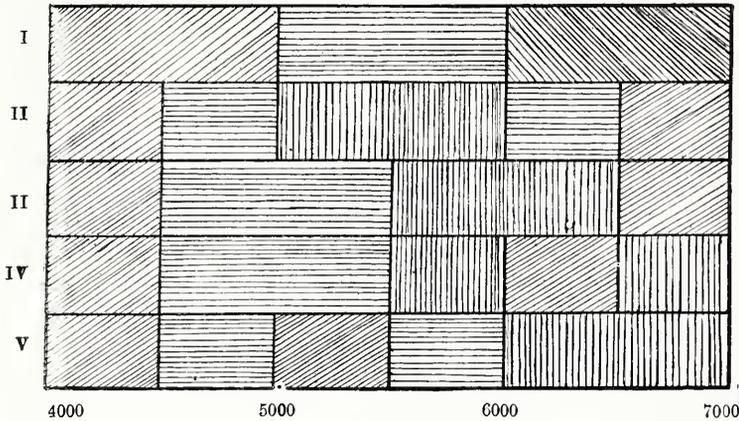
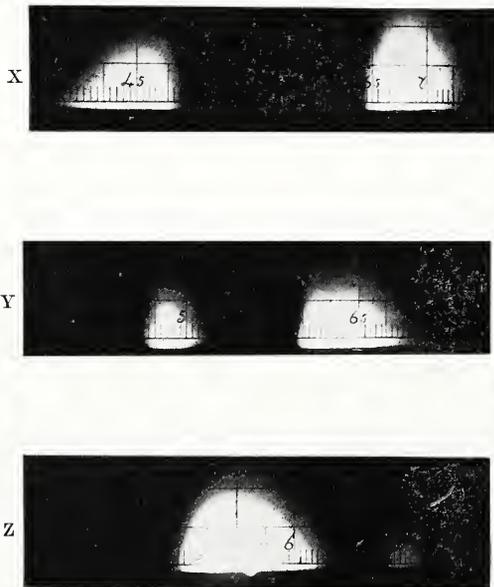


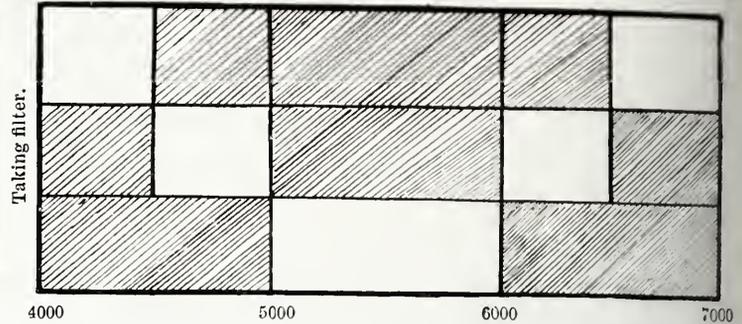
Fig. 11.

transmitted, so that although the filter may be black or even green to the sky, yet green leaves will appear orange brown through it (Fig. 10).

Another piece of work which as an exercise in absorption work has been of interest, has been the cutting up of the spectrum into tricolour filters in other ways than those usually employed. Fig. 11 may make this clear. Consider a spectrum extending from 4,000 to 7,000. For normal tricolour work this is split into three portions extending from 4,000 to 5,000, 5,000 to 6,000, and 6,000 to 7,000. This is shown on line 1. Line 2 shows us another method



have called X, comprises the whole of the spectrum from 6,500 to 4,500, and is consequently light green. The complementary to the second one, the plum coloured filter which we have called Y, has



two absorption bands, one extending from 4,500 to 5,000, and the other extending from 6,000 to 6,500. It is a whitey-green in appearance by daylight, and bright green by artificial light. The third



Fig. 12.

filter is central green, and its complementary is magenta. This filter we called Z.

We have prepared these filters as actual filters, and have photographed the spectrum through them, Fig. 13, and having explained their composition, we think it would be a useful exercise for those

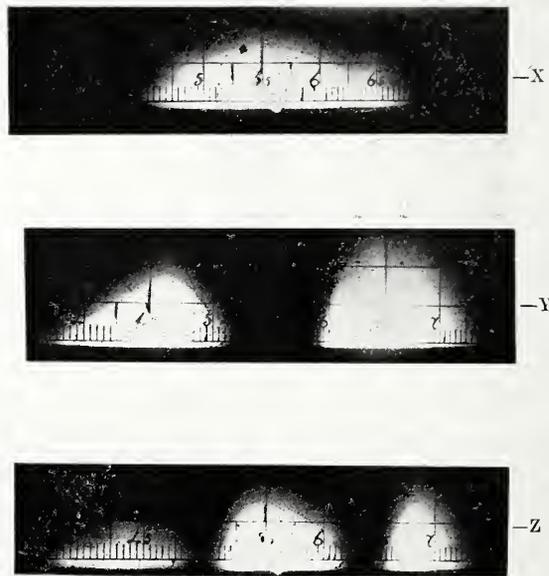


Fig. 13.

of splitting up the spectrum, and the three filters there are (1) identical with our former green filter from 5,000 to 6,000; (2) a filter which transmits from 4,500 to 5,000, and also from 6,000 to 6,500, and is a kind of plum colour; (3) one transmitting from 4,000 to 4,500 and also 6,500 to 7,000, a purple filter. Figs. 3, 4, and 5 show some suggested other methods of splitting up the spectrum. The method just discussed in line 2 has been more completely worked out. In Fig. 12 the upper diagram shows in its clear spaces the light transmitted by its taking filters, and the lower diagram shows the corresponding printing colours. It will be seen that the colour complementary to the methyl violet coloured filter, which we

who think that they understand three-colour work to try to work out the effect of photographing a chart of mixed colours by means of these three colours, and printing them in their complementaries. We may point out one conclusion, which will be found to be borne out in practice; this is that since the filters are symmetrical about the centre of a spectrum, they will not distinguish a red from a blue, and consequently all deep reds will appear of the methyl violet shade, and so will all deep blues, while bright blues and scarlets will appear as magentas; but the exercise is an interesting one for various colours, and can be safely left to our readers.

In concluding this paper, we hope that even if these later sug

gestions as to eccentric sets of tricolour filters, or filters which make things appear in their wrong colours are not considered useful, they may be taken as corresponding to those mathematical puzzles of which mathematicians are occasionally guilty; while the more serious discussion of the values of different groups of dyes in the earlier portion of the paper may be of use to those who are interested in the work.

C. E. K. MEES, D.Sc.
S. H. WRATTEN.

Photo-Mechanical Notes.

The Ascertainment of Parallelism.

As stated in the article published recently, the photo-engraver, to whom parallelism is essential, is usually provided with a camera and a copy-board that cannot be other than parallel; but it not infrequently happens that an operator has to photograph pictures with an ordinary camera away from the studio, and then he is in need of some such apparatus as that devised by Mr. Carnegie, and described by him. But I fear this would be regarded by the average operator as somewhat complicated in use, and so he provides himself with something that answers the same purpose, albeit not quite so accurately. This consists of a metal pointer (hung on a knife edge, and so swinging freely) on a small board, the edge of which is perfectly straight. At the bottom of the pointer is a small adjustable indicator. If the edge of the board is placed against the picture the swinging metal pointer will drop vertically, and the indicator can be moved until it corresponds to the position of the pointer; now the board is taken and placed vertically on the ground glass of the camera, when the camera is tilted or the back swung until the pointer reaches the same position as the indicator. A home-made apparatus can be used by taking a piece of stout cardboard with a true edge and inserting at the top in the centre a piece of thread with a small lead weight attached. Place the straight edge against the picture and make a pencil mark on the card when the plummet has come to rest. This can now be used at the ground-glass. This method conveniently ensures vertical parallelism; to ensure horizontal parallelism a compass is used. In the instruments sold for the purpose this is mounted on a square piece of wood, and the case covering the needle which carries a mark at north and south, can be rotated so that the two marks can always be brought opposite to the two points. After placing the edge against the picture and allowing the needle to come to rest, the case is rotated—and fixed when the marks come opposite to the needle ends. Now the compass is taken to the back of the camera, and the camera turned until the needles again come opposite to the marks, care being taken that N. is kept to N. at both picture and camera back. Of course, any ordinary compass can be used, supposing it is mounted in a square mounting, and the readings noted or indicated by an ink spot on the glass. Unfortunately, the compass sometimes fails when working in the neighbourhood of powerful arc lamps.

A. J. N.

Reproductions of Academy Pictures.

The annual flood of half-tones reproducing the Royal Academy and New Gallery pictures serves to show both how far we have gone from, say, ten years ago, and how far we have yet to go before even the moderately critical can be satisfied. Finer screens are used, and the printing is better, but comparison with the original pictures will show that there is nothing like the same improvement in the truthful rendering of the luminosity of the various colours, and the subtle tones of the artist are often sadly to seek. Worse than all, the sometimes baleful work of the fine etcher, in his efforts to brighten up the block, leads to the absolute ruin of the artist's intention. Thus we have in mind a delicate nude study in which the fine etcher has heavily outlined the figure and stopped out the eyebrows, the nipples, and even the fold in the abdomen, so that the accentuation of these mere suggestions of the painter made the reproduction grotesque. Certainly we have improved, but until it is possible to reproduce a picture without fine etching (unless done under the express instruction of the artist), we cannot be said to have improved sufficiently.

Another Transposition Method.

Where photo-litho transfer paper is in use, an easy and satisfactory transposition method is available if the matter is printed in good solid impression either from stone or type on to the sensitised paper. The

paper can then be exposed to light, rolled up all over with transfer ink, and developed in the usual manner. The result is that where the impression was, no insolubilisation has taken place, and the ink will wash away there, leaving the design in black and white. This can then be transferred to stone or zinc and printed from, giving a very sharp reverse.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents were made between May 10 and 15:—

CINEMATOGRAPHS.—No. 11,045. Improvements in cinematograph apparatus. George Bennett Bowell, 40, Chancery Lane, London.

CINEMATOGRAPHS.—No. 11,132. Improved cinematograph film-feeding mechanism. William George Barker, 55, Chancery Lane, London.

THREE-COLOUR SCREENS.—No. 11,147. Improvements in three-colour screens for photography and the process for their manufacture. John Bamber, 33, Cannon Street, London.

APPARATUS.—No. 11,250. Machine for colouring cinematographic films. Reginald William James, 1, Queen Victoria Street, London, for Compagnie Générale de Phonographes, Cinématographes, et Appareils de Précision, France.

CAMERAS.—No. 11,546. Improvements relating to cinematographic cameras. George William Curtiss, 31, Bedford Street, London.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

SCREEN-PLATES FOR COLOUR PHOTOGRAPHY.—No. 9,044, 1908 (April 25, 1908). The invention relates to the making of a fine mosaic screen-plate. A thin film of a suitable vehicle (e.g. collodion), mounted upon a suitable carrier (e.g. a glass plate, or a sheet or film of waterproof material), is first uniformly dyed all over with a suitable dyeing agent, say of a red colour. A solution of a protective agent or resist consisting of indiarubber, guttapercha, bitumen or paraffin wax, dissolved in a suitable solvent, for example, naphtha, is then applied in the form of spots so as to partly cover the film; the colour from the exposed portions of the film, that is to say, those portions not covered by the spots of protective material, is removed, by dissolving out or bleaching the colouring agent, and the exposed portions of the film are dyed with another colouring agent, say of a blue or blue-violet colour. Then another set of spots of protective material of the kind mentioned are applied to the film so as to cover a further portion of its surface, the colour is again removed from those portions of the film still not covered by the second application of the protective material, and then the remaining exposed surface of the film is dyed with a third colouring agent, say of a green colour, the spots of protective material being finally removed by a suitable solvent in such a manner as not to disturb the multi-coloured film. Usually only the three colours mentioned are necessary. Excess of colouring agent is washed off after each application of dye to the collodion, e.g., by water. In this way there is produced a film comprising an immense number of fine closely arranged coloured spots that are in contact with one another so as to leave no clear spaces between them and none of which overlap others. The film of collodion applied to the glass plate or other carrier may be dyed previously to being applied to the carrier. In some cases, as protective material of the kind mentioned does not materially interfere with the coloured spots or the transparency of the screen, it need not be removed.

Each of the two first mentioned colours can be dissolved out of the collodion film, as set forth, by agitating the coloured and partly protected film in a liquid which will not dissolve the protective material used—e.g., in alcohol—or the colour can be removed from the film by bleaching it—e.g., with a solution of a bleaching agent,

for example, chlorine, or acid or alkali, as may be found advantageous.

The spots of protective material can be applied in various ways. Preferably they are applied in the form of a fine spray produced, for example, by an aerograph spraying machine of the kind now commonly used by artists and others. By this means spots of protective material of extreme fineness can be deposited upon the film, resulting in the production of a colour screen composed of an infinite number of closely arranged coloured spots.

The application of a protective agent or resist in the form of a fine spray, as set forth, constitutes an important feature of the present invention and can advantageously be adopted in any method of forming colour screens wherein it is required that a protective agent or resist shall be deposited upon a film or surface in a finely divided condition.

The protective material used must, of course, be one not soluble in the solvent used for the dyes, or in the liquid that may be used for bleaching the exposed portions of coloured film. Also, the solvent used for removing the protective material, when such material requires to be removed, must be one which will dissolve the spots of protective material without affecting the multi-coloured collodion film below the same. By using indiarubber, gutta-percha, bitumen, or paraffin wax, dissolved in naphtha, and alcoholic or aqueous solutions of aniline dyes as the colouring agents, the above requirements are complied with.

Colour screens produced as described can be coated, as usual, with a sensitive film, a film of protecting material, for example, indiarubber or varnish, being first applied to the coloured screen, if desired. George Sydney Whitfield, of the Paget Prize Plate Co., Ltd., St. Albans Road, Watford, Herts.

SCREEN PLATES FOR COLOUR PHOTOGRAPHY.—No. 21,840, 1908 (July 23, 1908). The process of localised dyeing which is employed consists in allowing the dye, after parts of the surface have been coloured and dried, to act so briefly in the subsequent dyeings that the previously coloured areas are not affected, but only the areas which are uncoloured and exposed to the dye are coloured. The process is based on this fact, not upon methods of partial insulation or application of a resist. Hitherto if, for instance, a strip of celluloid is partly immersed in a red concentrated colouring solution (e.g., rhodamine), and the surplus colour adhering to the surface be washed off with water and then allowed to dry, a red strip intensely coloured to half its extent is obtained. If this strip be immersed in a green alcoholic dye solution (e.g., malachite green), and left therein for a long time, then washed and dried, it is noticed that the part formerly uncoloured appears green, whilst the part dyed red has also strongly absorbed the green colour and has thereby become discoloured.

The colouring, however, takes place quite differently if these strips, according to this improved process, be only left a few seconds in the second green dye solution, and then rapidly immersed in water, with the object of immediately interrupting the action of the alcoholic solution. In that case only the part of the celluloid which has remained uncoloured becomes intensely coloured, whilst the part of the surface which was first coloured red remains unchanged.

This action may be explained by the colour or dye which has dried on the surface from the first colouring acting initially as a resist or insulation against the action of the second colouring.

As in this example an alcoholic dye solution acts for a short time on celluloid and as its duration of action is interrupted by immersion in water, a liquid in which the celluloid does not absorb colour, surfaces consisting of gelatine, casein, and the like, which are adapted to be coloured in a watery solution may be differently coloured according to the same principle, after a sufficiently short action. It is only necessary to interrupt the action of the watery colouring solution at the right time, which is possible by immediate immersion in alcohol or squeegeeing off or absorbing the surplus colour.

An example of carrying out this process is, for instance, the making of celluloid sheets which are intended to have, for instance, in a red frame, green transparent writing with blue initial letters. Transparent celluloid is printed with the desired text in printers' ink, placed in a cold saturated alcoholic solution of rhodamine B, whereby the parts not covered by the print, that is to say, the

framing or border, are dyed, whilst the places covered by the printers' ink, which form the letters, are not coloured. The celluloid is then immersed in water in order to remove the excess of colouring solution and dried in any suitable manner. The printers' ink which forms the small letters is removed and the surface exposed for about two seconds to the action of a cold saturated alcoholic solution of malachite green and then immediately placed in water and dried as before. By this means the small letters exposed are coloured green without the already red coloured border being affected, whilst the printers' ink of the large letters insulates the ground or foundation.

The large letters are now also to be coloured blue. This is done by removing the printers' ink from the large letters also, whereupon the sheet without any protection of the previously exposed parts is immersed for about a second in a cold saturated alcoholic solution of a blue dye, for instance, spirit blue, and immediately placed in running water and then dried. The result is that now the large letters which alone remained bare are coloured blue, without affecting the red and green colours.

Another example is afforded in the production of multi-coloured screens. If a two-coloured screen is to be made, celluloid, for instance, is printed with a fine series of lines, immersed in a cold saturated alcoholic solution of rhodamine G, whereupon only the exposed lines are coloured but not those which are protected by the printers' ink. After drying, the printers' ink is removed, for instance with turpentine oil, whereupon the transparent celluloid is laid bare. By immersion for two or three seconds in a second differently coloured dye solution, for instance a cold saturated alcoholic solution of crystal violet, the bare transparent lines are coloured in a second colour, without its being necessary to insulate in any way the previously coloured lines, so that the first coloured lines take on no further colour.

In order to make three-colour screens, the process is adapted particularly in combination with the process described in Patent No. 21,839 of 1908, the following method being preferably adopted. A fine system of lines is impressed by means of a copper matrix in transparent celluloid, in such a way that the depressions form a third of the total area. The raised part, as described in the specification just mentioned, is rolled with printers' ink, thus only coating it, whilst the interstices remain free. After insulation of the rear side of the sheet, it is placed in a cold saturated alcoholic solution of crystal violet.

Only the depressions are coloured, whilst the raised portions remain uncoloured. After washing and drying, the printers' ink is removed and a second series of lines is impressed at right angles to the direction of the first. The printers' ink roller is again passed over the sheet, and when it is immersed in a cold saturated alcoholic solution of malachite green, the raised parts remain uncoloured, because only the depressions are exposed to the action of this dye solution. The application of this improved process commences at this point.

Whilst formerly no importance was attached to the period of action of this second alcoholic dye solution the period of action is now reduced to a minimum. This minimum is dependent on the concentration and the nature of the dye solution, on the depth of the relief and so forth, but in general only extends over a few seconds. Therefore this second dye solution is only allowed to act about three seconds, and thereby depressed lines are only coloured in the places which have remained transparent, while where the blue points cross these impressed exposed lines no colouring takes place. The printers' ink is then removed and without any insulation of the printed side, it is exposed to the action of a cold saturated alcoholic solution of rhodamine G, but only for one second. By this means only the remaining third which has remained free, is coloured intensely and brilliantly red whilst the two other already coloured parts remain unaffected.

The necessary photographic intensity of the colours is sufficient in spite of the short period of action.

By the application of pressure and heat, the separate colours are then brought into one plane and so a complete screen mounted in celluloid is obtained. Vereinigte Kunstseidefabriken A.G., Kellstedt, near Barmen, Germany.

PROJECTION APPARATUS.—No. 24,621, 1908 (November 15, 1907). This invention relates to an improved optical projection apparatus.

of the kind adapted for the projection of views on opaque bodies such as photographs or engravings. Such apparatus usually comprises as its essentials two lamps which throw converging rays, either by means of reflectors or condensers, on to the view which is then projected by suitable combinations of lenses.

The present invention consists in improving the details of such an apparatus; for instance, the lamp holders and condenser supports, which are removable and adjustable, and the relative dimensions and shape of the casing whereby a more convenient construction is attained.

The claim is for the improved optical projection apparatus constructed in plan in the form of a right-angled triangle with each of the angles cut away to produce short sides, two of which are constituted by doors for the introduction of the lamps and the other has a covered aperture opposite which the view to be projected is slidden. Albert Leveque, 13, Rue des Ursulines, Tourcoing (Nord), France.

New Trade Names.

AUTOCHROMES LUMIERE (DESIGN).—No. 306,657. Sensitised films and plates for use in colour photography. Société Anonyme des Plaques et Papiers Photographiques. A. Lumière et ses Fils, 21, Rue St. Victor, Lyon-Monplaisir, France, manufacturers. October 3, 1908.

B. M. AND Co.—No. 310,589. Alkalies used in manufactures, photography, or philosophical research. Brunner, Mond, and Co., Ltd., Winnington, Northwich, Cheshire, alkali manufacturers. February 17, 1909.

CINEMACOLOR (DESIGN).—No. 311,797. Cinematographic apparatus and photographic films bearing finished pictures in natural colours for use therewith. Charles Urban, Urbanora House, 89-91, Wardour Street, London, manufacturer. March 29, 1909.

Analecta.

Extracts from our weekly and monthly contemporaries.

Reflex Suggestions.

I think that there can be little doubt (writes Mr. J. Milton Watson in "The Amateur Photographer and Photographic News" for May 25) that the average worker directs his attention chiefly to landscape work and portraiture, for which high speeds are impossible, and to such a reflex camera, with a simple focal-plane shutter giving merely low speeds, would be a great boon and much appreciated, for a slow-speed shutter ought not to call for such intricate mechanism, and should be cheaper to make than one that combines both high and low speeds. Messrs. Adams and Co. have made a preliminary announcement of the appearance of a new focal-plane shutter, which is to be fitted to their new Studio reflex, working merely to about 1-100th of a second, and giving time, bulb, and slow automatic speeds. Could not this be fitted to the Videx? And cannot Messrs. Newman and Guardia, Marion, Watson, and the Thornhill-Pickard Co.—to mention no others—give us a similar slow-speed shutter fitted to their cameras? I am sure that a well-made high-speed instrument, fitted with such a shutter, would have many purchasers, especially were the camera priced at not too high a figure.

One other suggestion. There is a large number of camera users who prefer to work with roll-films for touring to save weight and trouble. I do not know that there is a single roll-film reflex on the market, while a detachable roll-holder is to me a nuisance. And surely the reflex camera, above all others, is most peculiarly suited for use with roll-films, seeing that, as a rule, it is not possible to focus for each exposure on the ground-glass of ordinary film cameras. A roll-film reflex with closed back would probably only mean an addition of, at the most, an inch to the present length of the camera, and such an instrument would be of inestimable benefit for touring. The absence of dark slides would mean decreased weight and cost.

A good specification for the ideal tourist's camera would be: Reflex, revolving back, for use with roll-film, but capable of being adapted for use if required with dark slides, low-speed, focal-plane shutter, with a speed capacity of from 1-10th to 1-100th of a second, time bulb, and automatic slow speeds of $\frac{1}{2}$, $\frac{1}{4}$, 1, 2, and 3 seconds, long double extension, good rack rising and double swing front.

New Materials, &c.

The "Sanzol" Green Toner. Made by H. Edmund and Co., Ezra Street, London, E.

This is a new toning solution for bromide and gaslight prints, which on trial we find to work excellently. The toner is put up in a carton containing a couple of 2 oz. bottles, sufficient solution to make 36 oz. of toning solution. The print is soaked in water, ten minutes' soaking being advised for prints that have been made some time before toning, and is then immersed in the toner for times from seven to ten minutes, according to tone required and strength of print. No apparent difference is produced in the toning bath, but when the time is up the print is washed in five changes of water and then immersed for two minutes in dilute hydrochloric acid, 2 per cent. strength, when the green tone at once appears. A final washing for fifteen minutes in seven changes of water completes the process. We found that brighter greens were produced by more prolonged immersion in the acid, and it appeared that the final tone depended to some extent on this time, though the instructions did not suggest this. Very prolonged immersion in the toning bath had a similar effect. The process can be repeated if desired, if the first tone is not bright enough. Ten minutes' toning and two minutes in the acid give a dark, quiet, and very pleasing green of the terra-verte or reseda variety. Longer toning gives a yellow green tending to an olive, while after several repetitions a distinct blue is reached in the light tones, the shadows remaining olive. The process gave no trouble whatever, and worked with great certainty, and those who find a use for green toned prints can be strongly recommended to try this new introduction. The cartons, containing two solutions, cost 1s.

CATALOGUES AND TRADE NOTICES.

SECOND-HAND CAMERAS.—The City Sale have just issued from 54, Lime Street, London, E.C., a large quarto 16-page price list of second-hand cameras, including many reflex and other hand-cameras, stand instruments, and a large selection of studio cameras and lenses. The list, which is sent free, describes an immense variety of apparatus obtainable at sale prices.

SOME BUSINESS MAXIMS.—The new "list of charges" just issued by Messrs. Raines and Co., and the subject (on another page) of a few words of merited appreciation, contains, scattered through its pages, quite a number of brief paragraphs, each with some kernel of suggestion for increasing or solidifying your business:—

We do not believe it possible to create more than one reputation. A business, whether that of professional photographer or that of trade enlarger and printer, can have but one reputation—that for quality or that for cheapness.

The Raines "Service" stands for quality, and it believes that quality is the professional photographer's best policy. Cheapness is the province of the "Twelve for a shilling—sit to-day, ready to-morrow" man, and the photographer desirous of maintaining or creating a sound business can no more compete both on quality and price than he can mix oil and water.

We are frequently asked by middle-class photographers how can they best compete with their neighbour who is offering bromide enlargements at ridiculously low prices. Our invariable reply is: Do not attempt to do so by showing enlargements that afford any opportunity for comparison of price. Show something completely different.

The taking of photographs may be an art, but the selling of them is purely a business matter, and the importance attached to a window display by the most successful houses of business in every line to-day is such that the photographer cannot afford to neglect any opportunity of attracting the attention of the passer-by.

Many of our customers are ordering, on an average, a miniature every month. When it is realised that a tactful receptionist can equal this in any middle-class studio the desirability of having a specimen for her to show is at once seen.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

SATURDAY, MAY 29.

Kinning Park Co-operative Camera Club (Govan). Outing to Lugton.
Borough Polytechnic Photographic Society. Outing to Bournemouth.
United Stereoscopic Society. Excursion to Tunbridge Wells.

TUESDAY, JUNE 1.

Royal Photographic Society. No meeting.
United Stereoscopic Society. Paper: "Trimming and Mounting."
Hackney Photographic Society. Odds and Ends.

WEDNESDAY, JUNE 2.

Edinburgh Photographic Society. Forty-Ninth Annual Meeting.

THURSDAY, JUNE 3.

Bideford Camera Club. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.

ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held Tuesday, May 25, Dr. Evershed in the chair. Mr. H. W. Bennett read a paper on "Methods of Toning Bromide Prints," in which he described a number of variations of the sulphide toning process, made with the object of securing a considerable range of colours. A number of questions on details of these methods followed the reading of the paper, and a vote of thanks was passed to Mr. Bennett at the conclusion of an instructive evening.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.—At the meeting held on Thursday, May 20, Mr. W. R. Stretton being in the chair, Mrs. Kitty Human gave a lecture upon the photography of "Flowers and Still Life." The lecturer described the various methods which she used to take the flowers in their natural gracefulness, and first named that of laying the blooms upon a sheet of glass and taking them with the camera pointing downwards. This method, she said, was very handy for some subjects, as it placed the background a little out of focus, but it had the drawback that it very often gave reflections which were very troublesome, and led to the spoiling of many plates unless great care was used. For flowers which had a long stalk she recommended a strip of good stiff lead, about two or three inches in width, and folded into a series of S's, or a glass funnel turned upside down and the bloom inserted into the narrow end was very useful when treating single blooms; also a jar filled with fine sand would be found of service, and would hold a variety of blooms in almost any position. The long narrow vases, that are now so easy to obtain, were most useful for flowers with long stalks, whilst hanging plants were best photographed in their pots, hanging from a cord across the room, in front of the background; this meant long waiting for the flowering plant to find its level. For backgrounds it was found that nature papers were all that could be desired. The various shades of greys and browns were the most useful.

As regards plates, the lecturer was a firm believer in orthochromatic plates; they were absolutely essential for flower photography. It was advised to cut the bloom overnight if one desired to get the best results, and after arranging them to let them stand for a short time before making the exposure. Only by this means could one be sure of not having movement in the result. Flowers always tended to turn to the light, even after they had been cut for some time. Another point was to handle the blooms as little as possible; by no means should any attempt be made to force them into a strained position.

The lecture was illustrated by means of about a hundred and twenty slides, and a most hearty vote of thanks was accorded to Mrs. Human.

COLOUR CINEMATOGRAPHY.—It is only when the sun shines brightly that "Kinemacolor," or the art of bioscoping animated scenes in the actual tints of Nature, is practicable. Thus, when the fine weather came, three weeks ago, Mr. Charles Urban at once sent out his camera-men, and on Wednesday last Mr. Alfred Butt, as holder of the exclusive exhibition rights in London, introduced several new military and rural subjects, and particularly some remarkable views of the Alpes Maritimes, into the programme at the Palace Theatre. Usually regarded as a winter subject, the Alps of plashing waterfalls and snow-capped mountains sparkling in the sun provide new charms to unaccustomed eyes.

Commercial & Legal Intelligence.

LOSS OF A PHOTOGRAPH.—At the Gateshead County Court, last week, Thomas Collins, miner, of Shields Row, claimed from Harris Bell, picture framer, Redheugh Terrace, Gateshead, the sum of £5 or the return of a photograph, which plaintiff had entrusted to defendant, through his agent, to be framed. Plaintiff said it was a large photograph in respect of which he claimed. It was a picture of his three brothers and sister, and was taken in South Africa and sent to him. Its loss was irreparable, as two of his brothers shown on the photograph were killed during the South African war. Defendant's canvasser was handed the picture to be framed, and it was not returned. Mr. Lambert said he could not deny that his client had received the picture, though defendant had failed to trace the photograph or the canvasser to whom it was entrusted. He submitted that its value was greatly overstated, because the court was only entitled to take into consideration its actual value, and not the sentimental value attached to it by plaintiff.—His Honour Judge Greenwell said it was difficult to fix the value of the photograph, but certainly plaintiff was entitled to something for its loss. He gave judgment for 50s., with costs.

SHOP HOURS ACT.—Amongst the ten prosecutions from March 12 to May 5, inclusive, under the Shop Hours Act, 1892-1904, reported to the London County Council this week, was a case of a photographer in the West of London, who was fined the costs of the summons, viz., 12s. 6d., for employing a young person ten hours in excess per week; for failing to exhibit a legal notice the defendant was further fined 5s. and 2s. costs.

CINEMATOGRAPH PROFITS.—Although the Biograph Theatres, Limited, was registered as recently as October 9, 1908 (to acquire the privately owned cinematograph business), it is already able to present a substantial list of theatres open and running. This is the natural result (writes the *Financial News*) of the rapidly expanding popularity of this class of business, which exactly meets the public taste for something light and pretty. The theatres at present open are:—

Theatre.	Situation.	Seating capacity, about.
1. Parkhurst	Holloway Road	560
2. Bijou	Kilburn, N.W.	160
3. Electric	Rye Lane, Peckham	450
4. Picture Palace	Wandsworth, S.W.	380
5. Picture Palace	Hornsey, N.	420

Of course, it must be understood that as these theatres are filled and emptied as often as seven or eight times daily, the real daily seating capacity is equal to the number of seats multiplied by the number of performances. The company is pursuing a progressive policy, and is opening on the 24th inst. a theatre in Wilton Road, Victoria, with a seating capacity of 450. This building, so it is said, will be the finest and most luxurious of its kind in London. Further sites are reported as acquired at Lewisham, Clapham Junction, and Kilburn, and structural additions are being contemplated at the Holloway and Wandsworth Theatres which should increase the seating capacity of the entire group of theatres from 2,000 to 4,650. Negotiations are also understood to be proceeding for the acquisition of other convenient and suitable sites, so that it is anticipated that within a year this company will have from 15 to 20 of these theatres and halls open in and about London. The five theatres, with 2,000 seating accommodation, have for the last three months, according to the official figures, shown average receipts of £325 3s. per week, or 3s. 3d. per seat. At the same ratio 4,650 seats should give £755 12s., and as experience shows, so the company says, that the half of this amount will more than cover the working expenses, the profits, when these new theatres are opened, are calculated at about £377 per week—equal to nearly £20,000 per annum. The further sites which are being negotiated for the erection of theatres will have an additional seating accommodation for about 2,000 persons. By this means it is hoped that by the autumn another £325 gross per week should be taken, or a total of about £1,080 per week, which represents, allowing for 50 per cent working costs, a profit at the rate of £28,000 per annum. But before that period sites for the erection of other theatres will have

been acquired; so that a further upward readjustment of the figures is talked about.

The practical administration of the company is under the control of Mr. G. W. Grant, the managing director, who has had a wide experience of this class of business in America. Cinematograph pictures have been shown now for the past ten years in London at the Palace, Empire, and Alhambra, and are still attracting the same interest as at the outset.

AN APPRENTICESHIP QUESTION.—At the Epsom County Court, last week, David Knights Whittome, photographer, Sutton, claimed £75 damages against Emily Louisa Cranston, grocer, Cheam, for breach of covenant in respect of an apprenticeship indenture, dated October 26, 1907, under which defendant covenanted plaintiff that her daughter, Emily Helen Cranston, should serve plaintiff for three years, from January 1, 1908.

Mr. Addington Willis appeared for plaintiff and Mr. Robinson for defendant. Mr. Willis said that plaintiff was a photographer in a high class of business, and was photographer to the Royal Family. The breach of covenant consisted in defendant's daughter absenting herself from her master's service. Mr. Robinson stated that the defence was that her absence was due to illness. After hearing the evidence his Honour said he considered it a pity matters had reached such a stage, and at his suggestion the parties had a consultation. As a result of this, Mr. Willis said the action would be withdrawn, each side would pay its own costs, and the daughter would go back to plaintiff on the following Monday.

LEGAL NOTICES.—A dividend is to be paid in the case of Joseph Sharples (trading as the Romanus Publishing Co.), 54, Church Lane, Marple, Cheshire, photographer and publisher. Proofs should be sent to the Official Receiver, Mr. A. C. Proctor, 23, King Edward Street, Macclesfield, by June 5.

A Receiving Order, dated May 19, has been made in the case of Alfred Chapman Blades, photographer, of 50, Queen's Road, Hastings. The petition was filed by the debtor himself on the same date. He has been adjudicated bankrupt.

News and Notes.

THE RAINES SERVICE.—The 1909 "list of charges" which Messrs. Raines and Co. have just issued is more than a price list. It is a demonstration of what this enterprising firm is able to do. It has become a recognised principle of modern business that one does not go far wrong in judging a firm by its ability and discretion in advertising, an argument which may be fallacious where all advertisement help is supplied from an outside source, but is certainly true in the case of Messrs. Raines, the whole of whose advertising, stationery, etc., emanates from the management of the works itself. Therefore it is only common sense to argue back from the evident pains and trouble taken by Messrs. Raines in advertising, catalogue-making, etc. (which can be seen every week in the "B.J.," and by writing to Raines for the present list), to similar pains and trouble taken in enlarging and printing. We know that the methods are the same in the two cases, that the Raines business puts a sustained standard of quality first on its agenda, and for that reason has earned the confidence of innumerable photographers for their work in enlarging (in bromide, carbon, and platinotype), in finishing, printing, and framing. We could point to several new styles and specialties for photographers in the present list, but we prefer to let our readers study these for themselves, as they can do from the very well arranged pages. Enough that we emphasise the thoroughness and reliability of the "service" which Messrs. Raines are rendering.

PHOTOGRAPHY AT THE L.C.C.—The Establishment Committee of the London County Council report that the financial results of the year's working of the new system whereby the photographic work of the authority was undertaken by the chemical, etc., department, was satisfactory, and justified a continuation of the present methods for one year, at the end of which time permanent staff arrangements would be considered. The services of Mr. A. E. Lane at £200 with

one assistant at 35s. a week, and a boy at 12s. a week, are to be retained accordingly for another twelve months.

ROYAL PHOTOGRAPHIC SOCIETY.—Out of seven applications for admission to the Fellowship of the society the following three candidates were elected:—J. Willis Grundy, John Maddison, and George Edward Thompson.

HAROLD BAKER, LTD.—At the annual meeting of this company, held on May 1 last, a dividend of 5 per cent. was declared.

"TRAVEL AND EXPLORATION."—The June number of "Travel and Exploration" contains articles on the two chief centres of interest in Turkey during the recent crisis. Captain F. H. Shaw contributes a chatty description of Constantinople, which has left imprinted on his mind "a picture of domes and minarets, of tiny booths and horrible cripples, of squalor, filth, and—most pronounced of all memories—the ubiquitous, mangy, wholly unpleasant dogs"; while Captain Arthur F. Townshend, formerly British Military Consul at Mersina, tells the story of a journey over the Anti-Taurus from Adana, supplementing his narrative with an account of the places that figure most prominently in the reports of the recent massacres. In Captain Townshend's opinion a massacre is hardly likely in Mersina, situated as it is on the coast with a large population of foreigners, including Consuls of nearly every European Power. On a previous occasion when a massacre was feared the fellaheen inhabiting the neighbouring districts, who are not really Moslems, announced that if it took place they would come to the help of the Christians. The result was that nothing occurred. Other contributors to the number are Colonel Sir Thomas Hungerford Holdich, who discusses the work that still remains open to the explorer in Central Asia; Dr. Oscar Bongard, who accompanied the German Colonial Minister to South Africa last year, and now gives an account of the tour, in which he warmly acknowledges the courteous assistance everywhere extended to the travellers by the British authorities; Mr. A. G. Adshead, who writes from Canada in reply to a previous article in which was set forth the dark side of a British emigrant's experiences in Canada; and Mr. G. D. Abraham, who tells the story of some climbs in the Alps. There are over a dozen full-page illustrations on art paper, and a number of maps.

PHOTOGRAPHIC SURVEY AND RECORD OF SURREY.—The annual excursion of the above association to Farnham on Saturday, the 22nd inst., proved a success both from point of numbers attending and also the amount of work accomplished. The number of members putting in appearance at Waterloo allowed advantage to be taken of reduced fares and reserved carriages. Arriving in good time at Farnham, the party divided into two main groups—one going on to Waverley Abbey, Stella's Cottage, and Moor Park. The day was a tropical one, tempered by a breeze, and also a thirsty one into the bargain. A good number of plates were exposed by this contingent, numbering some fifty. The second party visited the castle, which had been placed at the disposal of the members by his lordship the Bishop of Winchester, and a good deal of work was done here, over seventy exposures being made on the exterior and interior parts of architectural portions, etc. The church and town were not so extensively done as could be wished, but as the survey secretary was accused at tea of accomplishing much useful work in recording the picturesque courtyards of the numerous inns, etc., it may be an incentive for members to take advantage and complete this phase of work, which is extremely interesting on a hot summer day, at some future period. The members and delegates represented the following societies: The Croydon Camera Club, the Croydon Natural History Society, the Geologists' Association, the Battersea Field Club, Surrey Archaeological Society, Sutton Photographic Club, Waddon Camera Club, Farnham Field Club, and the Aldershot Camera Club, who co-operated, much useful information being given by their hon. secretary, Mr. D. Morrison, to whom the association owe their thanks. The total number of exposures made in all were some 130. High tea was taken at Daracott's, 7, West Street, Farnham, at five o'clock, the catering being excellent, while Mr. Ed. A. Hale, photographer, of 25, The Borough, placed his five dark-rooms free at the disposal of the association for changing plates. Thanks are also due to the numerous residents and friends interested in the work of the survey for much useful information that was so freely given and made use of.

Correspondence.

RESTRICTIONS AT ROSTHERNE. To the Editors.

Gentlemen,—It was with some surprise that I noticed that you had been carried away with the sensational statements that have recently appeared in the Press respecting the action of Lord Egerton of Tatton, and I am sorry that my old and esteemed "Journal" should have been a party to the general clamour, for there is in this case, as in most cases, two sides to the question, and, so far as I have seen, the various papers have only given one side.

I am told by residents and tenants that Lord Egerton is a kind and considerate landlord, and a gentleman who would go out of his way to perform a kind action; that, so far from desiring to prevent the public from enjoying the beautiful country, he would make considerable sacrifice to permit of it. No action of his lordship can prevent the public from using the lanes and the highways, or from taking photographs if they wish to do so, and I am quite certain that he would be the last person to desire to do it. The beautiful park which he owns has been thrown open for years past to visitors. The reason for his lordship's action at Rostherne is, I am told, perfectly justifiable, and quite as much in the interests of his tenantry as in his own—perhaps more so—for a certain portion of those persons who have visited the village on Sundays in the past have behaved in a most unbecoming manner. They have broken down branches of trees and hedges; have harassed the cattle; have invaded the villagers' gardens and helped themselves to flowers; have been very noisy; and have sometimes molested the women folk going to or from church, and have frequently been guilty of conduct which one cannot repeat in print. I have not actually seen the objectionable conduct at Rostherne myself, but I have frequently been told about it by my friends. I have, however, witnessed it in adjoining parishes, and it is of a nature and character that makes one ashamed to think that his countrymen should be guilty of, and I am perfectly certain that you, Gentlemen, would be the last to uphold.—I am, yours faithfully,

J. BUXTON PAYNE.

Newcastle-on-Tyne,
May 21, 1909.

TRADE, PROFESSION, AND PHOTOGRAPHERS' COMPETITIVE METHODS.

To the Editors.

Gentlemen,—A short time ago you answered a query, "Whether photography was a trade or a profession." In your issue of the 30th ult. were reproduced some examples of advertisements used by photographers which smack strongly of trade, and that not a very dignified one.

In the current issue of your paper Mr. Redmond, after recounting the "unfortunate" experience of a friend, concludes with the hope that "assistants and employers will do something to prevent sweaters ruining the fair trader"; the professional element does not appear to enter into Mr. Redmond's calculation. I fear that the hope expressed by this gentleman is a forlorn one. To hope for a better state of things is delightfully easy, but to suggest any practicable means of improving the "trade" or a plan which can even give any reasonable expectation that Mr. Redmond's hope may be realised is a very difficult task.

I have been a reader of the "B.J." for over thirty-five years. I do not mean by this that I have merely been supplied with a copy. *I have read it*, so that I have had ample opportunity of observing the changes which have taken place in the photographic world during that period, and it appears to me that in attempting to answer the question, "How has photography reached its present deplorable condition?" your correspondent's query must be carefully considered.

If I remember rightly, the view indicated by you was that if and "when the point was raised in a court of law—I had almost written justice—it will probably be held that, as practised by one person, photography is a profession, as practised by another a trade." With such an established precedent I should not be inclined to quarrel, but with the decisions based upon it I am not at all sure that I and a large number of your readers would feel disposed to agree. Who or what tribunal will trace the line of demarcation? Assume for a moment that such a tribunal existed, and I see no reason why it should not, there would be no need to appeal to courts of law.

Those who claimed to rank as professionals, and could make good the claim, might be registered as such, and be entitled to append to their names the magic letters M.S.P.P. Would it materially assist their proud possessors? I think not. In many instances it would have a contrary effect, as probable patrons would anticipate higher charges. Nothing would, in my opinion, be gained by distinguishing the sheep from the goats if the goats were allowed to graze in the sheep's pastures. Only legislation can prevent them doing this, and there is not the remotest possibility of any intervention from that quarter. Nor do I see how it can be consistently asked for.

Submitting one's anatomy to the camera is not attended with any risk which can affect the subject to the prejudice of the State, and so far as I am aware, in every case where any particular class enjoys exclusive rights or privileges they have been granted (at least ostensibly) in the interest of the community at large.

A registered plumber notifies by his business card and stationery that he is such. Does this assist him? Alone it would have exactly the same effect as the photographers' M.S.P.P., *but* the powers that be step in with the fiat "only capable plumbers (of which registration is evidence) shall be employed," and the tinkers are excluded. But, as I have already said, this is not designed for the plumbers' interest, but for the welfare of the State. An incompetent plumber makes bad joints, sewage escapes, epidemic and deaths ensue, State suffers. Dentists, chemists, doctors, parsons, lawyers are all covered by the same argument, within which it is not possible to include a photographer, be he an artist in its true sense or a maker of sticky-backs at 3d. per dozen. Each class must work out its own salvation if such a thing be possible or desirable.

Without cohesion assistants and employers are equally powerless, and I should like, if I may, to express the opinion (with a faint hope that someone will enable me to alter it) that, so far from anything being done to put a stop to "sweaters ruining fair traders," that competition will become keener every day. If this competition were confined to excellence of productions, or even to lowness of price, I for one would not complain; but it is not. Competitors of a class seem to vie with each other as to who can frame the most misleading and untruthful advertisements, or who can hoodwink the public most successfully. As an example, I enclose an advertisement which appeared in our local paper, by which you will see the advertiser claimed the exclusive right, "as maker," of no less than five photographic processes, and also that "best results" could only be obtained at his studio. This art photographer a few days before the issue of this advertisement sent to the chemist for a box of plates. The messenger left them on the counter. When the "operator," who had been canvassing with 16in. by 20in., came in the art photographer had opened the package and was carefully examining the plates in broad daylight, no doubt with the object of ascertaining whether the glass was strong enough to bear the strain of receiving an impression of his original and artistic ideas. I also enclose two circulars which were issued concurrently with the advertisement, which I think you will consider unique in art photography, and should settle once and for all the question asked by your correspondent and put to the blush the feeble efforts you recently published.

A friend of mine in the medical profession once told me that before attempting to combat a disease he endeavoured to ascertain all he could of the patient's history and habits, the commencement, duration, and general symptoms of the complaint, the suspected cause, and with these data in his possession to trace the diagnostic symptoms; and, assuming that the complaint had not reached the chronic stage, to proceed to the remedy. May I, in the interest of photographers who read the "B.J.," treat photography as a patient in very poor health, on the lines suggested by my medical friend?

PLAYFAIR.

SUN IN THE STUDIO.

To the Editors.

Gentlemen,—Regarding the recent article on "Sun in the Studio," I tried tracing paper and cloth for a year or two, but abandoned both in favour of ordinary ground glass, which I keep cut in lengths of about 32in., and slip in under the ordinary glass on small wooden catches and supports. They can be put up or taken down in a few moments; never tear, are easily cleaned, and do not need renewing.

—Yours truly,

W. MACFARLANE.

339A, High Street, Cheltenham.

Answers to Correspondents.

- All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 2A, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 2A, Wellington Street, Strand, London, W.C.
- For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 2A, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

- J. Bolton, 51 and 53, Byrom Street, Deansgate, Manchester. *Photograph of an Oil Painting by Moriano Miguel: Salome, the Daughter of Herodius.*
- R. Rushton, Park Hotel, Blackpool. *Six Photographs of Views of Portuguese Earthquake: Five of Benavente and One Samora.*

SPOTS ON POSTCARDS.—I should esteem it a favour if you can tell me cause of the white spots on the enclosed postcards. These cards are treated in exactly the same way every week, in batches of about 350, but once in a while a batch will turn out as per enclosed. They are all right (to all appearances) in the final washing, and the spots appear when drying on the ferrotypes, and I should like to know the cause, so that we can guard against it in future.—E. E. E.

We are afraid it is impossible for us to do more than guess, particularly as you do not give us any idea of the source or quality of the cards. If you are paying a low price for the cards it is likely that you will experience occasional bad batches. Any maker can make good emulsion at times; the excellence of the best makers consists in maintaining a high quality all the time.

COPYING BY REVERSAL.—I have just tried to make a negative from a negative by the same process as the reversal of the plate in the Autochrome process. I obtained a good contact positive first. I then rinsed for 30 seconds and placed in a reversing solution, and took out into daylight. In the first case the image vanished (almost) in about 60 seconds; in the second case it began doing so in about the same time. I took out, rinsed, and re-developed in daylight, but got nothing. Where was I wrong? How can the Autochrome process be used for making a negative from a negative?—S. H. C.

The Autochrome method is not suited to ordinary plates. It can only be used when the film is very thin. For other methods see "B.J." for October 23, 1908.

BAS-RELIEFS.—I should feel much obliged if you would kindly inform me if there is a process for producing bas-relief portraits by photography, such as could be cast in plaster or wax, and if such a thing has ever been produced commercially. I have offered to me the patent rights of a process for producing these, and the specimens shown me are fairly high in relief, said to be produced by photographic means. The invention comes from abroad, and it is supposed to be original; but as I have a vague recollection of something of the kind being produced a few years ago I should be much obliged if you could tell me if I am correct or not, and if such a process, if existing, is a patent.—READER.

You are quite right. There is no novelty in bas-relief portraits produced by photography. Several methods of making them have been patented and described in past years, but they have not proved of any commercial value. We believe the Baese patent process is being commercially worked with success, but we know of no other.

DYES FOR COLLODION.—A matter which is arousing much interest in Great Britain is the introduction of dyes (presumably aniline) for slide colouring. Unvarnished dry plate slides present no difficulty. But wet plate slides do. In fact, one may say it is practically impossible to use these dyes on them. Could you kindly say what medium should be used to enable the dyes to be easily manipulated? I believe that most wet plate slide makers use a spirit varnish, and it is, therefore, necessary to bear this in mind.—JAPANALDYE.

The coal tar colours sold for tinting gelatine pictures are not suitable for colouring varnished collodion slides, as the aqueous solution does not penetrate the varnish as it does the gelatine film. Transparent oil colours are generally used for the purpose. It is possible that if coal tar colours were dissolved in alcohol they might be used, but we have not tried them. You might try coating the collodion pictures with a thin, warm solution of gelatine while wet, and tinting on the film when dry with the ordinary colours. The gelatine might absorb them, and the slides could be varnished afterwards.

BALLEY AND FLOWER.—We should recommend the Illustrations Bureau, 12, Whitefriars Street, E.C. We do not know anything of the other firm.

PROFESSIONAL.—There is no book on bromide and gaslight emulsions. The information on these subjects is somewhat jealously guarded by those who are using, and have used it, for trade purposes. You might obtain assistance by advertising for it.

BROMIDE.—We should say the card is on a collodion paper, toned by the usual gold and platinum method.

GEO. ALLEN.—Presumably you are intending to photograph in the camps during military manoeuvres, in which case you should apply to the commanding officer for permission.

N. GREEN.—It is not our business to say where specimens of work may be purchased. All we can suggest is that you apply to some printing firm, to whom you may be able to give some orders.

SHUTTER SPEEDS.—I shall be greatly obliged if you will kindly answer me the following questions. One paper has not had the courtesy to reply at all. I have an Ernemann camera, two shutter type, 9 x 12 cm., and the speed of the focal-plane shutter is marked as follows:—Spring tension 1-12, slit regulated in millimetres.

Spring.	Slit (width).	Speed.
1	50 mm.	1/25
6	50	1/40
12	50	1/50
12	40	1/65
12	30	1/90
12	20	1/130
12	15	1/180
12	10	1/260
12	5	1/520
12	2½	1/1000
12	1	1/2500

- (1) The full opening of the slit is 8 cm., the full width of the plate. What would be the speed with this slit and the spring tension 1?
- (2) How can I calculate intermediate speeds? (3) Do you think the last three speeds on the table can be anywhere near correct? There is so little difference in the width of the slit, and the tension is the same for all. Moreover, it is a very difficult matter to adjust the slit from 2½ mm. to 1 mm.; this is done by the aid of a mm. rule at the edge of the blind. (4) Is it possible to get an exposure at all through a 1 mm. slit, f/6.8 lens used? (5) What is the width of slit, say on a Goerz camera, at its shortest exposure? (6) My lens is a ——. I am informed that these lenses are not as fast as they are marked. Is this so? (7) The above lens is mounted in a Koilos shutter (bought in Germany), and the stops are marked f/4.6, 6, 12, 24, 48, 96, 192. How can a f/6.8 lens work at stop f/4.6 and f/6? When the stop marked f/4.6 is in use, it is (the iris) open at full width of lens, but as soon as you move to the next stop, f/6, the iris closes slightly. (8) Are these stops the English standard? If not, please give equivalents. (9) Which is the better for a ½-plate enlarging lantern—a 8½in. R.R. — lens, f/8, or a 7½in. — anastigmat, f/5.5?—MANCHESTERITE.

(1) We cannot estimate this without more particulars. The diameter of the light pencil, where intersected by the blind, is essential, and this, of course, depends on aperture of lens and also on distance between blind and plate. (2) See our leader of May 14. With any given tension and aperture the duration is proportional to sum of widths of slit and light pencil. (3) If one speed is correct the others should be nearly so. (4) No doubt it is possible, given enough light, but for ordinary subjects a much faster lens would be required. (5) Cannot say definitely without one at hand to measure. Usually the smallest slit is about 1-16in. to ¼in. in the average shutter. (6) The measured aperture is generally about f/7, but the lenses pass a great deal of light, and may be considered in practice to be as rapid as others of the same type: possibly more rapid than some. (7 and 8) It cannot. Are the stops marked

as you say— $f/4.6$, etc.? If marked simply 4.6, 6, 12, etc., the marking is on the Stolze system, and the numbers give the relative exposures. That is to say, No. 12 requires twice the exposure necessary with No. 6. No. 6 on this scale is equal to $f/8$, about; No. 24 is therefore $f/16$, and No. 12 is $f/11$. The Stolze scale of marking is frequently found on Continental lenses. (9) The anastigmat is, of course, preferable, on account of its greater rapidity and better connection. Both are rather short in focal length for enlarging from $\frac{1}{2}$ -plate; but if they will cover a half-plate perfectly in the camera they should serve. With this proviso the R.R. should be very serviceable, if cheapness is essential.

POLICE PHOTOGRAPHY.—I should be much obliged if you could give me any information as to the methods adopted by the police of photographing finger prints, such as marks made on furniture by burglars.—**PHOTOGRAPHER.**

See the review of the Dresden Exhibition on another page. One section in the review deals with this subject.

CORRECTION OF OVER-EXPOSURE.—In the Colonial Number, March 26, on pages 229-230, you give a formula for rectifying over-exposure. Enclosed are two negatives, one being given five seconds' exposure, which is about right, the other forty seconds. My difficulty is that the latter still appears insufficiently fixed, though in the hypo bath an hour. Is this whitish appearance harmless? I may say the hypo bath contained a small quantity of potass metabisulphite.

—**EXPERIMENT.**

The negative is quite fixed. The fog only shows that the developer was not quite enough restrained. Possibly the plate will print fairly well, but it could be improved by clearing with Farmer's reducer and then intensifying.

ENSYNA.—(1) Will you please say in the "B.J." whether, in your estimation, the new paper, "Ensyna," is as safe for a professional to stake his reputation on as other silver papers? And (2) how I can single transfer to opal, using a solid background, and leave a specified even border of bare opal around it.—**H. W. GAULD**, (Manitoba, Canada).

(1) Yes. We should say that prints on Ensyna are as stable as any other silver paper. (2) Simply fix a cut-out mask on the negative the shape desired, which will protect the border. It is a good plan, after the backing of the tissue has been stripped off, and the gelatine is dissolving, to wipe away with a piece of sponge the coating round the masked border. This will ensure its being perfectly white.

CARBON QUERIES.—Would you kindly enlighten me on the following? (1) What is the action of ammonia in the carbon sensitising bath? I have looked up manuals on the process, but have not come across a statement as to the why and wherefore of the ammonia. (2) Could you give the name of the brush used by carbon printers for softening down vignettes while the print is on the temporary support? (3) Would you give a formula for making adhesive tissue from ordinary tissue paper?—**R. S.**

(1) The ammonia is simply to neutralise any acid there may be in the bichromate of potash, thereby enhancing its solubility and keeping qualities. (2) An ordinary flat camel-hair brush, if any at all is used, is the best. (3) Those who supply the tissue commercially do not publish the formula they employ. However, a solution of shellac in methylated spirit will answer very well. As the tissue is sold at so low a price we think you will find it more economical to purchase than to make it.

ROE McMAHON.—We have heard that there is to be a photographic section, but inquiries both by letter and in the grounds within the past few days have failed to obtain any information about it.

MACFARLANE.—1. There is no book on the use of electric light for portraiture. 2. It is usual to have two lamps for full-length figures and groups. 3. All four are excellent lamps. 4. The use of the arc light when once it has been fitted up is a simple matter.

CINEMATOGRAPH FILMS.—1. Would you be kind enough, through the medium of your valuable journal, to give me the address of any firm from whom I could purchase dyes for cinematograph film colouring? 2. Is there any means of avoiding the shiny surface given to the emulsion side of the film after reduction by ferricyanide and hypo? I enclose a sample of same subject reduced and not reduced.—**OLD PHOTOGRAPHER.**

1. For hand-colouring you might try the Bertha dyes supplied by the Vanguard Manufacturing Company, Maidenhead. 2. No, we

do not see that it is possible to avoid this, as the reducer naturally dissolves away the silver in the upper layers of the film.

DETERIORATED FRAMES.—Will you kindly give a formula or recipe for a brilliant reviver of photo. frames, principally of oak? After I exhibit enlargements in my window the colour and brilliance of the moulding is replaced by a dry and faded appearance, and I want to be able to rub them up before dispatching to my client.

—**W. H. WARREN.**

Without knowing what the moulding has been polished or varnished with, or even if it is polished at all, it is impossible to say. If, however, it has been polished it is possible that any of the polish revivers sold at the oil shops would be useful. If the wood, say oak, has its natural surface, and has become dirty or discoloured, fine glass paper will make it look like new. If the wood was stained on its natural surface it may be rubbed down with glass paper and then restained the same colour with the wood stains sold by the oilmen. Stephens' stains are good, and there are a good variety of them. An excellent "reviver" for woodwork is made up by the Vanguard Company, and should be cheaper than any home-prepared composition.

POSTCARD REPRODUCTIONS.—Recently a certain postcard publishing house requested me to send some of my studies, with terms for "rights of reproduction." I sent a number of subjects, of which twelve were selected. I subsequently dispatched transparencies to copy from, with accompanying invoice, which was worded as follows: "To rights of reproduction, as postcards, of twelve photographs." They objected to the phrase "as postcards," and requested me to alter invoice "according to previous arrangement," meaning thereby that I was to give unlimited rights for a small fee I refused to admit that I had agreed to grant licence unconditionally, although I had responded with specimens of my work to their invitation given in general terms, and pointed out that in invoice I had only been particular in defining the rights I was selling, and, if objectionable, they had the option of rejection. They, however, refused to withdraw from their contention, and in consequence I cancelled all rights on any terms, asking them to return the transparencies. These I have not received back, nor any reply. Do you consider they would be legally entitled to reproduce my subjects, as I think the transaction was abortive?—**CYCLOPS.**

We should say that the correspondence leaves no doubt whatever that you do not accept the firm's conditions (or they do not accept yours), and therefore they have no right to reproduce the photographs.

WATER CHARGES.—My printing is done at a small private house in the suburbs. I paid the water rate for years at the usual rate for houses of this rateable value. When the Metropolitan Water Board took over the supply an inspector called and saw the premises and what they were used for, and he said that the water in future would have to be paid for by meter, as it was used for business purposes. A meter was fixed, and I now find that the water rate is rather more than three times what it used to be. Am I really legally bound to use the water by meter, as it is only a small private house?—**AQUA.**

The size of the house is of no moment. As the water is used for business purposes the Board has the power to charge according to the quantity consumed, i.e., by meter.

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SUMMARY.

M. Robert Demachy contributes a very interesting review of the Salon of the Paris Photo-Club. (P. 435.)

A further instalment of the review of the Dresden Exhibition deals chiefly with the sections of photogrammetry and photographic research. (P. 437.)

A large number of papers were read in the photographic section of the Congress of Applied Chemistry. A general report of the proceedings appears on p. 439.

A Congress of photography is to be held at Dresden from July 11 to 15. (P. 433.)

We call attention to the opportunities of shop window display which are offered by the reflex camera. (P. 434.)

Some notes on the practical methods of preparing photographic groups from separate portraits of a large number of persons appear on p. 434.

A very simple method of making portraits by double printing with natural backgrounds is described in an article by Mr. H. M. Taskard, who recommends the result as an attractive and saleable form of portrait. (P. 441.)

The parallelism of plate and object, chromium intensification, photographic copyright in America, and the question of photographers' competitive methods appear under "Correspondence." (P. 446.)

Under "Photo-Mechanical Notes" reference is made to the use of mercury-vapour lamps for process work. (P. 443.)

"COLOUR PHOTOGRAPHY" SUPPLEMENT.

The colour section proper at the Dresden Exhibition is reviewed in a short article on p. 41, but the best colour exhibits are scattered in other parts of the exhibition.

Some account of recent experiences with the "Omnicolore" plate appears on p. 42.

Dr. W. Scheffer has examined a screen-plate made by a modification of the Warner-Powrie process. He draws attention to the remarkable diffraction figures obtained when examining a bright source of light through a screen-plate. (P. 43.)

A recent note by Jan Szczepanik deals with the varnishes suitable for the protection of the Autochrome film. (P. 48.)

The use of a projection screen of metallic surface is the subject of an article by Dr. Hans Lehmann. Such a screen permits of much more brilliant projections, but the number of possible spectators is somewhat limited. (P. 44.)

EX CATHEDRA.

M. Demachy on Pictorial Photography of the Day.

The review of the Salon of the Photo-Club of Paris by M. Robert Demachy which appears on another page will be found to contain some most refreshing comments on present-day tendencies in pictorial photography. The occasions on which M. Demachy addresses himself directly to English workers are, alas! all too few, and therefore it is well that we emphasise one passage of his article, in which he laments the tendency in much work of the present day, towards strangeness of arrangement at the expense of qualities which artists in other media have held to be of first importance. We have all of us here had the opportunity of watching the hectic efforts to employ the camera in producing pictures which should possess this quality of strangeness, however else they were deficient. M. Demachy, in words of mild, perhaps amused, remonstrance, points out how many workers appear to have followed in the steps of those whose only god is pattern, certain assemblage of lines, and who have therefore put away from them perspective, tone-values, and atmosphere. Whilst so much is written glorifying these works as triumphs of art, it is comforting to hear M. Demachy's frankly declared preference for the older yet fresher and saner conceptions of art.

Photography at the Chemical Congress.

The photo-chemical section of the International Congress of Applied Chemistry held its meetings under the presidency of Sir William Abney at the Imperial Technical College, from May 28 to June 1. Among those from abroad who attended the meetings were Professor Luther, Dresden; M. Seyewetz, Lyons; M. L. P. Clerc, Paris; Professor Namias, Milan; and Herr R. Jahr, Dresden. The papers, numbering in all about thirty, touched upon many subjects. Sir William Abney, in a brief introductory address, dealt with the application of photographic methods for quantitative measurements of physical phenomena, and illustrated his suggestion that more might be done in this way by reference to measurements of fluorescence recently made by him. The results obtained by the eye agreed with those recorded by the plate, and justified the statement that when proper precautions were taken the photographic measurements could be depended upon. The other papers dealt with comparisons of developers, the preservation of sulphite solution, the latent image, plate speeds. Dr. Mees read a report on the present condition of sensitometry, Mr. A. J. Newton on etching methods, Dr. S. E. Sheppard on colour chemistry, and Mr. W. Gamble on acid resists.

A Congress of Photography at Dresden.

It is announced that an international congress of photography is to be held at Dresden from July 11 to 15, when papers relating to the more scientific branches of photo-

graphy will be read. Among those who have promised to take part in this congress are Dr. Miethe, Professor Dolezal, Professor Schaum, Dr. von Röhr, Professor Namias, Dr. Panconelli, and others. The time of the congress is one very convenient for paying a visit to the Dresden Exhibition, and doubtless those who may think of going to Dresden will be glad to make their visit the opportunity of meeting with many of the leading personages in photography on the Continent. The arrangements for the congress are in the hands of Dr. H. Weisz, 27, Winkelmannstrasse, Dresden.

* * *

The Reflex Camera in the Shop Window.

From all we hear, the reflex type of camera is proving a very ready seller even at the prices which must be paid for the least expensive instruments. In conversation with the head of a leading firm of general dealers the other day we were told that their sales in reflexes represented the larger part of their business in hand-cameras, and that we can well believe, seeing that the advantages of the reflex are now so widely appreciated. Whether the possible business to be done in reflexes is as clearly recognised by the dealer may perhaps be doubted, and our object in now writing is to pass on a suggestion of our Berlin contemporary "Photographische Industrie," to the effect that much more could be done by the dealer in the way of window demonstrations of the facilities provided by the reflex type of camera. It would not be difficult to arrange a camera so that the full-size focussed image on the ground glass could be seen from the street, whilst the accuracy obtainable with the reflex in arranging and focussing the subject equally lends itself to demonstration by means of an exhibition of negative and enlargement side by side. We believe that among purchasers and users of hand-cameras there is a general feeling of dissatisfaction with the cheaper descriptions of camera, and the dealer may therefore be well advised in taking steps to turn the preferences of his customers reflexwards.

* * *

Chromium Intensification.

Mr. Edgar Simpson, writing again on this subject in our correspondence columns, makes several comments with regard to the conditions that govern the intensification obtained, but it occurs to us that some of his suggestions are made in ignorance of the results obtained some time ago by Messrs. Piper and Carnegie. These investigators pointed out that the most important controlling factor is the proportion of acid present in the bleaching solution, and that Eder's original formula (which Mr. Simpson appears to use) was not adjusted to give the most powerful effect. For general use they advocated a solution containing 10 grs. bichromate and 5 minims hydrochloric acid to the ounce, while the most powerful intensifier of practical service contained 5 grs. bichromate and only 1 minim acid to the ounce. They also pointed out that the product of bleaching is developable without exposure, and that redevelopment could be retarded or prevented by an excessive exposure. This, however, applies only to the exposure prior to redevelopment. If the plate is only exposed during development the retarding effect does not occur. The effect of over-washing, we hope, will be explained shortly, for we understand that work bearing upon it has recently been carried out. The effect of the composition of the redeveloper is rather mysterious. Some developers certainly seem to give greater density than others, but it is still doubtful if this is not simply a matter of time of development. Amidol seems to be one of the best redevelopers and hydroquinone one of the most ineffective. In some recent work we, however, found Rytol used in twice the ordinary strength for negatives give very good results indeed. There

seems to be no doubt that the intensification depends to some extent on the nature of the original image. It seems probable that this affects the second cause of intensification pointed out by Messrs. Piper and Carnegie—that is, the increase in bulk of the silver particles due to the retention of undeveloped silver compounds.

BUILT-UP GROUP PHOTOGRAPHS.

The following article is suggested by a query which a correspondent sends up this week, instead of replying to which in the usual column, we may deal with it here, inasmuch as what will be said may be of service to other readers as well as to our inquirer. The latter wishes to produce a group containing the principal members of an important club in his district similar to one he has seen of leading members of the Royal College of Surgeons with the hall of the college as a background. We happen to remember this particular picture very well, as we do several others of a similar type, though we cannot say much in their favour so far as their artistic merits are concerned. They are sometimes termed "patchwork" pictures, and that is by no means an inappropriate name for them. Some of them contain most glaring incongruities. In some one sees a figure lighted from one side, while the one next is illumined from exactly the opposite direction. The figures, in many cases, are looking in all manner of different directions, and the poses of some are little short of ludicrous in reference to the *tout ensemble* of the picture. In most instances these incongruities are due to the fact that the portraits had to be obtained from quite different sources and were not specially taken for the work.

Incongruities in this class of picture are not entirely confined to photography, for we have in mind as we write two or three paintings from which expensive engravings have been produced in which they prevail. One in particular is the well-known picture of the "Waterloo Banquet," in which the late Duke of Wellington is depicted as addressing the guests, not one of whom are looking in the direction of their host, while the larger proportion have their backs to him. Another is one of a cricket match, in which the persons in the foreground, representing the leading cricketers of the period, all have their backs toward the players, and are seen not to be taking the slightest interest in the game. The main interest in pictures of this type is the portraits and nothing more. Our readers are quite familiar with similar productions of more modern date than those referred to, and they are not less incongruous. However, without saying more from the art side of these pictures, we shall now give a few hints as to how they are produced.

We will now consider the type of the photograph mentioned by our correspondent, and what will be said will apply to such works generally. In the first place, a suitable background is required, usually some scene which the persons depicted are intimately associated with. A sketch of good size is made, or a photograph of it is taken and enlarged, say to thirty inches or larger, for it is well to have it on as large a scale as convenient. In making this enlargement, or sketch, some attention must be paid to the size of the portraits to be stuck upon it, so as to get as fairly good perspective as possible in the circumstances. In making the background from a natural scene or building, it is well to take the photograph in a very subdued light, so that there are no pronounced shadows from any particular direction, as then it will the better blend with portraits which may be lighted from different directions. The enlargement should be somewhat dark, and if it is a little fogged so much the better, as the details should not be strongly pronounced, or

they will detract from the portraits. It is then mounted on stout cardboard. If the portraits are taken expressly with a view to the production of the picture, they can, of course, be all lighted one way, and then the work is comparatively plain sailing. However, we shall assume that, as is usually the case, prints from different sources have to be utilised. If they can be obtained unmounted so much the better; if not they must be soaked off their mounts.

The next step is the arrangement of the figures in their best positions. In this no definite instructions can be given, as all must depend upon the nature of the picture and the number of persons to be included. In any case, the most important personages should be given the most conspicuous positions, such as in the foreground or centre of the picture. It is a good plan to arrange the portraits roughly on the background picture and see the effect. In arranging them, attention should be paid to their size. If they have been obtained from various sources some may happen to be larger or smaller than others. In this event the larger ones should be placed nearest to the foreground and the smaller behind them, as their faults in perspective will be less conspicuous. In all cases a good amount of foreground should be left in front of the figures.

When the arrangement has been decided upon, the portraits should be numbered on the back and similar numbers put on the places they are to occupy in the finished group. The next thing is to rearrange the figures neatly in their final places and secure them, temporarily, there with a touch or two of indiarubber solution in the centres, leaving the edges loose and free. Then, when all are fixed, the overlapping portions of the portrait pictures are cut clean through down to the mount with a sharp pen-knife, and the pieces set free removed. In doing this part of the work, judgment must be used as to where the cuts are made. If it can be avoided they should not be

close round the head, but a little of the background of each included. When all the portraits are trimmed, they are taken off and the adherent rubber removed, and that is easily done by lightly rolling it off with the finger. The prints are then ready for final mounting on the background, and if the trimming has been neatly done they will fit together like the parts of a child's dissecting puzzle, and the numbers on the back will be a guide as to their relative positions.

As a mountant, one should be employed with as little water in it as possible, so as to avoid any undue expansion of the paper. Very thick starch paste is suitable if it is applied thinly, and the print is quickly got in its place and at once well rubbed down. When the whole of the prints have been mounted, should any fine lines be seen at the junctions they must be touched out with water-colour. The picture is then rolled or hot-pressed, when all will be flat and even. The picture is then ready for copying to the size or sizes desired.

It will probably be found, when the portraits have been obtained from different sources, that in the reproduced negative they are not all of equal printing density, arising from their not all being of the same tone or depth in printing. In that case the thinner ones must be backed up with one or more thicknesses of thin mineral paper, so that they equalise with the others; or matt varnish, tinted or not as occasion may require, may be applied to the back of the plate and then scraped away round the edges of that particular figure.

As we have already said, pictures of this kind can never be looked upon as being in any way artistic productions. Yet they sometimes prove tolerably remunerative to the producer, and that is the object he may be assumed to have in view when spending the time generally required for these productions.

THE PARIS PHOTO-CLUB SALON.

EXACTLY 479 pictures have just been shown at the Cercle Volney, in whose beautiful gallery the Paris Photo-Club has found for its annual salon what we have reason to believe will be a permanent home. The room is all that can be desired. It has been expressly built for the club exhibitions of oil paintings and water colours, and is also used for theatrical purposes; a well-fitted stage occupies one end of the gallery. As in past years, the aspect of the exhibition would be quite excellent if the jury had not accepted so many pictures. Three hundred frames would have allowed the hanging committee to give proper spacing. As it is the walls are crowded. Yet more than half of the pictures sent in have been rejected. But the Photo-Club committee is responsible for a hundred or more pictures brought in by invitation—thirty pictures by the Photo-Secessionists, six by Mr. Arbuthnot, six by Mrs. Barton, five by Mr. Mortimer, two by Mr. Job, six by Mr. Keighley, etc., etc. It was a wise as well as a courteous step to take, but this outside contingent added to the number passed by the jury has made up a rather big total.

If one has the patience to examine the large number of pictures sent in by the French photographers a very marked advance will be noticed at once. The sympathies of the French, who, as a rule, use the Rawlins process and the "dépouillement" papers such as the Fresson and Aitigne, lean without doubt towards classical composition and classical rendering of Nature. No low-toned pictures like those of Mr. Keighley, for example, will be found amongst their work. There will be instead a long scale of gradation, sometimes extending from pure white to pure

black. And it is for this reason that platinotype, bromide and similar processes have been abandoned over here in favour of those methods by which extreme notes can be secured without necessary loss of intermediate gradation. The results are not always successful, but the same may be said of many of the pictures shown at the Grand Palais. At any rate, there are no glaring faults nowadays, and no exasperating cocksuredness. The French are trying to learn, and many of them are learning, with true modesty, what we photographers have to be taught before our work can be taken seriously. Amongst the best contributions on the French panels we notice those by Major Puyo, MM. Michaud, du Breuil, de Montgermont, de Singly, Ch. Thermitte (the younger son of the famous painter), Hachette, Le Bégue, Manry, Mussel, etc. All these gentlemen, with the exception of M. Le Bégue, have shown oil prints.

Belgium is well represented by M. Misonne and Dr. Cardyn. Hungary by M. Féliédi and M. Haranghy Gyorgy. Holland by M. de Jonge, Portugal by Mme. de Magalhaës, Spain by M. Ramiro, Germany by Mlle. Malda Schönberg; Denmark by M. Louis Schow, Russia by Dr. Vlodimir Kirchner: to the English well-known names already mentioned we will add those of Mr. Crooke, Mr. Warburg, and Miss Warburg. The level of the English pictorialists is always high, and Mr. Arbuthnot's work enlivens the gravity of the British school with a dash of American pick-me-up, which is not without flavour.

The Photo-Secessionists have sent thirty-four pictures, which have been hung together round the leader, Mr. Steichen. Mr. Steichen's big frames are black and his prints, also dark, are

mounted on dark grey paper. His followers have chosen light mounts, and the effect of this close companionship is not such as the hanging committee would have preferred. But the rules of the association are most stringent, and we have followed them obediently.

Mr. Steichen's style is well known, and his six pictures are excellent examples of his original talent. I inadvertently used the word *followers* just now when I mentioned the relationship between Mr. Steichen and the Photo-Secessionists. The term is ill-chosen, for though Mr. Steichen and the Secessionists now belong to the same creed—that of pure and uncorrected photography—their methods and their results differ. For if Mr. Steichen shows manifest personality, the twenty-eight platinum prints that frame his central panel seem, on the contrary, to have been printed by one and the same operator, though they are the children of nine different authors.

In most of these there is an absolute disregard—or is it contempt?—for those qualities which are considered of paramount importance by artists in other mediums—so absolute indeed that some of the pictures require a certain amount of study before it is possible to understand the relative positions of the objects therein suggested. But one notices amongst this representative collection a general and hopeful effort towards originality of composition. Perhaps the effort is too noticeable in some cases, while in others all important factors have been sacrificed to pure strangeness of arrangement. Still, the American school is very young, and it will no doubt outgrow the exuberance natural to its youth.

Has the Photo-Secession been influenced by a certain school of painting, whose disciples aim solely at the production of decorative patterns, whose ideal is the Persian rug design, and

which stoops rarely to portraiture because the human frame is too common for its taste? So much so that values and atmosphere are put aside so as to produce absolutely flat patterns, retaining only the projected form of natural objects on one plane. Such methods of rendering Nature are far removed from the French conception of art—so far removed that I suppose that my opinion on the subject is unfairly biased. Yet I must say that I prefer the old-time methods used by certain unsophisticated artists, who have been dead a long time, it is true, but who have left a name behind them.

For the first time Autochrome transparencies have been admitted to the Photo-Club Salon. A hundred plates of different sizes, ranging from 18 by 24 cm. down to 6½ by 9 are shown at the Volney, and this well-chosen collection has attracted universal attention. The Volney Club is mainly composed of painters, and the verdict of the community on Autochrome work promised to be interesting. Unhappily it has not been by any means favourable. On the side of the lay public, visitors are interested, astonished and often enthusiastic, but their enthusiasm goes towards glaring colours, the two or three plates which have found some favour with the painters being overlooked by them. On the whole the result is rather discouraging for autochromy—from an artistic point of view. Artists complain of a general untruthfulness in the rendering of colour, and particularly of the absence of necessary touches of complementary colours in the shadows, which they say are of the same colour as the lighter portions. They find no vibration, no life in the colours, though vivid, probably because of the monotony of the colour areas. This unfavourable verdict has been quite unanimous on the part of the painters, as far as I have been able to ascertain.

ROBERT DEMACHY.

THE DRESDEN EXHIBITION.

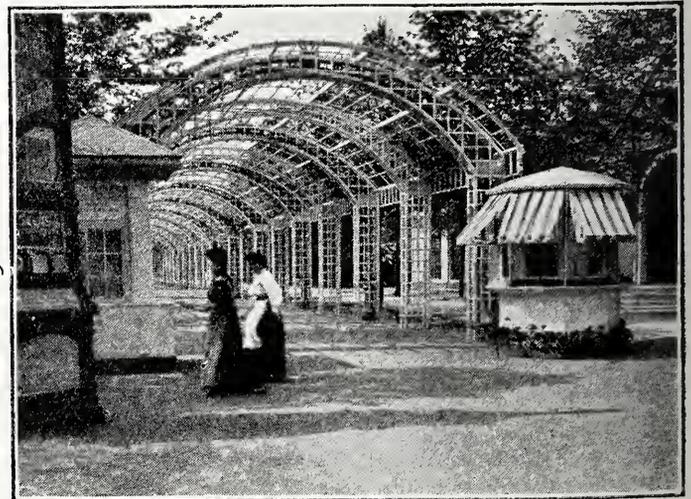
II.

In accompaniment of a further article reviewing the International Photographic Exhibition at Dresden, some few words ought to be said of the attractions of Dresden other than those photographic ones which, during the present summer, are pro-

colony than any other town in Germany. Few towns of its size can offer the resident a similar area of streets planted with trees, and set on either side with villas or blocks of flats standing in garden grounds. We say "streets," because these verdant



The Entrance to the Cinematograph Theatre in the Exhibition.



A Main Avenue of the Exhibition Grounds.

minently advertised on the electric cars in the Saxon capital. Dresden is emphatically a comfortable and pleasant place of residence. Without the grandeur of Berlin or the commercial bustle of Frankfort-on-Main, it has attracted a larger English

thoroughfares branch off in all directions in the very centre of the town. A walk of some ten minutes from the latter takes the visitor to the Royal Palace in the heart of the old part of the town, close to which are the world-famed picture galleries

and the picturesque Bruhl Terrace, a lofty promenade overlooking the Elbe, which here runs through a somewhat deep valley, on the heights of which are many picturesque resorts. Apart from the exhibition, a couple of days can be quite profitably

spent in seeing things in Dresden which rank with the chief treasures of London or Paris. There are plenty of good hotels and a greater number of pensions than are usually to be found in German towns.

THE SCIENTIFIC AND TECHNICAL SECTIONS.—II.

Photo Surveying and Measurement.

In this section a most complete collection of exhibits illustrating the application of photography to the measurement of buildings, districts, heights, distances, etc., has been brought together by Professor E. Dolezal, of the Vienna Imperial Technical School, and Editor of the "Archiv für Photogrammetrie." Professor Dolezal has drawn largely upon his own collections, and his arrangement of the exhibits, and also of the entries in the catalogue in historical order, makes this section of especial value. As Dr. Dolezal points out in a brief introduction, the methods by which, with the aid of a lens of known focal length, the measurement of natural objects and distances may be carried out, are now of increasing importance. The surveyor uses them, particularly in countries which it is difficult to traverse; the topographer of mountains employs them; they are of value to the architect; they are used by the meteorologist in determining the height, speed, and direction of clouds, whilst extensive use is made of them in navigation and for military purposes. The development of stereo-photogrammetry has still further widened the sphere of this important branch of applied photography. One of the earliest examples of photogrammetric practice is that of Colonel Laussedat (No. 367-3), of the village of Buc, made in the year 1860, which shows the front and side elevation of a church obtained from the photographic negative taken in perspective. An early example of a complete panoramic record is that of Chevallier, of the Castle of Pierrefonds (No. 367-4). With this instrument an image in the shape of a narrow ring was obtained round a somewhat large central disc. A further example of the early French work is that made by Javary and Galibardy, in which the map of a whole valley was prepared from photographs made from three separate stations. Among the drawings of instruments representing the French photogrammetric methods are those of the cameras of Laussedat and Javary, Chevallier, Mangin, and Rousson, with the cylinder of Moessard, the photo-theodolite of Gautier, and the photo-tachymeter of Mailhat, of Paris (No. 367-6).

In illustration of the development of photogrammetric methods in Italy, the drawings of instruments shown by Professor Dolezal include a diagram of Porro's panoramic camera, Salmoiraghi's photo-theodolite, and a photograph of Rocha's photo-theodolite.

The exhibit of the Royal Institute for photogrammetric work in Berlin (Königl. Messbildanstalt) contains some interesting examples of the work which has been carried on for many years past by Dr. Meydenbauer in the way of recording in the most exhaustive manner the chief buildings and monuments in Prussia. The special instruments for this purpose are made in the workshops of the Institute, the photographs being taken on plates 40 x 40 cm., 30 x 30 cm., or 20 x 20 cm. Since the establishment of the Institute 13,000 exposures have been made of about 1,100 buildings in 231 different places. The negatives are taken with three specific purposes: (1) for the making of draughtsmen's plans of the building; (2) for the recording of architectural details on a larger scale; and (3) of preparing ordinary perspective views which, when considerably enlarged, are suitable for wall decorations and for educational purposes. The examples shown of these three branches of work carried out by the Institute include as subjects the Town Hall of Bremen, for the record of which 96 negatives were made, 40 x 40 cm.

The drawings shown of the German photogrammetric instruments include those of Gust Heyde (Dresden), Breithaupt

and Son (Cassel), Wiechert, constructed for cloud photography, Schilling (made by Gunther and Tegetmeyer, Brunswick), Professor C. Koppe, as used in German East Africa, in addition to those of Dr. Schlichter (made by L. Tesdorpf, of Stuttgart), and of Professor Meydenbauer, Professor Laas.

Drawings are also shown of the stereo-photogrammetric outfits constructed by Messrs. Carl Zeiss for various expeditions: among the instruments being the well-known "Stereo-Comparator."

Among the exhibits of the Austrian society for photogrammetry, Vienna, are several frames showing plans obtained by exposures made from a balloon, the photographs representing the various views being embodied in the plan of the district thus obtained. Among other Austrian work are two examples of the method used by Jaffé, of Vienna, for the making of panoramic photographs of interiors of buildings. Two negatives are taken, each at a narrow angle, and combined together to form a panoramic photograph of the building, the result being much more satisfactory than that obtained by taking the same amount of subject with a wide-angle lens. (375.)

Professor Dolezal also shows prints and diagrams illustrating the method of measuring the speed and direction of movement of a cloud by taking two negatives one within a short interval after the other, the conditions being so arranged that the reflection of the cloud in water is used for the computation (No. 369-19). In another set of photographs and diagrams a somewhat similar method of recording the height and direction of movement at two successive exposures is obtained by including in the negative the shadow of the cloud (No. 369-48). Professor Dolezal's collection of drawings and photographs of the Austrian photogrammetric instruments include those of S. Starke, Dr. A. Schell, Colonel Harth (all of which are made by Starke and Kammerer, of Vienna), Baron von Hübl, Dr. Dokulil (made by R. and A. Rost, of Vienna). Other instruments are the meteorograph of Dr. Rheden (made by Ressel, Vienna), the photo-theodolite of Pollak and of Steiner (made by Lechner, Vienna), and the meteorograph of Dr. Köstersitz.

A very interesting exhibit is that of Hauptmann Scheimpflug (Nos. 376-21 to 35), which shows the reconstruction in a correct form of photographs taken at too wide an angle or with the plate tilted out of the proper position of parallelism with the vertical planes in the subject. In No. 38 of the same collection is shown the plan made of the Vienna Prater from two balloon negatives, the inclination to the horizontal of the lens axis being about 45 deg., the focal length 12 cm., and the height of the camera about 1,400 metres. The further exhibits of Scheimpflug show the making of a complete panorama from balloon negatives and the maps prepared from these latter. The only exhibit representing the work of England in photogrammetry are drawings of the instruments of Bridges-Lee, Dallmeyer, and Warren de la Rue, in addition to the stereo instruments of Fourcade (made by Troughton and Simms).

Sweden shows a few results of photogrammetric surveying, and photographs of the camera of Axel Hanbury and that of Eckholm for cloud measurements.

A small collection of actual photogrammetric instruments is exhibited, namely, those of Dr. Th. Dokulil (made by R. and A. Rost, Vienna), and that of Dr. A. Schell (made by Starke and Kammerer). Both of these are stereo instruments. There is also the Zenith camera of Schnauder (made by Toepfer of Potsdam) and the photo-theodolites of Dokulil (made by Rost),

Pollak (made by Lechner), von Hübl (made by Rost), and Koppe (made by Günther and Taegetmeyer).

Perhaps the most comprehensive series of photographs and plans showing the results of photogrammetric work are those sent by the Canadian Department of the Interior and by the Coast and Geodetic Survey of the United States. The former includes plans and photographs showing the survey of the Selkirk range carried out by Arthur Wheeler.

Research and Experiment.

In this section, arranged by Herr K. W. Wolf-Czapek, are collected a number of exhibits chiefly consisting of examples of technical processes relating to emulsion-making, developers, etc., which have latterly been the subject of papers in the German photographic Press. Thus Dr. Lüppo-Cramer shows a number of illuminated transparencies made with emulsions of various silver salts. That prepared with silver cyanide gives a fine blue-black positive transparency of great vigour which suits the subject—an Alpine scene. Emulsion prepared with mercuric iodide gives an image of good black tone though somewhat weak as regards density. Images are also shown in photo-chloride and photo-iodide, the former of brown colour. The photo-bromide allows of the making of direct positives on short exposure: particulars of the emulsion are announced to appear in "Photographische Korrespondenz." The transparencies on silver iodide in gelatine are of excellent brown colour, whilst those of the photo-chloride in gelatine are black, and those of silver sulphocyanide in gelatine, purple-brown. Dr. Lüppo-Cramer also shows examples of the "development" of X-ray latent-images by exposure to ordinary light. A very educative exhibit is that of Professor Luther and Dr. H. Weisz, of Dresden, showing the effect of development, intensification, and reduction on negatives of various character: in each case a positive transparency printed from the negative which has been treated gives a clear idea of the effect produced in each instance. An exhibit of Otto Mente on the production of halation in relation to the time of exposure and the thickness of the film is also interesting. Dr. Scheffer shows photo-micrographs of sections of the film of plates showing the action of various reducers and intensifiers, whilst other exhibits are those of Dr. B. Homolka relating to development with indoxyl, of Dr. E. Goldberg of apparatus for the study of the moiré effect in the half-tone process, and there are also some very interesting stereoscopic photographs of diseased eyes taken by Professor A. Elsching, of Prague. An apparatus for the testing of shutter speeds is also shown in this section by Dr. R. Birkhauser, of Berne. There were no printed particulars of the apparatus, but apparently the basis of the method is a rotating plate containing 250 perforations arranged round its edge. It would seem that the number of these apertures which is visible in a mirror when the rotating screen is viewed through the shutter affords a measure of the speed of the latter. Two large frames contain actual filters, and measurements of the amount of light transmitted thereby are shown by Dr. Karl Stockhauser and Dr. F. Schanz. They show the variations in the percentage of light transmitted ranging from 80 per cent. to 35 per cent., and include a greenish-coloured filter prepared by the exhibitors under the name of "Euphos," the percentage of light transmitted by which is stated to be from 75 to 85 per cent.

The History of Photography.

This is one of the smallest and weakest sections of the exhibition, and but for the contribution from the collection of Professor H. Krone, of Dresden, would be a very poor collection indeed. As it is there are many duplicate exhibits relating to a given process, whilst on the other hand many advances in

photography in the past are unrepresented altogether. The Imperial School of Graphic Arts in Vienna send an exhibit chiefly devoted to process work, as does also the Imperial Photographic Society, also of Vienna. The only contribution directly illustrating the share taken by England in the development of photography is that of the Autotype Company, consisting of the first carbon print and a series of portrait carbon prints of midget size made in the seventies of the last century. This section of the Dresden exhibition compares very unfavourably with the historical collection brought together at the 1898 Crystal Palace exhibition of the Royal Photographic Society.

Meteorological Photography.

Types of clouds and of lightning flashes compose the chief portion of this section. Those of the former subject by Mr. C. P. Butler are of cloud studies taken in a mountainous district of South India, and, apart from their scientific value, are pictorially interesting. Another very interesting photograph by Mr. Butler is the enlarged photograph of an exploding meteor. Types of the higher and lower clouds and of cloud movements are shown by George A. Clarke of the Aberdeen Observatory, and the cloud photographs also shown by A. G. von Obermayer, of Vienna, are excellent specimens of beautiful technical photography applied to this purpose. Sir William J. Lockyer shows photographs of "black lightning" and of various types of clouds. Of another character, but equally interesting in its way, are the photographic records of magnetic disturbances exhibited by Stoneyhurst College, Blackburn. Dr. Vaughan Cornish shows a number of his well-known photographs of wave and ripple formations in Nature. Lightning photographs are also shown by J. Howden Wilkie, Paul Georgi, and Professor Walter. Of particular interest from the meteorological standpoint are the photographic records of barometer readings, shown by Professor Toepler. The photographs show the great delicacy of the recording instrument, 130 millimetres on the print corresponding with one millimetre of pressure of the mercury barometer. Mr. John Tennant contributes a few stereoscopic photographs of clouds made with a telephoto lens, which supply a very effective idea of the size of cloud structures.

Botany, Zoology, and Anthropology.

Professor Naumann, in his introductory comments to this section in the catalogue, emphasises the great—even indispensable—services which photography renders to students of botany, and particularly in the fields of the geography and biology of plants. But, as he somewhat caustically adds, the photographs must be such as to allow the student to see, not to guess, the details of the subject. In the case of photographs showing the habitat of plants the surroundings require to be depicted in proper perspective and with satisfactory detail. A lens of long focus is usually necessary in such cases. Where the details of a plant are the subject proper of the photograph the use of a short focus lens which dwarf objects beyond the plant is indicated, and an artificial background is often desirable. Dr. Naumann puts in a plea for the use of orthochromatic methods in botanical photography. In the sub-section dealing with the physiology of plants one very interesting exhibit is a series of five photographs showing the unfolding of the night-blooming cactus, *Echinopsis Eyriesi*, by B. Haldy. H. Ritter von Guttenberg shows photo-micrographs of the organs of sense in plants. Among photographs grouped under morphology and classification of plants a very fine series is shown by the Imperial Botanic Garden, Dresden, each plant being recorded by a general view, photographs of details and photo-micrographs of parts of its structure. The Sächsischer Heimatschutz, a society for fostering local study, exhibits a comprehensive series of photographs of trees indigenous to Saxony. The flower

studies of Walter Köhler call for special mention. They are life-like reproductions taken in an ordinary room. Dr. Rodman contributes photo-micrographs of pollen and diatoms, and Arthur Smith stereoscopic photographs of diatoms.

The most interesting section is, to a photographer, that devoted to the geography of plants, the first place in which should certainly be accorded to J. Ostermaier, of Dresden, who shows a very large series of plants of Central Europe, in every case representing the subject in its natural surroundings. The series includes an interesting set of Alpine plants growing above the snow-line. In every instance there is mounted with the monochrome photograph a colour print in the shape of a multi-colour lithograph prepared by the firm of Neuke and Ostermaier. The whole exhibit is a model of its kind. As fine technical photography as any in the section is that of G. Horace Macfarland, who sends a few photographs of American plants and trees. Mr. Macfarland shows a refined taste in the mounting and lettering of his prints which is rarely to be noticed in so-called "technical exhibits." A very fine series of plants photographed in the neighbourhood of Dresden is that of J. Hartmann. In the section devoted to the diseases of plants the photographs are chiefly of great interest to botanists and horticulturists, and show the very great value of photographic records even better perhaps than do other sections.

The exhibits relating to zoology group themselves into photo-

graphs of animals and photo-micrographs of animal organs and tissues. The first group includes a great deal of work such as has been done in this country for some years, particularly in illustration of the types and habits of birds. The English workers represented are R. B. Lodge, one of whose photographs is a most realistic photograph of an eagle preying upon the dead body of a horse, and F. Martin Duncan, who exhibits a number of animal photographs, including those illustrating the protective mimicry practised by insects. J. T. Roberts shows some very good photographs illustrating the life history of the spider and frog respectively. Dr. Hutchinson contributes colour transparencies by the Sanger-Shepherd process of butterflies. The photographs of birds shown by R. A. J. M. Tepe call for special mention, as do also those of insects and reptiles by Walter Köhler. A large series of very good studies of many animals is shown by G. E. F. Schulz as transparencies. The set of coloured slides by J. Bolle, illustrating the life history of the silkworm, are highly educative, and would be more so if it had been possible to employ a method of colour photography for their production.

The anthropological section is not a large one, but contains a good deal of ethnographic interest, and more than enough to show how indispensable the camera is to the modern explorer. In several instances the quality of the work shown is much below the standard of what should be accepted in these days of dry plates and simplified photographic methods.

PHOTOGRAPHIC CHEMISTRY AT THE CHEMICAL CONGRESS.

THE meetings of the Congress of Applied Chemistry, which have been held during the past few days, have brought to South Kensington the leading authorities and investigators in every branch of technical chemistry. In the section of photo-chemistry, of which Sir William Abney was president and Mr. Chapman Jones secretary, the foreign members who attended and read papers included Professor Namias, Professor Seyewetz, Professor Luther, M. L. P. Clerc, and Herr Richard Jahr. In a brief presidential address Sir William Abney welcomed the foreign members, and expressed the hope that many of the questions relating to photo-chemistry would be helped towards a settlement by the papers and discussions. He then gave a short résumé of experiments in which photography had been applied for the measurement of the fluorescing power of certain dyes, as the result of which it could be stated that when due precautions were taken the photographic method was a reliable substitute for eye observations. The papers read on Friday, May 28, were as follows:—MM. A. and L. Lumière and A. Seyewetz, recorded the results of experiments made to compare the reducing power of the principal developers and the means afforded by them of increasing or reducing the degree of contrast in negatives. They found that as regards the rendering of faint exposures any developer of the series examined was as good as another. The bodies experimented with were pyro, hydroquinone, metol, adurol, edinol, metol-hydroquinone, metoquinone, and hydramine. Of the various methods for obtaining a lessened degree of contrast during development simple dilution with water served for all except hydramine; those least sensitive to such dilution are hydroquinone, metol-hydroquinone, metoquinone, adurol, and edinol. Addition of sulphite of soda to the extent of three volumes of 5 per cent. solution is effective for lessened contrast in the case of developers such as diamidophenol which work with alkali. The addition of further alkali for the same purpose is best applied to pyro, metol, and hydroquinone. Increased temperature leads to lessened contrast only in the case of hydroquinone and adurol, other developers showing

very little difference in this respect. In the case of all the developers the most effective means of securing greater contrast was found to be by addition of bromide. Those which best lend themselves to this means are pyro, hydroquinone, adurol, glycin, and eikonogen.

Professor Namias read a note on the advantageous addition of boric acid to the diamidophenol developer, which was thus rendered much more sensitive to the restraining action of bromide. With boric acid in the developer the time of development may be reduced to less than one-half the time which would otherwise be necessary for a given addition of bromide. The boric acid also serves to keep the developer from oxidation, and to prevent any action upon the screen.

A further paper by Professor Namias dealt with the oxidation of sulphite in solution alone or in mixed solution with developers. It was found that addition of caustic alkali retarded the oxidation of the sulphite, whilst carbonated alkalies increased the rapidity of oxidation. Bisulphite of soda was without effect. When hydroquinone was mixed with the sulphite, caustic soda was found to accelerate oxidation, carbonate of soda less so. In the case of the developers hydroquinone, glycin, and metol, it was found that both the sulphite and the developer oxidised more slowly when present together in the solution than when in separate solutions.

M. L. P. Clerc read a paper on pyramidol developer* which consists of the neutral sulphate of diparaphenylamine. The developer can be made up either with sulphite only or with a caustic alkali. When the quantity of the latter corresponds only to that necessary for the liberation of the diparaphenylamine by neutralising the sulphuric acid the development is little more rapid or energetic than when the pyramidol is used in neutral sulphite solution. When the alkali is used in quantity to saturate the hydroxyl groups a very energetic developer is obtained. A solution of pyramidol made up with dilute acetic

* Prepared by the Brugg Chemical Co., Aargau, Switzerland.

acid containing a considerable proportion of glycerine forms a physical developer suitable for the development of faintly printed P.O.P.

Professor Namias also read a short note on the use of thiocarbamide in gold-toning baths. He recommended the use of oxalic or lactic acid for use with the thiocarbamide; in place of the latter the allyl-thiocarbamide could be used, and gave an equally permanent toning bath.

Professor Namias further described a method of converting transparencies into a condition in which an image consisting of a basic dye was formed, as in the diachrome process of Dr. Traube. The developed transparency was bleached with a solution of lead ferricyanide, the bleached image consisting of the ferrocyanides of lead and silver. The latter was removed by a suitable solvent and the remaining lead ferrocyanide converted into sulphate, which latter acted as a mordant of the basic dye and could always be removed, leaving only the dyed image, by means of a bath of hypo.

The session of Friday concluded with two other papers, one by L. H. Friedburg relating to the making of prints by reflected light from an opaque original on the lines of the Playertype. The author's experiments confirmed the theory of Dr. R. A. Reiss that the action was due to the various reflective powers of the different parts of the original. A note on the action of the ammonium persulphate reducer was read by J. Hertzbergs.

On Saturday morning visits were paid by members of the Congress to the Photographic School of the Regent Street Polytechnic, where, by invitation of Mr. Howard Farmer, arrangements were made to take Autochrome portraits of the visitors, and to the L.C.C. School of Photo-Engraving, Bolt Court, where Mr. A. J. Newton had arranged for demonstrations of photo-engraving processes.

The Monday session commenced with a paper by Dr. Lüppo-Cramer describing some very interesting phenomena relating to the latent image produced by light, Röntgen and other rays. The author showed that the latent image in a gelatine emulsion plate caused by the X-rays might be developed simply by exposure to light. He had sent with his paper plates which contained such latent images, and on exposure of the naked plates to an arc light a reasonably strong image made its appearance in a few minutes.

A note on the reversal of the photographic image by Wilder D. Bancroft described experiments leading to the conclusion that when a sensitiser (reducing agent) is present in the film during exposure the increased intensity of the silver image masks the reversal. When an oxidising agent is present a check is put on the production of density and a clearer reversal is obtained.

The most interesting part of Monday's proceedings were those relating to the sensitometry of photographic plates, which subject was introduced by a paper by Dr. C. E. Kenneth Mees in the form of a report on the present methods. The author briefly reviewed past systems of measuring plate speeds from the days when plates were marked as so many times wet plate to the modern use of the H. and D., Scheiner, and other methods. He briefly described the apparatus employed for making rapid sensitometric measurements, such as were necessary for a plate factory both for ordinary and colour-sensitive plates.

A further short paper by Mr. F. F. Renwick brought forward two very interesting points relating to the accurate sensitometric measurements of plates. He showed that in the case of ordinary plates—that is, those not sold as colour-sensitive—the sensitiveness of the different parts of the spectrum might nevertheless be such as would affect the densities obtained by exposure to an artificial source of light to a very considerable extent sufficient to lead to quite misleading values of speed being obtained. A further cause of discrepancy was shown to be due to the use of intermittent exposure, such as that obtained with a sector wheel and a continuous exposure by time. The paper was offered

as a preliminary to a full account of the experiments to be published shortly.

Sir William Abney said he was very glad to find a practical photographic chemist pointing out the inaccuracy of the intermittent method of exposure. He himself had been preaching the unreliability of that method for many years. The error was particularly marked when dealing with slow plates, and he strongly emphasised the necessity of sensitometric measurements being passed upon exposure for continuous periods of time. The effect of the scatter of light in measuring densities was also a source of differences which had to be allowed for. Dr. Mees pointed out that he had made measurements of the limits within which the sector method of intermittent exposure might be made with due accuracy. Dr. S. E. Sheppard remarked that the intermittent method might become particularly inaccurate when desensitisers were present in the plate.

A further paper was read by Mr. F. W. T. Krohn, in which he suggested an international method of marking the speed of dry plates, the suggestion being the use of a description of slow, rapid, extra rapid, etc., for plates coming between certain limits of speed. Mr. Krohn's paper detailed a number of the precautions which require to be taken in obtaining comparable measurements of plate speeds. Arising out of the discussion, Sir William Abney proposed that an English committee should be formed to draw up a report of the most advisable methods of sensitometry for presentation to a forthcoming meeting of the Congress. He suggested that the Council of the Royal Photographic Society should be asked to take up the matter.

A paper on the sensitiveness of Eder's solution (of mercuric oxalate) was read by Dr. C. Winther, in which it was shown that small quantities of ferric chloride solution caused a variation of the sensitiveness from 1 up to 12,000. Other papers read during the session were on the latent image and its development by H. Reeb, the action of temperature on the sensitiveness of plates by A. Popovitsky, and on the action of sensitisers in relation to the silver bromide in emulsion plates by S. de Prokoudine-Gorsky. A note by Maximilian Toch related to the photo-chemical deterioration of oil paintings.

Tuesday's proceedings related largely to photo-mechanical work. Mr. A. J. Newton read a paper on the present methods of etching used in photo-mechanical processes, and Mr. W. Gamble on acid resists employed as a means of etching in relief and intaglio on metals and glass or in photo-lithographic processes, as also for the protection of vessels holding etching solutions. Mr. Charles W. Gamble contributed a paper on the cause of variations in the sensitiveness to light of mixtures of colloid bodies with bichromates. A paper on methods of preparing agar-agar for use in the making of photographic emulsions was given by W. F. Cooper, W. H. Nuttall, and G. A. Freak. The paper described the preparation of agar emulsions and the chemical precautions necessary in preparing them. Other papers down for reading at the morning session included one by R. M. Reichenbach on photographic films of nitro-cellulose and a note by J. Ramos suggesting a discussion of methods of photo-relief.

At the afternoon session a paper by Professor W. N. Hartley described experiments made with the object of discovering the diactinic properties of organic substances available as mounting materials for microscopic objects, and to be used as liquids for immersion lenses constructed of uviol glass or quartz. The paper gave the best solvents for a metastyrol mounting material, together with the refractive index of each for the D line, the solubility of metastyrol in each liquid, together with other data necessary for employing the liquids for high power immersion photo-micrography.

The other papers were as follows:—MM. A. and L. Lumière and A. Seyewetz read a note on the simplified method of developing Autochrome plates, and of the system to be followed in con-

nection with it for the compensation of errors of exposure; Mr. Howard Farmer gave an account of the reproduction of Autochromes by means of three-colour typographic printing, detailing the methods to be taken for securing diffusion when preparing three colour-sensation transparencies from the Autochrome. A

paper by Capt. W. J. Stomm was also on the agenda. It dealt with the various colour screen-plates now upon the market. The last paper was that by Mr. R. Vincent on a simple and effective method of preparing collodion emulsion for trichromatic process work.

STUDIO PORTRAITS WITH NATURAL BACKGROUNDS.

Not a few portraitists at the present time, more especially those at seaside and other pleasure and health resorts, are doubtless considering if there is anything in the way of novelties that they can utilise in such a way as will, either directly or indirectly, attract business to their establishments during the coming holiday season. In some places this is but of short duration, but it is really a local photographer's harvest, as very frequently during this brief period his receipts exceed the takings of all the other portion of the year put together. Therefore many will be glad of any practical hints that may be likely to increase those returns.

It has been somewhat a matter of surprise to me that photographers in places such as I have now in mind make so little use of local scenery as backgrounds to their portraits. Everyone who spends a few days' holiday away from home makes a rule of sending friends picture postcard views of the places they visit, but portraits of themselves, with the view as a background, would be far more highly appreciated. We are quite aware that some few photographers have had such backgrounds painted from photographs they have supplied, or may have painted them for themselves, but the numbers of them are not great. When this has been done the backgrounds have been limited to one or two, so that there is no great variety for sitters to select from. This has been largely due to the cost of the backgrounds, also to the fact that these painted scenes are not all that could be desired. They show that they are painted properties and nothing more—and have a stagey look.

There is, however, a quite simple method that has more than once been referred to in these columns, of producing portraits in the studio with backgrounds taken direct from nature. This, of course, is done by double printing. Now double printing is looked upon by some as being troublesome and difficult work, and requiring considerable skill in order to avoid the juncture of the two printings from showing in the finished picture. That, however, is a fallacy, at least so far as the present procedure is concerned, for if the method to be described is followed the thing is reduced to mere child's play, and can be done by the ordinary printer without any previous training being necessary. It must not be assumed that, simple as the way is, these pictures can be produced at the price of cheap postcards. It is only suitable for portraits of the better kind—say, cabinets. For such pictures considerably higher prices could be obtained beyond the usual ones—say, fifty or more per cent. The method is as follows:—

In the first place a fair stock of negatives of the different scenes that may suggest themselves to the photographer as being of interest to sitters should be obtained. The present is the best time in the whole year for securing them, as the foliage is thin and delicate in tint. In taking the views some little consideration should be given with regard to the amount of subject to be included, so that it will suitably accord with the portraits. It is well, for convenience sake, to take the background pictures on plates somewhat larger than are to be the final pictures, as then different portions can be utilised to suit the subject. Many photographers already have a good stock of negatives of local scenery which they publish. These may well be brought in for our present purpose.

In taking the negatives they should be fully exposed, as if under-exposed the shadows would be too strong and heavy in the portrait picture. In the development they should be made fairly vigorous, but not too dense, otherwise the background will appear much too pronounced. Having got our negatives, and it is well to have a good number of them so that sitters will have a good variety to select from, I will now describe the way the work is carried out.

The sitter, who should be in walking or outdoor costume, is posed in the studio, and here care must be taken that the lighting of the figure is in unison with the landscape that is to be used. It goes without saying that if the sitter were lighted from one direction and the landscape or seascape from the opposite, the thing would be little short of ludicrous. The sitter must be posed before a very light, though not white, plain, or shaded from the bottom background, and taken in the ordinary way. The reason why a quite white background should not be used will be referred to later on. A grass mat will make a suitable foreground if the background is to be a landscape or woodland scene, and one of baize will serve for a seascape.

The prints are made in the ordinary way on *albumen* or *collodium* paper, when the portrait will of course show against a very light grey background. The printed figure is then painted over with gamboge—only a very thin coating is necessary. This work does not take long, as a girl after a very little experience can do a dozen, with single figure, in less than that number of minutes. On this print the view negative is printed, and not too deeply. All the little extra work is now completed, and the print is toned and fixed in the ordinary way. In washing out the silver from the paper, before the prints are toned, the gamboge is entirely dissolved away and leaves no trace of stain behind, and toning and fixing proceed as usual. Gelatine P.O.P.'s are not suitable for the work, for the reason that the gamboge would be absorbed by the gelatine, and would, with most of them, show a yellow stain when the picture is finished. It is for these reasons that either albumen or collodium papers must be employed, as with them there is no such trouble.

It was mentioned just now that a quite white background should not be used for the sitter. If it were, the landscape, when printed, would be too pronounced as well as inartistic, and thus greatly detract from the portrait part of the picture. Furthermore the light grey tint, while subduing somewhat the force of the landscape, gives an atmosphere between the sitter and background, and conveys the idea that it is a distant scene. It goes without saying that incongruities must be avoided. Indoor furniture, for instance, would look ridiculous in a picture with a natural landscape or seascape background, though outdoor accessories, such as stiles, gates, etc., may sometimes be used with advantage, if employed with judgment.

From what has been described above it will be seen that the production of portraits in the studio with backgrounds taken direct from nature is a very simple affair, and that such pictures cost no more, beyond a slight extra trouble, than those made in the usual manner. If portraitists in such places as we have in mind were to make a feature of these pictures, and well advertise them in the locality, they would no doubt find the thing

remunerative as well as being a means of attracting attention to the studio. For these pictures much higher prices than those for ordinary portraits could be obtained, and these prices might further be enhanced by giving the customer the option of having

different backgrounds from which to select. No extra trouble is involved in producing a dozen portraits each with a different background than in making them all with one.

H. M. TASKARD.

OXALATE DEVELOPMENT FOR PAPER AND FABRICS COATED WITH IRON AND SILVER SALTS.

[In the following article, from the "Bulletin of Photography," attention is drawn to the uses of the silver-iron or Kallitype process of printing. It cannot be claimed for the oxalate developer that it is a new prescription in this process, since it is directly derived from the allied platinum process. An oxalate developer has not been used largely for Kallitype papers, and it may be doubted if it can prove more satisfactory than the mixture of borax and Rochelle salt usually employed.—Eds. "B.J."]

At the present day there are a number of different preparations of various iron salts for the coating of paper with a sensitive surface, and changing the colour of the deposit by an after-toning with the salt of some other metal. The Kallitype process and the blue print process are all capable of being varied to give different colours, or they may be toned to secure the colour desired. It is not at all certain that many of these substitution colours can be relied upon for lasting qualities, or, in other words, they cannot be considered permanent, or of even resisting the effects of the atmosphere, dampness, and light. The blue print, which consists of cyanide of iron, if kept dry, is one of the most permanent products of the iron salts.

The prints that appear to be the most fadable, made with the salts of iron, are those where the image is produced by some organic body, forming a component part of the sensitiser with the iron salt, particularly gelatine. In the case of platinum paper, the use of the iron salt is to secure such an image that, by the altered chemical condition in changing a ferric salt into a ferrous, more or less in degree, is the cause of the platinum salt, which is in combination with the iron in the sensitive coating, giving up the platinum when brought in contact with a free oxalate in solution. In this case the iron salt is employed only to produce a provisional image, and becomes eliminated in the acid clearing solution and after washings, leaving a beautiful image in platinum. In the process given here the iron salt acts in much the same way, only that an image in silver is produced instead of platinum also by development, which image can be toned before fixation in gold or platinum, or both, not only upon paper but upon such fabrics as sateen or any kind of cotton goods, but not upon silk. A photograph upon silk made according to the formula here given does not possess the brilliancy that is possessed by the same method upon sateen or any kind of cotton goods. The image upon silk appears to be sunken into the material, and a thin, washed-out appearance upon the surface. Some qualities of note-paper are well suited for this process, but the best paper is that kind that is used for photographic purposes; they can be used without any previous sizing.

Having obtained a few feet of Steinbach paper, or any other good make, cut into pieces about 8in. wide and 2ft. long, note the back of the sheets by a lead pencil mark, then prepare the following sensitising solution:—

No. 1.	
Distilled water (hot)	4 oz.
Citric acid (crystals)	1 oz.
No. 2.	
Distilled water	8 oz.
Ammonio citrate iron (green crystals)	1 oz.
No. 3.	
Distilled water (hot)	4 oz.
Nitrate of silver	1 oz.

Each of these solutions should be mixed in amber-coloured glass bottles, shake the contents well, so that the crystals all dissolve, then pour No. 1 into No. 2, shake the mixture, then add No. 3, and shake the mixture vigorously.

The mixing and using can be carried out by gaslight of feeble intensity, or an oil lamp or an incandescent electric light, if not more than sixteen candle-power. This mixture must be filtered through a tuft of absorbent cotton, pressed lightly into the neck of a glass funnel. As soon as this has been done, pour some of the solution into a glass tumbler, place the tumbler in a saucer; this will catch

any liquid that may become spilled. Lay the sheet of paper back down upon a sheet of glass, and brush the surface carefully all over, using a 2in. camel's hair brush mounted in rubber (a metal-mounted brush must not be used; it will cause the silver to precipitate in a black powdery mass). When the sheet of paper has been evenly coated it may be dried by any convenient source of heat—a gas stove is well suited—by suspending the sheets above the flame, over which is placed a piece of perforated tin plate. When dry, the paper must be coated again and suspended by the opposite end to the last coating. As soon as dry, the paper can be cut into suitable sizes and kept under pressure in a printing frame, or it may be rolled up and kept in a tin case, the same as platinum paper. The printing may be done by direct sunlight, in diffused light, or by arc light. Some sateen should be prepared and dried at the same time, and dried in just the same way, only the middle of the fabric should be sensitised, if it is intended to print a vignette or oval.

Printing the Image.

Take any suitable negative; place it in an ordinary printing frame; lay the piece of sensitive paper upon it and expose to the light. The progress of printing can be examined by a weak light just the same as ordinary printing-out paper. As soon as the print is about half done, remove it from the frame, place it aside and print a piece of fabric the same way. A test can now be made by development.

Oxalate Developer.

Dissolve in hot water the following and use it at a temperature of 160 to 180 deg. Fahr.:—

Potassium oxalate	6 oz.
Water (hot)	50 oz.
Oxalic acid	1 dram.

Place about 20oz. of this in a clean enamelled tray; keep the temperature even; then dip, without stopping, the paper print into this; development will take place instantly; a brilliant red-brown image will result. Place this into cold water; take the printed fabric, dip that into the hot developer, then, in an instant, a strong image will appear. Place this also into cold water. Print all that may be required in the same way. Develop and wash in two or three changes of water, then place the prints, two or three at a time, into an ordinary gold and borax toning bath; the quantity of gold must be only half the amount used for ordinary toning, and the older the bath the better. Watch the change of colour; only a faint change must take place. Now wash the prints in two changes of water and fix in a plain hyposulphite of soda bath, consisting of 3 oz. of hyposulphite of soda to 20 oz. of water. The fixing will be complete in five or six minutes. The prints must now be well washed and dried. They can then be trimmed for mounting, or, if the paper is very thick, allowed to remain without mounting.

The fabric will present a beautiful blue-black image, very brilliant. It will be well on the surface and half-way into the fabric. This class of print can be well dried, and will lie quite flat if squeezeed upon a ferrotype plate, or it may be wrung nearly dry and ironed between a clean folded towel or a piece of washed-out muslin, and finally by passing the warm flat iron over the surface of the print. This class of print can be washed with soap and water, rinsed in clean water, and ironed at any time. In fact, prints made upon sateen, 14 x 17 say, from a negative 11 x 14, either portrait or view, when

stitched along each side and mounted between two rollers, finished at the ends with an acorn or heavy brass-headed nail, and silk cord attached for hanging against the wall, form a fine piece of photographic tapestry, unique in appearance and novel in style, while the paper prints can be secured in colour from a deep brown to a rich violet.

The sensitising solution will keep in good working order for a year or longer, while the sateen and prepared paper will also keep good for several months if kept dry and away from actinic light.

A. J. JARMAN.

AN ARGUMENT ABOUT SHOWING PROOFS.

(A Note in "The Bulletin of Photography.")

THERE is quite a difference of opinion among photographers as to where is the better place to display proofs—whether to get the customer to come to the studio and there show them, of course; or to mail the proofs to the sitter's home. There is no question that the photographer, from an artistic point, vastly prefers the customer's presence at the studio, but there is also another matter of great importance to be reckoned with—orders. At the studio the pictures can be shown as the artist wishes them—proper order, proper light, amid proper surroundings, and, greatest of all, with suggestions and comments that, if followed, will result in a selection that will be highly creditable to the photographer. On the other hand, has a photographer the right to show proofs that, when finished, will not do him credit? We think not. He has his own interests to look after as well as those of his customers. Grant, for the sake of argument, that it is not policy to show proofs that are not satisfactory to the photographer. Then, why should he hesitate to send proofs by mail where there is no professional help to make a selection?

It is certainly less trouble for the photographer, if selection can be made without his help. There is an argument raised by some that if the selection of proofs is left in the hands of the customer's whole family—which is the case when they are sent by mail—that nobody is suited, and the only result is a resitting. If this is the case and the photographer doesn't dare show proofs without a line of talk by himself—why then, he had better close up his studio and learn a trade.

The question now narrows down—where are the larger orders coming from: home proofs or studio proofs?

At the studio the photographer may and may not, by showing the good points of several proofs, talk the customer into ordering more than he had originally intended. The chances are that if there is an increase it will be very slight. Now, let us see what happens when the proofs are sent home.

Placing proofs in the hands of the customer makes his friends and family the judges—they are not all suited with any particular one, and it takes several poses to satisfy them; and, what's more, every one of the family and all of the friends want a picture; so the customer, to keep peace, instead of ordering a single dozen of one kind, orders copies of several poses, with a grand total of, say, two dozen.

Photo-Mechanical Notes.

Mercury-Vapour Lamps in Process.

A year or two ago there was a considerable boom in mercury vapour lamps, but at that time the lamps were not so satisfactory as to make their adoption in any way economical. They have, however, latterly been much improved, particularly with regard to the glass tubes, as these can now be obtained of English manufacture of guaranteed life, and also in regard to the method of lighting. Lamps are now supplied which light merely from the switch, or have an automatic tilting device. These improvements greatly simplify the use of the lamps, and supposing they could be made of a suitable shape and on a suitable holder to stand close to the copy, they would seem to be a much more perfect form of illumination for black and white copies than arc lamps. The cost for current

is about the same when placed at the same distance as an arc, which being a point source must be some little distance away, but the mercury vapour lamps not being a point light source, and moreover, not anything like so hot as the arc, can be placed very much closer to the copy, thereby shortening the exposure. This makes them really cheaper than the arc in cost of current, and, of course, there is no expense for carbons. Provided the glasses do not break, there is practically no expense at all in running other than the current cost. We hear of one large photo-engraver in England who has adopted them throughout, and finds the saving in his electric light bill has amply justified his action. Of course, it must not be forgotten that they are absolutely unsuitable for any sort of copying except black and white, as the light consists only of narrow regions of green, blue, violet and ultra-violet, and most coloured objects copied under them would, of course, be very incorrectly rendered, so far as colour values are concerned. But black and white originals can be produced, because when an ordinary plate or wet collodion is used the only light having any effect on it is the ultra-violet, violet and blue; the black absorbs all the light to which the plate is sensitive, while the white reflects it, and therefore correct tone values will be obtained.

The L.C.C. School of Photo-Engraving.

The report of the Bolt Court School for the season 1907-8 has now been published by the London County Council, and, as in previous years, contains a large number of examples of students' work. The report of the Principal, Mr. A. J. Newton, shows that the total number of individual students was 626, as compared with 567 in the previous session. The increase is due to students in the new classes for stationers and paper-makers. Among the specimens of line and half-tone plate-making, photogravure, etc., contained in the report is one very interesting example of three-colour printing on a matt-surface non-loaded paper. This paper has been produced by Messrs. Dickenson from rag fibre of the highest class which is thoroughly washed. After bleaching to remove all perishable residues from it, a very durable paper, capable of giving a durable impression, is thus produced, whilst the lightness and agreeable surface of the paper cause one to hope that Mr. Newton and his colleagues at Bolt Court can convince the printers and publishers of the advantages of such papers on æsthetic and hygienic grounds.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents were made between May 17 and 22:—

APPARATUS.—No. 11,846. Improvements in apparatus for treating cinematograph films after exposure. Leo Kamm, 27, Powell Street, Goswell Road, London.

DRY-MOUNTING.—No. 11,872. Improvements in metal folders for use in connection with the dry-mounting of photographic prints or the like. George Wilson Morgan, 121, West George Street, Glasgow.

REFLEX CAMERAS.—No. 11,993. Improvements in or relating to photographic cameras of the type known as reflecting or reflex cameras. Arthur Lewis Adams, 24, Charing Cross Road, London.

FILMS.—No. 11,994. Improved film for use in cinematograph apparatus and the like. Austin Edwards, 23, Southampton Buildings, London.

CAMERAS.—No. 11,995. Improvements in and connected with magazine cameras for photographic purposes. Ernest Stones, Birkbeck Bank Chambers, Southampton Buildings, London.

SHUTTERS.—No. 12,105. Improvements in focal-plane shutters for photographic cameras. Herbert George Chessher, trading as Tella Camera Co., 51, Basinghall Street, London.

DEVELOPMENT.—No. 12,120. Means for determining the relative times of development of photographic plates or films for different

temperatures. Alfred Watkins, Birkbeck Bank Chambers, Southampton Buildings, London.

CINEMATOGRAPHS.—No. 12,141. Improvements relating to cinematographs. Charles West, 9, Warwick Court, Gray's Inn, London.

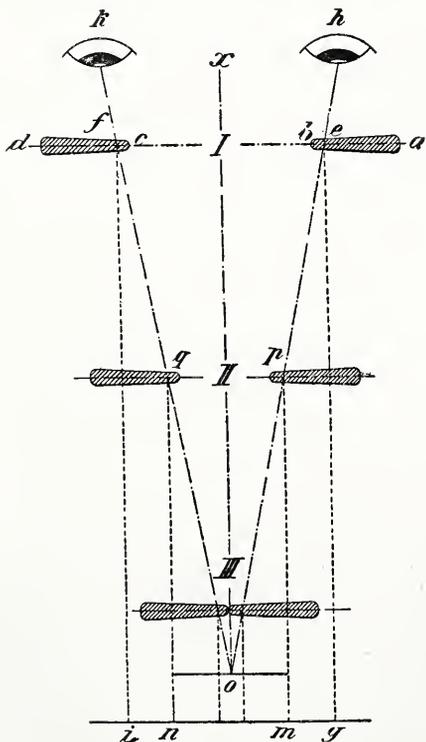
COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

STEREOSCOPES.—No. 9,507, 1908 (May 1, 1908). The invention relates to a stereoscope in which, whilst the distance between the eyes and the picture is fixed, the eye prisms can be adjusted in various ways to the pictures alike as regards their distance from the eye and the picture and their distance from one another, enabling pictures of any size to be observed with the same stereoscope. The manner in which the prisms have to be put farther from the eyes and nearer to each other for the purpose of observing pictures which are unusually small will be seen from the following observations.

In Fig. 1 of the drawing the prism position I is that which is taken in an ordinary stereoscope with ordinary pictures. k and h are the points occupied by the eyes and $c d a b$ the prisms with the corresponding points $e f$. o is the middle point of the picture carrier, and q and i are the middle points of two stereoscopic pictures of ordinary size. The distance $q i$ is equal to the distance $e f$. The rays proceeding from q and i are refracted at e and f so



that they reach h and k , and consequently the two eyes see the points q and i at o coinciding at the point of intersection of $h e$ and $k f$. Thereby o and likewise the whole picture appears stereoscopically. If now it be desired to cause two smaller stereoscopic pictures, the middle points of which are m and n , to coincide optically, all that is necessary is to adjust the two prisms so that the points e and f take the positions p and q (prism position II.). These points p and q are the intersection points of $h o$ and $k o$ with the points m and n that are parallel to the central axis $o x$. The rays $n q$ and $m p$ are now refracted again to k and h and appear as previously to the eyes as if they came from o . Thus the double pictures again coincide.

The prism position III. is the limit to which the eye pieces can be put nearer together until they touch.

In these observations it is assumed that the distance between the picture and the eye remains the same, which is ample for practical purposes. In this manner, with a stereoscope that is arranged so that the prisms can be adjusted between the picture and the eye and with regard to their distance apart, pictures of the most varied dimensions may be observed, without the necessity of cutting them apart.

It is also desirable that the picture carrier should be somewhat adjustable, in order, as with an ordinary stereoscope, to make the pictures accessible to different long and short sight eyes. By the adjustment of the prisms between the eye and the picture, moreover, the area of vision—which represents the sum of all the rays reaching the eye through the prism framing—is reduced so that in any case nothing more than the picture itself is seen, and no more relief effect can be obtained than is due to the refractive positions of the two images. Karl Lenck, 154, Friedrichstrasse, Berlin NW 7, Germany.

New Trade Names.

MANUL.—No. 311,544. Chemical substances used in manufactures, photography, or philosophical research and anti-corrosives, but not including substitutes for camphor and not including any goods of a like kind to substitutes for camphor. Max Ullmann, Thalstrasse 16, Zwickau, Saxony, Germany, printer, March 22, 1909.

F. AND B. (DEVICE).—No. 311,726. Films bearing photographs for use in cinematographs and like apparatus. Foulsham and Banfield, Ltd., 49, Old Bond Street, London, W., Photographers, March 26, 1909.

New Books.

"Photography for the Press." By the Editors of "The Photographic Monthly." London: Dawbarn and Ward, Limited. 1s. net.

A third edition of this manual, written for the guidance of the press photographer chiefly in matters of policy and business, reaches our table. Its aim is to offer advice to those taking up illustrative photography, either seriously as a business or as a means of putting a little money in their pockets. The writers lay stress on many points in which those unversed in the ways of the press and of publishers may be in the dark, and this part of the book should thus save the beginner from many disappointments. But perhaps the most useful section is the directory of illustrated newspapers and magazines, in reference to each of which details are given as to the time up to which illustrations can be accepted, the class of print preferred, the block space usually to be filled, etc. There is also a list of agents in business to place photographs, etc., with the press. "Photography for the Press" continues to be a manual from which many useful hints may be taken.

"Photographisches Reise-Handbuch." By F. Wentzel and F. Palch. Berlin: Gustav Schmidt. 3Mks.

This is a treatise on photography exclusively from the point of view of those who use the camera as an accessory to travel or touring. The choice of apparatus is therefore advised on this basis, the authors discussing the selection of apparatus for such serious accompaniments of exploration as photogrammetry and balloon photography. The second portion of the work concerns itself with the most suitable methods in various departments of tourist photography, and with the expedients to be adopted in the development of plates and films.

"CAMERA WORK," No. XXVII., Alfred Stieglitz, New York.—We are bound to say that the last number of this pioneer magazine lacks some amount of that art and beauty which it makes such strenuous efforts to secure. It is just possible that, in the enthusiasm of the chase, as a chase, the quarry itself is overlooked at times. For example, the two "experiments" contributed by Messrs. Stieglitz and White may have been very interesting to their makers; but for the public at large they are surely of no interest of any sort. We are not told precisely the objective of

these experiments; but if mere nebulosity were the end in view, the attempt appears to have been highly promising. Of this group of work "The Torso" is by far the best. It is a nude study that was shown at the last Salon in London. The series of prints by Herbert G. French have that rich quality that seems to be the birth-right of any print capable of being reproduced in photogravure. American photography is characterised either by light and airy nothingness or else by an all-over hopeless blackness through which a glimmer of an image struggles to the front. Mr. French's are in the latter category. Granted this inherent characteristic, however, they may be pronounced in excellent taste and possessing much charm of design. The letterpress gives nothing out of the way this time except an amusing tirade against American Indifference, by Benjamin De Casseras. This might have been written by a Britisher, but for the fact that no Englishman would give himself such licence of expression in a book making claims to refinement.

Dew Apparatus, &c.

A Stand for Specimen Prints. Made by Houghtons Ltd., 88-89, High Holborn, London, W.C.

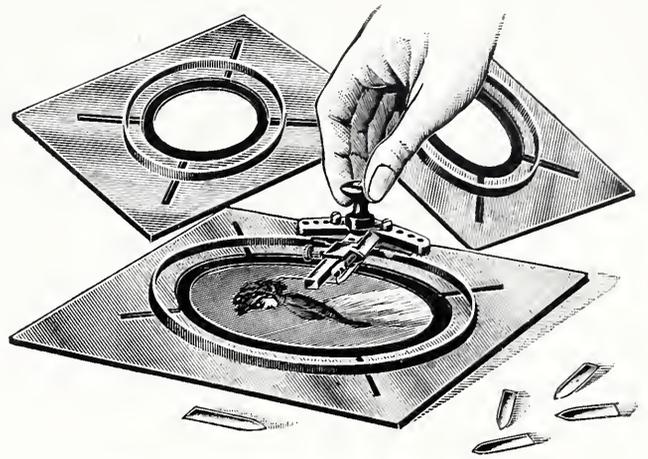
A portfolio, which is also a handsome article of furniture, is now being supplied by Messrs. Houghtons, of the design shown in the drawing. The stand is made in oak, and takes a set of boards, each 24 x 20 inches, thus allowing of the display of a large number of prints without the necessity of overcrowding. The stand measures about 2ft. 3in. in width by about 3ft. 6in. in height, the top folding flat



when the apparatus has to be put on one side. Mounted on castors, so that it is readily moved into any part of the reception-room, the stand should prove a profitable investment, since it allows customers to inspect the photographer's work for themselves; in fact, the open construction of the portfolio provides a temptation to turn over the contents, which the majority of persons cannot resist. The price is £22s., that of suitable art mounting boards, 24 x 20 inches, being 6s. a dozen.

A TRIMMER FOR CIRCLES AND OVALS.—An apparatus for trimming prints to oval or circular shape is now being introduced to photographers by the Adhesive Dry Mounting Company, Ltd., 27 and 28, Fetter Lane, E.C. The apparatus consists of a series of metal plates,

on which is a raised rim. On this moves the carrier of the cutting knife, the travel of which can be modified so as to give ovals of various shapes and sizes. The apparatus is strongly made, and



should provide a ready means of trimming prints to the now popular oval shape, a description of print which has largely superseded the circle in photographic portraiture.

CATALOGUES AND TRADE NOTICES.

CAMERAS, TRIPODS, ETC.—The catalogue just issued by the Camera Construction Co., Eagle Works, Durham Grove, Hackney, London, N.E., is one of particular interest to the professional photographer for the reason that it is mainly devoted to cameras, repeating backs, and other apparatus for studio use which are the actual manufacture of the company. Studio cameras are made in several patterns at remarkably moderate prices; studio stands figure also in some considerable variety, and among other apparatus of interest are the firm's enlarging easels, background stands, and rapid bromide printer. The list is very fully illustrated with actual half-tone reproductions of photographs of the company's specialties.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

SATURDAY, JUNE 5.

Edinburgh Photographic Society. Ramble to East Linton.
United Stereoscopic Society. Outing to Cobham.

MONDAY, JUNE 7.

Southampton Camera Club. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.

TUESDAY, JUNE 8.

Royal Photographic Society. Ordinary Meeting.
Hackney Photographic Society. "Portraiture." C. Wille. Council Meeting.
Kinning Park Co-operative Camera Club (Govan). Club Meeting.

SOUTHAMPTON CAMERA CLUB.—Mr. C. M. Cooper gave a lecture and practical demonstration on making enlarged prints before the above society last week, in the course of which he recommended the use of a negative of medium density which would not only give good gradation in the enlargement, but also minimise the exposure in making the prints. As regards focussing, he advocated an open aperture in the lens of the enlarging lantern, and also, if possible, to have the film side of the negative nearest the illuminant owing to getting sharper detail in the resultant print. To obtain the correct exposure, the use of a trial strip of bromide paper was suggested upon which various exposures could be made, and the largest stop should be inserted in the lens. He then demonstrated the use of the club's enlarging apparatus and fully described its use. Several excellent prints were made and developed. The demonstration was excellent, and many useful and practical hints given. A vote of thanks to Mr. Cooper brought an interesting evening to a close.

Commercial & Legal Intelligence

OBSTRUCTING A FACTORY INSPECTOR.—Charles Dereske, photographer, of East Street, Derby, was fined 10s., and ordered to pay the costs, £1, for obstructing Mr. F. J. Parkes, H.M. Inspector of Factories, in the execution of his duty. Defendant pleaded guilty. The Inspector said he visited the defendant's premises on March 22, with an assistant, and asked to be allowed to see the workroom. Defendant declined to admit them or to answer any questions. He (witness) had visited some 50,000 factories and workshops during his official experience, but had never been so contemptuously treated before. Defendant said he had been in business since 1880, and had never understood he came under the Factory Act. He had nothing to conceal.

NEW COMPANIES.

PERFECTO FILMOGRAPH COMPANY, LTD.—Capital £100, in £1 shares. Objects: To carry on the business of manufacturers of photographic materials and apparatus, and of apparatus for exhibiting pictures, music-hall and theatre proprietors, etc. Private company. Registered office, 10, Market Street, Chorley, Lancs.

Correspondence.

*** We do not undertake responsibility for the opinions expressed by our correspondents.*

*** Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

CHROMIUM INTENSIFICATION.

To the Editors.

Gentlemen,—Referring to my previous letter and to your note this week on chromium intensification, from observation of various plates intensified by this means, I think the degree of insolation the plate has received (exposure) has also a considerable influence on the amount of intensification obtainable, and also the steepness of gradation. I have no means of accurately measuring the densities, but for those who have the problem should have some interest. It is not improbable that some similar effect (I do not refer to chemical action) takes place within certain limits in intensification, as in printing in gum bichromate.

An over-exposed and rather flat negative, such as would yield a good gum print when intensified by this process, would yield a vigorous negative suitable for silver printing. It will, however, be noted that the low densities (corresponding to the shadows) have only been slightly intensified, and the high-lights have been very considerably built up. It will be noted that in the considerably over-exposed negatives greater intensification has been obtained, but the steepness of the gradation seems less than in previous cases (this I have judged by appearance and not by measurement), and that after a certain point the half-tones in the high-lights become clogged and are not distinguishable from the high-lights.

I have not been able to obtain any appreciable, or, I might say useful, intensification, with under-exposed negatives. The films (kodoid) do not seem to be affected in the same way as plates (Lomberg, Agfa, Chromo, Isola, and Wratten panchromatic).

All my experiments were made with a bleaching solution of the same strength (Eder's formula), and I did not vary the amount of bichromate in the bleaching solution. I therefore came to the conclusion that the degree of intensification was limited in the first instance (1) by the exposure the plate had received; (2) by the amount of washing after bleaching; (3) on the composition of the re-developer; (4) the manner and composition of the first development may have some influence; (5) that the gradation or steepness depended on the amount of exposure. I have obtained this constantly during these last four years, and the results appeared to be from the same cause in every instance.

I may note that the reducing was always done in the dark-room, and the re-development commenced there also, but often enough con-

tinued in the light of an ordinary room, even close to the windows, without any apparent difference being noticeable, though I have never made any experiment to test this. If, however, the action of the light does stop development it might be a useful means of stopping the intensification at a given point.—Yours truly,

Rue des Alpes, La Tour-de-Peilz.

EDGAR SIMPSON.

May 29, 1909.

[We refer to this letter under "Ex Cathedra."—Eds. "B.J."]

PARALLELISM OF PLATE AND OBJECT.

To the Editors.

Gentlemen,—I was much interested in your articles on "Parallelism." The method I use is as follows:—On the focussing screen is drawn a small circle, exactly centred on the axis of the lens. On the middle of the picture to be copied I place, or have held, a mirror. When I can see the reflection of the lens in the centre of the circle I call the camera correctly placed. I should be glad if you would inform me whether this method is correct or not. Q. S.

[So far as we can see it should in theory give quite correct results, but we have tried similar methods, and have at times found great difficulty in observing the image of the reflection of the lens upon the ground glass.—Eds. "B.J."]

PHOTOGRAPHIC COPYRIGHT IN AMERICA.

To the Editors.

Gentlemen,—In your recent issue of May 7, on page 360, in an article on "Photographic Copyright," appears the following statement:—"Photographers in the United States, chiefly through the tireless energy of Mr. B. J. Falk, have secured clauses in a Bill (which becomes law on the forthcoming 1st day of July), the effect of which will be to improve in some degree the unsatisfactory state of things which has prevailed in the past—." In next column, on same page, the article further states: "Mr. Falk, who has taken on his own shoulders the burden of pressing for a full recognition of photographers' rights—."

Both these statements as they stand do a great injustice to a man who has laboured with me most untiringly, most ably, and most self-sacrificingly for fair copyright protection to the photographer.

This man is Mr. Pirie MacDonald, who, as my fellow-delegate, appointed by the Photographers' Copyright League of America, has done most important work on behalf of the photographic cause. He was not only present, but he made his presence felt, at every meeting of the Copyright Conference, convened by the Librarian of Congress, and composed of delegates representing the various interests affected by copyright, and he attended all the public hearings at Washington before the Congressional committees, who were engaged in drafting the new law. During all this period, which extended over four years, he never once shirked his duties and responsibilities as delegate, and paid no heed to the loss which his own business affairs suffered. His speeches before the Joint Senate and House Committee did much towards securing for us the benefits of the new statute.

I feel certain that you will agree with me that no fair account of the recent copyright struggles of American photography can be complete without due recognition and full credit being given to Pirie MacDonald, and in that spirit I would most respectfully ask you to mention in your esteemed Journal the facts above enumerated

—Very truly yours,

B. J. FALK.

14 and 16, West 33rd Street, New York.

May 21, 1909.

[We gladly publish Mr. Falk's letter, and we hope Mr. MacDonald will accept our expression of regret that we should have failed in acknowledging his share in the recent copyright struggle. We have so often had to refer to Mr. MacDonald in association with work for the general good of photographers that we may be sure he will acquit us in this instance of any desire to fail in justice to him.—Eds. "B.J."]

TRADE, PROFESSION, AND PHOTOGRAPHERS' COMPETITIVE METHODS.

To the Editors.

Gentlemen,—When I wrote the letter which appeared in your issue of the 21st ult., I merely intended to call the attention of those

interested to the unfair demands of a clique of sweaters and their aughty boasts.

In the current issue of your paper I see that "Playfair" has covered a big space to show in what haphazard manner he has chosen is non-de-plume, and how inconsistent he is with his own assertions.

He declares that my hope of something being done, etc., is a *forlorn one*, and proceeds to carefully consider "How photography as reached the present deplorable condition" in forty-five lines of most irrelevant matter; but he finishes the paragraph with "Each class must work out its own salvation, if such a thing be possible or desirable!"

But in order to prove how *forlorn* the hope was that I expressed he starts the next paragraph with these words: "Without cohesion assistants and employers are equally powerless," etc.; and another thirty lines of equally irrelevant matter with the forty-five mentioned above.

I will only add, for "Playfair's" benefit, that the word "trade" as, besides the synonym "commerce," also that of "craft," and if he had been true to his pseudonym he would not have attributed the first-named meaning to my statement.

In conclusion, I wish to say that if photographers' assistants would have a few conversations on the subject with intelligent bricklayers they would find out more practicable ways and means to their salvation than either I or even "Playfair" could tell them of. I hope (again) that somebody with a little influence will take the initiative to bring about the formation of a photographers' assistants' protecting league, and remain, with best wishes for the trade (profession) of photography, not the "commerce of photographs," yours every respectfully,

A. REDMOND.

4, Mildmay Grove, N.

June 1, 1909.

Answers to Correspondents.

- *All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.*
- *Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*
- *Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.*
- *For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

PHOTOGRAPHS REGISTERED:—

V. Ranford, 136, High Road, Lee, S.E. Photograph of C. W. Gardiner of Lewisham, Winner of "Evening News" Marathon Race, 1909. Photograph: Group of C. W. Gardiner, A. Fuller, and A. W. Bush.
Lander, The Cooper Art Studios, Medical Hall, High Street, Canterbury, Kent. Photograph of the Rev. S. Gee. Photograph of the Rev. T. Rae.
J. Scott, 38, St. Barnabas Road, Cambridge. Photograph of Capt. Cook's Memorial in St. Andrew's Church, Cambridge.
A. MacKenzie, 62, North Parade, Belfast. Photograph of a "Full Weight" Tea Window.

QUERIES.—(1) What focus do you recommend for cabinet busts to produce results without distortion when a good length of studio is available? (2) Is any real advantage gained by having a lens of 14in. to 18in. focus work at $f/4$ over one at $f/5.6$ for cabinet work?—A. MARSHALL.

(1) One of 14in. or 15in. will be a very suitable length, as then pleasing perspective will be obtained. (2) Yes, in the point of rapidity, but nothing more. (3) No, not a sharp and crisp image with the full aperture. If that is desired, the lens will require to be considerably stopped down.

OLD LENS.—Is a lens marked "Valantin Opten Ex Cont tre des ateliers de Mr. Lerebours, Paris," of much monetary value and use for cabinet heads? It is about 3½in. in diameter. Stops fit in front. Are these reliable?—F. NEWELL.

From the description we should say that the lens was made

some fifty or so years ago. It is impossible without examining it to express any opinion on what it will do. We may tell you, however, that it has but little market value, but it does not follow from that that it may not be a useful lens. You had better try it by taking two or three negatives, and if it answers your purpose you can get central stops fitted to it. They are better than front ones.

W. H. WARREN.—Frame-makers specially catering for photographers can supply you. See advertisements in each week's Journal.

ROBIN HOOD.—(1) As good in optical effect as others, and, of course, occupying less space. (2) Yes; the effect is the same. (4) For 12ft. picture you require a 10in. lens; for 15ft. an 8in. (5) Can be used on both types of current; the lamps are not efficient when used on current of high voltage, 200 to 250, and then afford a very constant and high power light. (6) A good anastigmat of $f/5$ or so aperture, or a portrait lens covering the lantern slide or plate.

COPYING PLANISCOPE.—Can you oblige me with a few hints as to using Griffin's copying planiscope (1½in. internal diameter of lens hood planiscope), with a No. 4 Cartridge Kodak (5 x 4)? I find a good deal of difficulty in focussing accurately when copying small pictures and preventing linear distortion.—ERTHU.

If distortion is produced it is due to the supplementary lens upsetting the corrections of the original one, and we do not see any way of preventing this effect. It is, however, probably at a minimum for some one particular scale of reduction, which you might find by trial. If you cannot secure good focus with the aid of a focussing glass and an oiled screen a similar cause may be suspected. But possibly you have forgotten to stop down the lens. You cannot expect good focus at full aperture when the focal length has been shortened by a planiscope, as the relative aperture is much increased.

SKETCH.—From your letter we do not gather the kind of picture you mean by "sketches." If you will be good enough to send us an example or a fuller description we shall no doubt be able to help you. Certainly such a bleaching method as you suggest might be used, but we do not know that it is. The best bleaching agent would be a mixture of iodine and potass cyanide, which totally removes the image.

TOP LIGHT STUDIO.—I have at my disposal a small, narrow studio, the roof of which, also one end, is wholly composed of glass, but no side light is available. Will you kindly inform me, through the medium of the "Journal," how best to compensate for this defect to give good results.—A. E. L.

Such a studio will be difficult to work in so as to obtain the best results. If it were of good size the case would be different. Without knowing the actual dimensions the only suggestion we can make is that you somewhat subdue the top light and utilise the end light to soften the shadows; also use reflecting screens for the same purpose.

VARIOUS QUERIES.—(a) Can you tell us the address of a firm of automatic machine makers who make postcard slot machines? (b) What is the quickest method of obtaining rough proofs from 12 x 10 negatives? If with a thin sheet of celluloid between bromide paper and wet negative, where can a few sheets of same be obtained (usual houses do not stock)? (c) What is the most suitable material for front of flashlight cabin? Is there any ready fireproofed translucent material on the market? (d) Can you describe method of transferring signatures to negatives so as to give name in white on finished print?—E. E. E.

(a) Most of the large dealers supply automatic printing machines for postcards. But possibly that is not what you want. We know of no machine for postcards like those used for small direct positives. (b) From Fallowfield's, Charing Cross Road. (c) We think not. However, you can make it for yourself by soaking thin muslin in a strong solution of tungstate of soda. (d) The simplest way is to use the indiarubber type letters, made for the purpose. They may be had from any of the large dealers or from Messrs. Richford, Snow Hill, E.C.

PERMANENCY.—(1) Certainly, the results are fully as permanent as those of other processes. (2) Yes, you are right in your suppositions.

PLATES AND SCREEN.—I should be much obliged if you would give me the benefit of your advice on the following subject:—(1) I am taking photographs of birds' nests and eggs, mostly situated

amongst crags; therefore there is not much foliage—i.e., green. Is it an advantage to use Wratten's panchromatic plates and screen, K 111, or will ordinary Ortho plates be satisfactory? (2) What lens do you advise for the work?—G. E. C.

(1) Such a panchromatic plate and screen are really necessary for the correct rendering of the colours of the eggs, or of many of them, though for the general work of landscape photography an orthochromatic plate and filter are sufficient. (2) A decent R.R. lens should give you much better results than those you send, though the negatives in some cases have not been sharply focussed, or the camera has not been held steady at the time of exposure. If you would give us some information as to the camera, lens, aperture, etc., we might be able to assist you further.

DEVELOPER.—Some few years ago I saw the following formula recommended in the columns of your Journal as an excellent developer for focal plane shutter: The formula was:—

A.—Pyrogallol	1 oz.
Citric acid	1 oz.
Sodium sulphite	5 ozs.
Water to make	50 ozs.
B.—Sodium carbonate	12½ ozs.
Water to make	50 ozs.

Equal parts of the two solutions to be mixed for use.

Will you kindly give me full information regarding this developer? (1) It was highly recommended as a developer, in which "all the speed of the plate was allowed to do its work." Can you recommend it for this purpose? (2) If I make up the above quantity will it keep indefinitely? I do not do a great deal of focal-plane work, and want a developer which will keep. I have been informed that the above will not keep. Please give full particulars on this point.—W. J. HUGHES.

(1) It is a good pyro-soda formula, but we should prefer to add water to it when developing exposures which have been very brief. Half strength will be better. We think you would do better with a developer of pyro and metol, say the Ilford formula given on page 857 of the "Almanac," or one of the single solution developers, such as the Ilford Company's "Certinal," with which there is less tendency to obtain harshness than with pyro. (2) The solution will certainly not keep indefinitely. It would most likely keep in good condition for a couple of months.

TONING.—Is there any chemical or chemicals that will develop or tone a pure bichromate print into a black and white, like a bromide?—F.

If by a "pure bichromate" you mean a carbon print, there is, of course, none. But cannot you make your meaning clearer?

CAXTON.—We have not heard of cases where amidol has been the cause.

A. C. TAYLOR.—So far as we know, there is not. You might apply to Mr. Cooper, at the Research Laboratory, Watford.

AMMONIA SOLUTION.—Would you kindly let us know, in the columns of the "B.J.," the amount of water which must be added to 1 oz. of ammonia, .880, so as to make the density .920?—A CONSTANT READER.

Roughly, the 1 oz. must be diluted with water to make 1½ ozs.

MILDEWED PRINT.—I have a valuable photogravure or engraving of a picture, called "Solitude," after Sir F. Leighton, which has got damp and is covered with white mildew spots all over. Will you kindly tell me in the next issue of the "B.J." how to remove or obliterate these, as the picture is useless as it is?—SHAW.

Mildew spots can sometimes be rubbed off with bread. When they cannot the print should be treated by immersion in a solution of bleaching powder, or preferably one of hypochlorite of soda (eau de Javelle). The formula for this is given in the "Almanac," p. 782. If the picture is a valuable one we should advise you to place it in the hands of a competent print restorer, as plate paper is very tender and not easily handled while wet, and it is necessary that the bleaching agent be thoroughly removed, or the paper will become very rotten in a short time.

PORTRAIT TROUBLE.—Will you be so kind as to inform me how I can obtain good portraits on light backgrounds? Hitherto I have been using dark grounds, and my lighting on these has been very good; but on the light grounds the face, hands, and figure generally appear to sink into the background, making a flat inky effect, although I have developed them up well. What I want

is to produce the flesh nearly as light as the ground so as to get a sketchy effect. At present I am using a Marion P.S. 250 plate, and it is essential that I should work at this speed, so if you can explain this difficulty I should feel so obliged.—TEXO.

As we see by your letter heading that you are a professional photographer, we should have surmised that you would have had no more difficulty in getting good results with a light background than a dark one. It is simply a question of lighting the background, and the sitter. You should bear in mind that portraits taken before a light background require quite as full, if not fuller, an exposure as when taken with a dark one; possibly you have been giving less. Slower plates than those you are using would lead to stronger contrasts, but more will depend upon the lighting.

APPRENTICESHIP.—Two years ago we took an apprentice for three years. He was to have 5s. a week for the first year, 7s. 6d. the second, and 10s. for the third. He has turned out a good hand, and knows his work well—indeed, is now of great service to us in the business. Last week he told us that unless we gave him 10s. a week more (that is, double what he is receiving now) he should leave and get a better place. On our reminding him he could not do that, as his apprenticeship would not be at an end for another year, he replied that he knew that, but in a fortnight he would be twenty-one, and then he should go unless we paid the wages he required. Will you please tell us what steps we should take under the circumstances?—J. J. and Co.

The only thing you can do is either to pay the young fellow what he demands, or to let him leave. An apprentice, however long he may be bound for, is not bound to serve after he has arrived at the age of twenty-one.

THE MARRIAGE of Dr. C. E. K. Mees to Miss Alice Crisp took place on Tuesday last at Croydon. Dr. and Mrs. Mees were the recipients of many letters and telegrams of congratulation. They left by an afternoon train for Paris en route to Switzerland.

AN ALTERATION IN OFFICE HOURS, somewhat on the lines of the much-talked-of Daylight Saving Bill, is being introduced by the C. P. Goerz Optical Works, Ltd., of 1-6, Holborn Circus. Until September 30 next, the office hours will be from 8.30 to 5 o'clock, and on Saturdays from 8.30 to 1.15; and an arrangement has also been come to by which each member of the staff will be absent one Saturday out of every four, so that he may obtain the benefit of a week-end.

PROFESSIONAL PHOTOGRAPHERS' ASSOCIATIONS OF THE U.S.A.—In reference to your printed question in a May issue of the "Journal," Mr. L. Minor Sherow, of Ossining-on-Hudson, U.S.A., writes that as he is not familiar with the workings of the British Photographers' Association, he cannot say that the American Association is of a similar character. There is a Professional Photographers' Association in America, but there is no list of the members published that he knows of. Regarding the Professional Photographers' Society of the State of New York, Mr. Sherow states that there is no printed list of the members, but he will be glad to send a list of the members to anyone desiring the same.

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SUMMARY.

We draw attention in an editorial article on page 451 to the merits and demerits of the two systems on which the great majority of reflex cameras are made, namely, that in each the mirror is raised by hand on making an exposure, and that in which a spring is used for the purpose.

In reviewing the professional photography in the Dresden Exhibition we note the notable strides made during the last few years by German professional workers. The exhibit of American professional photography is an extremely complete and interesting one, and shows the tendency to produce a uniform output of a highly finished form of photograph. (P. 453.)

Many ways in which a professional photographer, without spending a halfpenny, may make himself and his work known among the people of his town are suggested in an article, "Sociality as an Aid to Business," on page 452.

The Blackpool Bench of magistrates have ruled that photographers who make and sell photographs on the beach are pedlars and must take out a licence. (P. 465.)

A useful accessory, serving to attach cameras of the turntable pattern to a baseboard when using them for copying, etc., is described in a note on p. 460.

Mr. G. Watmough Webster describes the many useful repairs which may be done with a new commercial cement. (P. 456.)

At the R.P.S. on Tuesday evening Captain Owen Wheeler gave a most useful address on the practical methods of telephotography. An abstract of the paper and a report of the discussion which followed appear on p. 463.

A camera is now being used in America for recording the speed of motor cars. Two successive exposures are made at a known interval of time, the difference in the size of the image of the moving car serving as the basis of the measurement of speed. (P. 458.)

A correspondent draws our attention to an "outfit" for photography being sold at the price of one farthing. (P. 450.)

The photographic section of the International Exhibition now being held at Shepherd's Bush is reviewed on p. 459.

Intensification of negatives, reduction of bromide prints, and telephoto calculations appear under "Correspondence." (P. 465.)

The realistic reproduction of the texture of carpets is mentioned under "Photo-Mechanical Notes," where also a short *résumé* of the papers on process work at the recent Chemical Congress is given. (P. 458.)

A recent table by Drs. R. Luther and H. Weisz aims to give the equivalents of the various systems of plate-speed numbers. (P. 457.)

EX CATHEDRA.

Parallelism of Plates and Object.

A correspondent last week suggested another solution of the problem how to set the plate parallel to the object. He drew a circle on the focussing screen exactly centred on the axis of the lens, and then held a mirror against the object. When the reflection of the lens could be seen on the ground glass in the centre of the circle he assumed the adjustment to be correct. In commenting on this method we stated that as far as we could see it should in theory give quite correct results, but further reflection shows that in practice the result would not of necessity be quite correct. The test does not guarantee in any way that the focussing screen is absolutely at right angles to the lens axis, though it does ensure the subject being so. Therefore it does not necessarily secure parallelism between plate and subject. This suggested solution, that seems so plausible at first sight, is a good proof of the very tricky nature of the problem. A little consideration will show that the plate might be inclined very considerably from its proper position without the decentring of the lens image becoming apparent. This might be a serious source of error in the case of a centre swing adjustment to the back.

* * *

Sharp Definition in Enlarging.

Good definition in enlarging depends on several conditions beyond that of the use of a well corrected lens, but we have serious doubts as to the validity of a condition suggested by a lecturer when recently addressing a provincial camera club. According to the report, the speaker stated that sharper detail is obtained when the film side of the negative is nearest the illuminant. We can see no reason why this should be so, while there is at least one very good reason for assuming the contrary, that is the interposition of a sheet of glass not usually of the best quality between film and projecting lens. Possibly the lecturer is accustomed to place a diffuser between the light and the negative, in which case there is something to be said for his argument. Diffusion may and often does disturb definition when the diffuser is not in contact with the film, but with the ordinary lantern, in which a condenser without any diffuser is relied upon, our experience is that the lecturer's advice is wrong. Good focus depends far more than is often suspected upon the proper adjustment of the light, for the image projected upon the screen is to a certain extent an image projected by condenser and lens working together. As has been pointed out before, a beam of light projected by a condenser is subject to violent effects of spherical aberration. A proper adjustment of the light means that the projecting lens is correcting the aberration due to the condenser, and it is only when this condition is fulfilled that perfect focus is secured. Hence the necessity for careful readjustment of the light when the

scale is altered. If a negative is put into a lantern that is properly adjusted and the light is then shifted from its one right position, not only does the illumination become defective, but the definition is damaged, sometimes to a surprising extent.

* * *

Turntable Clamp.

The majority of modern cameras are now fitted with turntables, which are at times a source of great inconvenience when we do not want to use the camera on its own tripod. If, for example, we wish to fix it on a copying stand we cannot screw it down in the ordinary way with a tripod screw, neither can we very well hold it down with weights. Various elaborate devices have been put upon the market from time to time for filling up the turntable space, while sometimes a separate baseboard, with side clips to hold the camera, is used. All these contrivances are, however, clumsy, expensive to purchase, and troublesome to fit up, and of late we have got over the difficulty in a much simpler fashion. We simply took a piece of flat brass bar, long enough to fit over the baseboard of the camera, under the bellows, and in the centre of it riveted a screw boss to take a camera screw. The bar is only long enough to rest on the upper edges of the turntable ring, while the underside of the boss is nearly flush with the bottom of the turntable. The camera is put upon the support arranged to receive it. The bar is dropped in over the turntable, and then a camera screw passed through the support and screwed tightly into the boss holds everything as firm as can be wished. The contrivance fulfils its purpose perfectly, and can be carried about quite easily in the pocket.

* * *

Farthing Photography.

When some year or two ago we drew attention to the means provided for the practice of photography at a total cost of one halfpenny, we thought we had tapped the very bottom of cheapest photography. Not so: a correspondent sends us a "farthing packet," which is now sold by toy and fancy shops to children at half this price. It consists of a quarter-plate negative and two pieces of ferro-prussiate or "blue" paper, the "printing frame" being the negative itself plus two bent strips of metal by which the paper is held in contact with it. Those who have wondered what becomes of stocks of old negatives may be interested in hearing that the one in this farthing packet was evidently taken in the regular way of business. It is varnished, and bears the name of the sitter, the number 87,369, and brief particulars of the order. So far as we know, such purpose as this represents the only commercial use which is made of disused negatives, and apparently even in these remote fringes of the photographic trade the competition of the lower-priced article is being felt. In this matter some of our readers may be glad of our opinion, which is, that the higher price represents a better return for the money. We advise those in doubt not to look at the outlay, but to fix on the halfpenny outfit.

* * *

The Borders of Stereoscopic Views

A matter with regard to which there seems to be many differing opinions among stereoscopic workers is the presence of a visible border or frame around a stereoscopic view. We have often seen large views bigger than the standard size advocated on the ground that with them no portion of the mount is visible around the subject. For our own part we are inclined to think the visible border is an advantage in several ways, but admitting that there may be cases in which it may be advantageously dispensed with, a patent specification, published in our issue of June 4, offers some interesting suggestions. This patent covers a special form of stereoscope, in which

the lenses are adjustable, not only as regards their separation, but also with respect to their position between the eyes and the slide. The advantages claimed for this arrangement appear to be that small images can be more readily made to combine, though the reason for this is not stated, and that in all cases we can arrange matters so that the borders of the images are not visible. The latter effect can, however, be produced with an ordinary stereoscope by simply holding the instrument farther from the eyes and readjusting the slide until the image is sharp. The view thus obtained is bounded by the lens margins which are not in focus, and the effect appears to us to be far less pleasing than that of the clear sharp-cut margins given by the mount. So far as we can see, the method covered by the patent will give similarly indefinite boundaries and be just as unsatisfactory. We fear that if the mount is to be invisible there is no satisfactory expedient that will take the place of large pictures, but for our own part we feel no wish whatever to abolish the effect of the mount, which with proper trimming can be utilised to add greatly to the effect produced by the slide.

* * *

The Standard Photometric Unit.

It is interesting to note that America, France, and Great Britain have come to an agreement with regard to the adoption of a standard photometric unit, the one selected being the Harcourt pentane lamp, as used at the National Physical Laboratory. This involves no change on the part of the French standard, the bougie decimale, which is exactly equivalent to the pentane standard, but the American standard candle has to be reduced by 1.6 per cent. to make it agree. The German Hefner unit is equivalent to 90 per cent. of the new standard, and it is to be hoped that before long Germany and all other countries will fall into line with those that have entered into the agreement with regard to the pentane standard, which came into force on April 1, 1909. Of course, this standard applies more particularly to the gas and electric industries, and has only an indirect bearing on photographic work. Still, it is of some importance to photographers, who frequently have to employ a standard light for experimental and testing purposes.

* * *

Finding the Exposure.

A writer in a contemporary advocates a simplified method of ascertaining exposure the foundation of which is the assumption that the correct exposure for $f/22$ is equal to the time required for the meter paper to darken to a 1-16th tint. The speed of the plate is assumed to be between 180 and 200 (presumably Watkins numbers), and for very fast plates the exposure is halved, while for slow plates it is doubled. The idea, apparently, is that the amateur who is not sufficiently intelligent to be able to match two tints in the ordinary way will nevertheless be able to determine quite easily the time when the paper just begins to darken. We can hardly confirm this from personal experience, and we should much prefer to take the quarter tint. In any case, however, we do not see any advantage in the method described. If the user of the meter can ascertain the 1-16th tint or match the quarter tint, he surely must have sufficient intelligence to turn the dials and read off the exposure required. He gains little by assuming all plates of the "rapid" variety to be between 180 and 200 Watkins, for some of them are nowhere near those numbers. One "special rapid" plate, for instance, is listed as 90 only. It is not always safe to guess the speed as 180 or 200, and if the true speed is known the photographer may as well use his meter properly as not. In the absence of a meter there is, however, something to be said for another method suggested for outdoor work in fine weather: that is, to give one second at

f/32, or an equivalent exposure at any other aperture. Such a method is, of course, directly opposed to all the teachings of the meter advocates, but in the absence of any accurate knowledge it forms a very useful guide, though usually we have to modify the time a little in accordance with our previous experiences.

* * *

Storing Rain-water.

A few weeks ago a correspondent sent a query with regard to a deposit formed in a galvanised iron tank filled with rain-water. He sent us some of the deposit, which, in the dry form, is a very fine grey powder, and on analysis it appears that it consists of zinc carbonate and soot. The rain-water was therefore not quite clean, and was also strongly aerated with carbonic acid, which is generally the case. Such an action, though usual in lead tanks and pipes, is not, we believe, very common in galvanised iron tanks. At any rate, we have seen many such tanks used for rain-water which have shown no sign of the trouble. In the case of our correspondent's tank, he cleaned it thoroughly by scrubbing before use, which operation no doubt caused a fresh zinc surface to be exposed to the action of the water. In a sense the water was no doubt purified by the action of the zinc, but the deposit formed is very likely to lead to trouble in photographic work, and it would be as well to prevent it by a coat or two of good bath enamel, paint, or japan. The carbonic acid present in the water is not likely to be detrimental in any way, while the soot can be removed by filtering. It is a common mistake to suppose that rain-water is pure water. It is free from the salts that produce hardness in other waters, but carbonic acid and soot are generally contained in it, while a smoky atmosphere will often add sulphuric acid and other impurities. When it is collected for photographic purposes care should be taken to provide a proper separator that will automatically reject the first rush of water from the roof, for in this portion the greater part of the dirt is found.

SYSTEMS OF REFLEX CAMERAS.

DESPITE the very great number of types of reflex camera upon the market—and there must be in all some thirty reflector cameras—one feature may be selected as a means of dividing the instruments into two classes. This is the device by which the mirror is raised and the plate exposed. In the larger number of cases the mirror is not provided with any spring or other mechanism for automatically raising it, but, when the exposure is to be made, pressure upon the lever outside the camera first of all raises the mirror into the "up" position parallel with and close to the focussing screen, and when this has been done, actuates the shutter. We may call this the "hand" method of mirror-release in contradistinction to the second system, namely, the one used on the fewer number of more expensive instruments, the mirrors of which are provided with springs. On the shutter-release in this case being pressed, the effect is to cause the rise of the mirror and then immediately afterwards the release of the shutter. The sequence of these two operations is independent of any skill or intervention on the part of the operator; simple pressure upon the release automatically raises the mirror and releases the shutter. Those whose experience in reflex cameras is limited may be in doubt at first glance as to which of these methods is the preferable. Neither can be said to possess an unmixed advantage over the other, but a consideration of their respective merits and demerits will, we think, show the balance of advantage from the practical point of view to rest with the second or automatic method.

Obviously, as the mirror in the case of the hand adjust-

ment is not provided with any actuating spring, it falls immediately after exposure by its own weight, covering the plate again and dispensing with the necessity of re-setting. These two points are certainly of advantage since the first makes one movement the less when preparing the mirror for a second exposure, whilst the fact of the plate being automatically covered after each exposure makes impossible the accidental fogging which may be caused in reflexes of the other pattern as a result of re-setting the shutter while the mirror is still up. To set against these two advantages, however, is the fact that a certain amount of force has to be exercised in raising the mirror, and therefore the conditions are not those most favourable to making an exposure with the maximum of steadiness. Not that this matters very much when a fairly high speed of shutter is employed, say anything over 1-50th of a second, but when employing speeds of 1-5th, 1-10th, or 1-15th of a second, which are often very advisable, the greatest steadiness in holding the camera becomes a matter of importance. Even in high-speed work, the automatic method of release has this advantage, that the time between the pressing of the release and the actual making of the exposure is constant, depending not in any way upon the operator, but upon the mechanism of the camera. On the other hand, when the mirror is raised by hand, the personal equation comes in, and an operator may depress the lever more quickly at one time than another, thus tending to irregularity in obtaining a moving subject correctly on the plate.

A study of these considerations should, we think, convince those who employ a reflex either for slow or rapid work, that of the two methods the "automatic" is preferable on the whole. As has been stated, it is true that the advantage of the automatic covering of the plate after exposure is of importance in practice. In the case of some cameras with this form of release, means are taken against the accidental re-exposure of the plate by winding the shutter with the mirror "up," in the form of a locking device, which requires the mirror to be put down (shielding the plate) before the shutter can be re-wound. An alternative method of securing the same degree of safety of the plate is to make the shutter a self-capping one, so that the only time at which light passes through the blind is during the actual exposure. Some constructors of reflex cameras do not appear to have realised this particular advantage of the self-capping blind. Assuming, as we think should be done, that the method of raising the mirror by hand is less advantageous than automatic raising by spring, the particular reason for adopting the self-capping shutter should be that it provides a means of dispensing with the locking device just mentioned. With such a shutter it will not matter, as regards the safety of the plate, in what order the re-adjustment of the camera for a fresh exposure is made; the mirror may be put down first or the shutter may first be wound; in either case no light can possibly reach the plate.

There is still a further respect in which the hand-raised mirror compares disadvantageously with the mirror raised by a spring. In cases where a low point of view has to be taken (when the reflex is held in its normal position about level with the waist), it frequently happens that parts of the subject cannot be included, owing to some obstacle in the foreground. A common instance is when a view is being taken near to a row of railings, or when photographing a procession from a public stand or other place where the heads of people in front may come in the way. In such circumstances as these a camera of the reflex type may be held at arm's length above the head in an inverted position, and the picture on the ground glass examined by looking up into the hood. This gives a view-point some two feet above the level of the eyes, and allows of photographs

being taken which would be impossible by any other method. But if a camera of the type in which the mirror automatically falls after exposure is used for this purpose, it is obvious that in the inverted position the mirror will fall parallel to the ground glass—that is, into what is usually called the “up” position, and cannot be used in this way unless a special latch is provided to keep it in the normal pre-exposure state at an angle of 45 deg. to the lens axis. We believe there is at least one camera in which this automatic latch is provided, the act of raising the mirror putting the latch out of action without special intervention on the part of the operator. In the case of

the mirror raised by a spring, no such accessory means are needed, and this type of camera is one which, in this respect also, may claim to be of more universal use than that in which the mirror is raised by hand.

In the above notes we are speaking, of course, entirely from the point of view of the user of a reflex. There may be considerations of ease of manufacture which have been overlooked, but makers of reflex cameras have shown themselves so competent to deal with a variety of mechanical problems that it is not too much to say that less importance may attach to considerations of difficulty of manufacture than to those of expediency and practical usefulness.

SOCIALITY AS AN AID TO BUSINESS.

Of the personal note in professional photography not more has been written than will be. Individuality is the key of success, and nothing succeeds like it. It would be easy to show how, in one form or another, this principle of individuality permeates all human effort and achievement; but here it will be sufficient to remark the army of imitators of his work with which every master of our craft (and, indeed, of any craft) is surrounded, and almost invariably to the advantage of the master. The pupil rarely outvies the master in his own line; indeed, if the pupil excels at all it will be seen to be not in servile reproduction, but in a method of the disciple's own: restatement rather than reduplication—a step forward sometimes, but a step aside as well.

But there is another sort of personal note which, although it does not touch technics, is perhaps of even more importance to every professional photographer according to his *métier* as a business man, and that is the personality, not of the man in relation to his method of work, but of the man and his work in his relation to those to whom he looks for practical support.

Granted, for instance, that what you do not know about photography is not worth knowing, that your composition is noteworthy, that your technique is without fear or reproach, that the finished article as it reaches your discriminating clients is not less perfect than the bloom on the dainty cheeks of your expensive lady receptionist who hands it to them; I say, granted all this—and this, dear brethren, is almost too much for most of you!—how is it again, for instance, that the “Bon Accord Boudoir and Button Co.” round the corner, which metaphorically sat down at your elbow eighteen months ago—you can hide it from yourself no longer—does a trade you never did—does, in fact, a good deal of that trade which was once your own, and that will never be yours again?

I will tell you. The manager of the B.A.B.B.C., Mr. Horatio Darkslyde, is something less of a photographer than yourself, it is true, but that is not of much consequence, since you yourself are so exceptionally endowed: removed from the general rut of men, and enjoy an eminence from which you can command an uninterrupted view up and down your principal street—and hardly further. But Darkslyde, if he is less of a photographer than yourself, is also something else besides. He is (more instances) a useful tenor in the local Christchurch, he is a member of three local athletic clubs and one social, he is an enthusiastic and therefore much-sought-after mover at bazaars, he is the best Punch-and-Judy man the Mothers' Guild Waxwork Show ever had. He is, moreover, many things besides, for does he not write to the local paper on “stray cats,” “broken lamp-posts and roadways,” “the borough council”?—in short, anything, so long as he gets his name into print at least once a week. In fact, it pays him better to employ an operator, two printers, and seven lady assistants, besides receptionist, and stay out and enjoy himself, rather than to sit at home and grumble at the weather as you do.

As for yourself, do you ever go to church o' Sundays. Never. Sometimes. Often. But have you ever attended public worship as a principle of business? Will you deny that, if you always attended church, business would result? Neither one way nor another? What about that choir group you had such a hard job to prevent Darkslyde getting last year, and—shall I write it down?—that this year you never got at all? I quite understand that you consider church work should be divided evenly—that Darkslyde should have his fair share; but do not for a moment believe you are to share if you do not support the vicar. You know very well that Darkslyde got the order for all the booths at the recent bazaar. And then, what happened only last June when you wrote the vicar for a complimentary sitting? The vicar—busy man!—could not possibly spare the time—with apologies. Darkslyde, of course, got to hear of this, and, like a wise Mahomet, forthwith went to the mountain and photographed him in his vicarage study, as well as all the other members of his family, and the servants in the hall, and Rufus in his kennel, and the coach-house!

Frankly, this is scarcely exaggeration, because Darkslyde knows his business.

To be exclusive—to do the “high-art fake,” as Henley has it—requires conditions which also must be exclusive. Your style and personality must dominate your clientele to the extent of eccentricity, if need be; but dominate it it must if as a business man you are to dispense with all the social tricks which are well known to bring business. It is the old story of the purveyor of luxuries starving in his lair. The most ruinous form of self-indulgence is to ply a trade at the expense of your bile, and there is only one recipe for a full larder in these days of strenuous competition—that is, you must get out and hustle because, mind you, when it is all boiled down there is no “Bon Accord Boudoir and Button Co.” but in the social personality of Mr. Horatio Darkslyde.

In short, the successful photographer must be, and always is, something more than a photographer. Every good operator in the country will testify that to be lacking in tact and social accomplishments is to court disaster. Once under the skylight, child and adult must be humoured. For, after all, what is your objective but the choice of your sitter's expressions, not merely the most characteristic, nor necessarily the most pleasing, but a happy combination of the two; and it is far more needful for the photographer to command the social adroitness which will induce this elusive regard than for the portrait painter, who can attend to drapery when the features of his client are contrary and get busy with the expression when the opportunity offers, or at a pinch, when the sitter's back is turned, by recollection. Hence, the photographer needs to make his opportunity, where his brother of the brush can afford to wait; and in order to do this no amount of photographic technics can help, except in so far as photographic conditions must exist, not so much for the

capturing of the expression as for the subsequent practical reproduction of it once captured.

Besides, who is there who has not heard the remark: "Oh! don't go there; he is such a disagreeable man!" And what proportion of real success is there in the portraiture of the operator whose temper is uncertain? Or, at any rate, what are the prospects of a pleasing likeness commanded by the operator with a surly manner?

A model photographer's establishment should run like the front wheel of a new bicycle lubricated for the first time—that is, without a sound of the works. Everything should go as smoothly as receptionist, operator, rules, armchairs, and clean-

liness can make it. Even the till should be padded, though this will not be necessary in the case of payment by cheque.

But the effort must come from without. The man who can coax the business along through social channels is he who is going to make the money. This does not mean that photography is to be his one topic of conversation outside; on the contrary, it means that photography shall be the last theme of conversation he shall be dragged into discussing—apparently.

Finally, let your personality so irradiate your social acquaintances that they may be convinced of your good work before—and after—they see and have paid for it.

L. T. J. H.

THE DRESDEN EXHIBITION.

III.

A SERIES of twenty galleries, several of them lofty and spacious halls, accommodates the section devoted to professional photography, the chief arrangements for which have been in the hands of Professor G. Emmerich, of Munich. The division of the exhibits is into countries, and the representation of the various nations is as follows:—Germany, by 65 exhibitors; Switzerland, by 29; Holland, by 21; America, by 40; Sweden, by 7; France, by 3; Italy, by 2; Finland, by 6; Denmark, by 4; and Norway, by 1. Professor Emmerich, who cites these figures in his introduction, points out that the Austrian photographers show their work in the special Austrian house, but he goes on to say that the works of British professional photographers are shown together with those of amateurs in the amateur or pictorial section. He surely cannot have closely looked at the British amateur section, where, as a matter of fact, out of nearly a hundred pictures there are about a score by workers actually engaged in professional photography. These in every instance are the men who are in the habit of sending to exhibitions here work which in a good many instances is nothing like that which they do in their business. It was the expressed intention of the sub-committee which had charge of this section to include professional work. It has, however, included the work of the few of the professionals who are most akin to the amateur in their methods. Professional photography as practised by the most prominent members of the profession in this country is not there at all, a fact which requires to be stated, as Dr. Emmerich's note on page 135 of the catalogue may imply that it is.

German Professional Work.

At a first brief glance it is easy to see the rapid strides which portrait photographers in Germany have made during the past ten years or so. There is evidence in every direction of the production of work of a very individual character. It is easy to see that many photographers have been powerfully influenced by artists who are not photographers. Such influence was bound to make itself felt in the direction of unconventionality, for, if it is anything, German art is imaginative even to the point of the grotesque and the bizarre, terms which might be quite fitly applied to some of the professional exhibits. However, commercial considerations would appear to exercise a not unhealthy influence upon the photographers, and it is noticeable that the most extreme and unconventional work is not that of the acknowledged leaders, such as Erfurth, Grainer, Raupp, not to forget the ubiquitous Herr Dührkoop, who, let him deny it as he may, is less German than his contemporaries. But among the smaller men, those who appear to be beginners just embarking on a career of professional portraiture, one sees signs of the most positive discontent with the commercial type of photograph. That dissatisfaction in these instances takes all kinds of freak forms—of strange lightings and posings and prints of queer colour or tone—and the desire to get away as far as possible from the evidently despised "good photograph," as a middle-

class woman of forty-five would understand that term, is shown in the profound gloom of prints, which might be the most sinister productions of the gum-process. We doubted if the makers of such as these were really photographers in business for themselves, but we were assured that no amateur, or even photographer's assistant, might exhibit. We do not wish to suggest that there is a preponderance of this sort of thing: it occurs only in the cases of the smaller exhibitors, and among these may be found plenty of originality which does not run to eccentricity, and some which in its pleasing light tones and airy effects stands out among the more usually sombre scales of tones. Thus Amalie Eva Schroer, of Hamburg (No. 420), is very nice in her choice of light and dark tones, though she, like many another, apparently cannot resist the temptation to



A Group of Galleries in the Professional Section at the Dresden Exhibition.

pop in a landscape or two. Another lady photographer, Elisabeth Hecker, of Munich (No. 434), shows very versatile taste in her eleven portraits of women, dressed and undressed. Munich supplies by far the most interesting work. The work of Frau Dr. Stephanie Ludwig (No. 437) and of the brothers Lützel (No. 438) is very varied, original, and pleasing, and technically above reproach. Next to them are photographs by Ernst Müller, of Dresden (No. 438), whose portraits and landscapes show great originality. Another Dresden photographer, Bruno Wiehr (No. 442), has some notably good portraiture, among which is a portrait of Herr Karl Weiss, the general secretary of the exhibition, upon whose shoulders has fallen the bulk of the work of organisation. There being a general tendency to subdued tones, especial mention deserves to be made of two gems of brilliant indoor lighting by E. Wolleschak, of Naumburg (No.

454). One is of children in school, and the other might be called "When poverty comes in at the door, love flies out of the window."

Another exhibitor whose work reaches a high standard is Hans Bender, of Bremen (No. 455). A large number of prints, all portraits, all of a style, and all technically excellent, are shown by Max Gluer, of Oppelm (No. 445).

Between the galleries containing the above works and those in which are larger collections by individual photographers is an ornate chamber, decorated and furnished in gold, containing photographic portraits of European crowned heads, that of King Edward VII., by Mr. E. O. Hoppé, being the only one which we could not discover. Beyond the fact that the portraits are of very distinguished persons, and are very richly produced and framed, no special interest attaches to this collection.

Grainer, Dührkoop, Smith, Ruf, and Erfurth.

Of these separate collections, which are housed in the spacious alcoves radiating from a central chamber, a photograph of which is reproduced above, one comes first to that of Herr Dührkoop. There are fifty-five portraits, few of which we can remember to have seen before. The tireless Dührkoop seems to forget about the portraits of last year: he has made probably a thousand more since then, and certainly the collection—though every print is admirable—has the look of having been made up with what there was at hand at the time, which is perhaps as high a compliment as can be paid to any photographer.

The work of Herr F. Grainer, of Munich, is distinct in style from Dührkoop's. Perhaps it may be called more unconventional. In many instances a natural background is used, with very good effect. One very striking example of the photographer's liking for the uncommon is No. 9 in the series, in which a man is shown looking down into a dark space which occupies about one-third of the print. But Grainer's technique is so fine that one may pardon occasional indulgences of oddness such as this.

A much larger number of prints is shown by Frank Eugène Smith, painter and instructor in the the Photographic School at Munich, a photographer better known here and in America as Frank Eugène. They are almost all fine character portraits, mostly of artists. One of a boy standing at a door (No. 20) is one of the very best. A fair number of the prints are extraordinary considered as professional photography. They are not the best, and we should have thought more of Mr. Eugène Smith's work without the nudes, such as the studies of Adam and Eve, which he drags in at the tail-end of his collection.

Theodor Ruf, of Freiburg, exhibits less than twenty prints, but every one is technically a fine piece of work, with much expression of character in the sitter. One group—of surgeons engaged on an operation—is a triumph in its way, though no one can commend the photographer for choosing such a repulsive and gruesome subject unless for some surgical purpose.

Another large collection is that of Hugo Erfurth, of Dresden, whose work is big and powerful—qualities which it secures by sacrificing delicacy and harmony. The effort to produce something which will fairly "knock" the spectator twenty yards away seems too obvious in a large proportion of Herr Erfurth's work, clever as it undoubtedly is. It leads him to portraits in rough, brutal tones, though, from other prints done on a quieter scale, it would seem that the work actually given to the average sitter is not of so aggressive a type.

These six one-man shows complete the German professional section. Though one or two well-known names are absent, notably that of Perschied, the section demonstrates how very keenly many of the German professionals are devoting themselves to the development of their art as an art. A number, it would seem, have succeeded in proving that art can pay. But even with those who make no particular claim to be "individual," a most notably advanced standard of work is apparent.

Switzerland and Holland.

These two countries are represented by prints to the number of 131 and 72 respectively. Those of Switzerland include almost as many landscapes as portraits, which latter are not above the standard of a good studio likeness such as can be seen in almost every town. The work from Holland is scarcely more distinguished. A large proportion consists of figure studies and landscapes, the only legitimate portraiture of outstanding merit being that of P. Clausing Jun, of Haarlem.

American Professional Work.

There is no doubt that the section which will attract the English visitor most is that of the American professionals, since the names alone, Hoyt, Garo, Goldensky, Core, Pierce, Mock, Strauss, Falk, and Macdonald, are as well known to photographers in this country as in America. And interesting the large collection is, though in a different way very likely from that intended by its contributors. The 286 portraits have been brought together by Mr. Pirie Macdonald and Herr Dührkoop, the latter's acquaintance with the American workers dating back to the St. Louis Exhibition. It would seem that, without a single exception, the collection contains the work of the acknowledged leaders of portrait photography, in addition to which it shows, for the first time in Europe, portraiture by new men which bears comparison with the productions of the leaders, and in some instances possesses qualities absent from that of the best-known studios. The first thing which cannot fail to strike the student of this section is the absolute sameness of all the prints by a given exhibitor. That applies to the lighting, and to the kind of print, and to the mounting as well, and it can be observed in the case of most, though not all, of the front rank of American professionals. The style may be altogether different from that emanating from the studio a year ago; but, to judge from the photographs at Dresden, the American method is to evolve a certain form of print—as distinctive as you like—and to adjust the methods of the studio to turning out that particular form as effectively as possible. Obviously that should be a sound commercial system to work on, so long as it does not fail in retaining customers. But apparently the directors of the studios are wide awake to the necessity of changing the kind of print before the public has tired of it. In almost every instance, the American work represents a high degree of re-touching: in this, as in other respects, it is most finished and admirable, and the set of prints by each exhibitor leaves one in no doubt as to the style favoured; and the display of a dozen or more portraits all as like as pins in style creates the idea that the makers are able to reduce the details of their production to a system which turns out a product of a certain type with machine-like regularity. This is not to say that the American photographs do not show many excellent and individual features: they do, but the family resemblance between each print of one group cannot fail to impress the visitor.

The ten photographs by Mr. Dudley Hoyt are all of women, richly gowned ladies of imposing appearance—or made to look so by Mr. Hoyt. In every instance the space of the print is admirably filled by the subject. There is not an example of the dropped appearance of a figure which one often sees. One cannot suggest how much better the result would have been had a figure been so much to the one side, for the reason that the portraits admit of no improvement in the manner of accommodating the size and form of the image to that of the final print. Mr. Hoyt adopts a strong style of lighting. His prints are all large ovals with narrow oval border a little darker in tone, and around this a square-cornered tint of a little lighter tone, the whole actually printed on a white plate-marked paper.

Frank Scott Clark, of Detroit, shows photographs only of women and children, in which good use is made of dark Romneyesque backgrounds and strong lighting to show the sheen of silk skirts. The mounting is in the Cosway style.

George M. Edmondson, of Cleveland, shows five superb ex-

amples of what must be at home portraits, though very beautiful lighting has been secured. The three prints by George E. Tingley, of Mystic, Conn., are in much nicer schemes of multiple mounting than we are accustomed to see here, except from workers like Mr. F. H. Evans.

A professional worker of whom we have not previously heard is Eugene R. Hutchinson, of Chicago, whose portraits show a highly developed sense of the massing of tones. The photographs are not large, but they are as strong and full of individual character as anything in the section. Mr. Hutchinson uses diffused focus with reserve, and thus avoids the over-re-touching which most of the American photographers consider necessary. It is a pity that Mr. Hutchinson should think it well to adopt the "Photo-Secession" trade-mark of art—the round globe. He introduces it into two of his portrait studies. Both they and the others show the maker to be capable of such fine work that we should be sorry to see him stooping to these tricks of method.

The people who would appear to be favourite sitters of Mr. Elias Goldensky, of Philadelphia, are not those who are beautiful. His photographs show people of character, most of them old people, in every case drawn by Mr. Goldensky with his accustomed regard for harmonies of tone and colour.

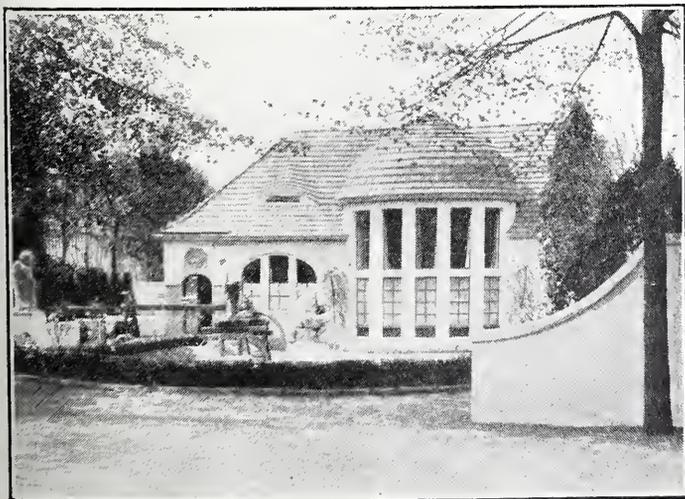
The work shown by Garo, of Boston, is quite up to the standard of this photographer. The portraits are nearly all of women, are printed in a rich sepia, and are of the superb technique as regards lighting of the face and dress, which is characteristic of this studio.

Mrs. Käsebier's five frames are quite out of the common. They are titled "A Japanese-Tissue Print," "A Gum Print," "A Bromide Print," "A Gum-Platinum Print," "A Platinum Print." This little demonstration of Mrs. Käsebier's command of these processes is at the same time a very good testimonial for the bromide process. The bromide print is of remarkably rich black tone, and reproduces the muslin and silk of the sitter's dress most admirably. Mrs. Käsebier's portrait of Mr. Alfred Stieglitz is a striking likeness.

E. B. Core ("Papa" Core to all the "boys" in New York State) shows ten of the portraits of children which have made him and his studio famous. And delightfully spontaneous they are in pose and expression. When a collection of photographs typical of the work of American studios was shown at the house of the "B.J." some time ago, Mr. Core's portraits attracted

PROFES IONAL EXHIBITS IN THE STUDIO HOUSE.

In a building specially erected in the grounds, close to that of the photographic trade, a number of exhibits of professional



The Studio House. The window to the right is that providing the light in the model studio of Herr Hugo Erfurth.

more notice than any, not only for the natural appearance of the little sitters, but for the force and strength of the prints. They were vigorous black prints, the background in which was white as a rule. All the pictures at Dresden Mr. Core has printed in sepia on a cream paper, though he gets an equally big effect.

The veteran Joseph Byron, of New York, is represented by four large prints, associating him, as ever, with flashlight photography. H. H. Pierce, of Boston, is another of the men with a very distinctive style of his own. All his portraits are in somewhat dark tones, and are mounted first with a narrow and lighter border, next to which comes a broader and much lighter band, the back mount being dark. The technical quality of the series is of the highest order, and the only criticism which can be made is that the sameness of the style becomes marked when a number are shown together.

The last remark applies with even more force to the portraits of men by Pirie Macdonald. Nearly thirty of them are hung in rows, all of panel shape, and in every case "framed close." As there are but two sizes of frame, and as the full thirty are arranged symmetrically, the impression made is not that which Mr. Macdonald's fine work deserves. In expression of character these heads of men stand by themselves in professional photography. Their author, like the volatile Dührkoop, is a man "with a way with him," a great and interesting talker, and an observer of men, one with a nice sense of humour, and powers of discovering his sitter's characteristic traits. We would like to have seen his portraits shown in a way which offered more inducement to study each individually.

It may be our imagination—we think not—but in no portraits do we seem to discern the suggestions of the photographer so plainly as in those of Mr. Strauss, of St. Louis. There is not one face among the dozen or so that looks dull or uninterested. It would appear that Mr. Strauss is determined they shan't. Some seem mildly to disapprove what is going on; some women seem amused; children have the appearance of liking it immensely. Of the photographic qualities of the portraits, it is only necessary to say that they are beautiful examples of lighting and printing—no less so are those by other Americans—but it is not easy to find quite the same air of moderated animation elsewhere. Only the sitters' friends can say if this is the making of the portraits. Mr. Strauss's success suggests that it is.

PROFES IONAL EXHIBITS IN THE STUDIO HOUSE.

this latter, by which the illumination of the sitter is provided, is seen in the first illustration on this page. The studio is with-



The Studio House from the grounds, showing the small model lean-to studio.

photographic interest are brought together. The chief of these is the model studio of Herr Hugo Erfurth. The bow window of

out top light, but is of lofty proportions, about 15 or 16ft. in height. The furnishing is done in various tones of green, and

the furniture and decorations are very tastefully selected to harmonise with the floor and wall coverings. The studio is fitted with reception and dark rooms, and is in regular use. A special type of studio stand, designed by Herr Erfurth, and constructed by Ernemann, carries a full-size camera. The stand is built in the form of a couple of uprights supporting between them a horizontal baseboard, on which rests the camera. This arrangement allows of the camera being raised up and down within a considerable range, and of being brought quite close to the floor :

screw adjustments also allow of its being tilted up and down. Various other small rooms within this building contain examples of frames, mounts, and backgrounds for professional workers, also of arc lamp installations—the "Jupiter" and "Regina" lamps are shown—and there is also a model daylight lean-to studio of the kind made and supplied by the firm of G. Zimmermann, of Stuttgart. Other rooms contain examples of blinds and curtains for studio use, and of such apparatus as dry-mounting machines, trimming machines, washers, etc.

REPAIRING APPARATUS—A FIND.

In a recent number of the well-known scientific periodical *Nature*, the Editor, in reviewing a work on practical physics, called the author to task for not mentioning a comparatively new addition to laboratory aids—a cement possessing properties widely different from those of the ordinary "liquid glues," and others with a common main basis of gelatine. It occurred to me that I should be equally to blame if I failed to bring before my brother photographers a personal experience extending over several months with this new material, which I look upon as a veritable "find." The cost of breakages among the many and various utensils, dishes, measures, storage jars, et hoc genus omnes of a photographer's plant, forms a serious item in his yearly expenses, and any method of minimising it is to be welcomed. This new cement is sold under the name of "Cementium," and even a sixpenny tin of it goes a long way. It is utterly unlike the well-known sticky pastes or liquids we all know so well, for, strange as it may appear, although its qualities as a cement are so admirable, it is not sticky, and, more, it stands both fire and water. There is no fear of a slight smear on the fingers causing them to adhere to the article under repair, and, perhaps, pulling it to pieces again, and instead of, as in the ordinary way, using as little of it as possible, Cementium should be laid on fairly thickly, and the broken edges only lightly pressed together. I take it to be composed of a solution of water-glass holding in suspension some fine silica, though really it does not matter, for the stuff is cheap enough, and the makers have, no doubt, gone to sufficient trouble to hit upon the exact proportions and strength of its constituent parts. It is sold in tins which, when open, disclose a watery fluid with a thick white deposit. Before using it has to be stirred up with a piece of stick till it becomes of the consistency of thick cream. It will then stick together anything except india-rubber, vulcanite, celluloid, and blacklead. When dry, and fairly set, it gradually hardens and becomes like stone; the maker's name of "liquid china," is by no means far-fetched. Its actual great usefulness to the photographer will be shown by a recountal of my own experiences with it. (I may here say that I have found the makers quite ready to give advice when any one finds himself face to face with a difficulty in its use.)

My first essay was with a 15 x 12 "porcelain" dish, which my laboratory assistant had rendered useless by knocking a piece off one corner. I pieced the corner on with Cementium, gave it a week to set, and then put it into use. It lasted three months, solutions being put into it every day, and then it came apart. I wrote to the makers, and they pointed out where I could improve my method. I rejoined the pieces, and it is now, after four months' use, apparently as firm as ever. The makers sell what they term a "hardening solution," which, after a few days' drying, should be painted over the join, and so expedite the process of hardening after drying. It may be said that to wait a week or two after a repair is too long a time to be practicable. But this is only necessary when there is much handling of the restored article. Otherwise, at the expiration of a day or two the article is fit for use.

This experience was so satisfactory that I proceeded to test another remarkable property possessed by Cementium, which is neither more nor less than building up a missing part! Another similarly broken dish had been put aside as useless, for not only was the corner broken away, but, when it came up for repair, a piece was missing, and a triangular gap extending half an inch from the margin was left. The first step was to mend as far as possible. This was done, and a day given for hardening; then the thick cream was taken up, with a

pointed stick only, and allowed to drop into the triangular gap. It lends itself beautifully to the work, and remains where it is placed. The gap was gradually filled up above the level of the margin, and put aside to dry for a week. Then the superfluous material was scraped off with a penknife and rubbed down level with sandpaper, and afterwards painted over three times with the "hardening solution," and the whole put aside for a fortnight to get thoroughly set. At the end of that time one was only just able to scratch the built-up portion with a penknife, so hard had it become, and the dish has been in constant use for months.

The next article to repair was a small atmospheric gas burner, one of the feet of which had been knocked off and lost. An old brass gas socket was found, and just the right height. Cementium was used to fasten it, and it is now in regular use, and has been for months, and is quite firm, though often nearly red-hot.

There was a thermometer with milk glass scale enclosed in an outer tube, which latter had got broken, the thermometer stem fortunately being intact. The outer tube was cut off level; an old negative was cleaned off, and narrow strips cut off it. These were joined at the edges by our "find," and made into a neat square tube, which I slipped over the thermometer stem till it reached the outer tube, and then secured in its place and made air-tight by a thick dose of Cementium. A little packing was placed at the opposite end of the square tube to keep the thermometer stem from shaking; a small final piece of glass was cut to fit the end and Cementiumed on, and a neat thermometer of square section, far superior to its original condition, as it did not roll about when put in the platinum developer, was the result. One mistake was made: sufficient time was not allowed for the material to dry out, and, in consequence, moisture condensed inside, and sometimes obscured the mercury column for a few seconds. The remedy is obvious.

A Japanese tea-pot—the best vessel possible for use in varnishing—had the spout end, on the under side, broken off, and so was rendered useless. The broken part was built up with Cementium, and the spout is as good as ever.

A test-tube on foot had the foot broken off. It was fastened on, and for months has been in daily use, and, though kept suspended from hooks by the foot, it remains firmly attached. Another such tube had half the foot broken away. A disc of glass was cut with a diamond, and fastened on with a plentiful supply of Cementium. It has now a more secure base than ever, and is in constant use.

More as an experiment, I repaired a glass 2oz. measure which had been broken into seven pieces. These were carefully put together, all "at one sitting," allowed to dry for a week, and then painted over with "hardening." The measure has since repair been constantly used for several months.

Two Winchester quart bottles had stoppers broken and useless; in one only the ground part that enters the bottle was left; in the other the top half was broken off, and the stopper could not be used. The latter was quickly cemented with Cementium. The former required a new head entirely for it to be of any use. A thick layer of Cementium was laid upon it till it became top-heavy. Two days were allowed for drying, and then a final layer was added. In another two days, having set hard, it was shaped out with a penknife, smoothed down with glasspaper, and given a fortnight in a warm corner to dry out. It was then treated with hardening solution, and for many months has done duty in guarding a store of distilled waters, been removed and replaced scores of times, and still remains a perfect stopper, with a model handle.

A large window-pane of hammered plate had had a stone thrown through it. An old negative was cleaned and fastened over the hole, and, though exposed to wind and rain, is now, six months after, faster than ever.

I may add that the makers sell also a material of putty-like consistency for filling up, in cases where putty would ordinarily be used; it seems excellent. I have only used it for one purpose. In my printing-room are a series of Doulton-ware sinks connected to the waste-pipe by leaden pipes joined to the sink by a socketed end filled up with putty. In one the putty had become loosened and washed away. The new material was used to replace the putty, and answers admirably.

In conclusion I may say that I consider the sixpence I first spent on Cementum one of the best investments I ever made.

G. WATMOUGH WEBSTER, F.C.S.

A DAYLIGHT DEVELOPING APPARATUS.

FROM "Popular Science Siftings" we learn that a novel daylight developing apparatus of a portable kind has been devised by Mr. E. H. Smart, a gentleman known in London art circles. It is capable of separately developing one or several plates or films, and a single plate may be readily examined without running off the developer. The apparatus consists of two chambers, one containing the developing bath, and the other sliding with relation to the first and provided with red glass panels acting as an inspection chamber. This inspection chamber is also provided with means for raising a plate out of the developing bath.

The light-tight tank is sufficiently large to receive the plate or plates. When the tank is constructed to receive several plates it may be divided by partitions into a number of separate compartments. Each compartment is provided with a draw-off tap, or with an aperture and stopper. Each plate is mounted in a carrier or slide, which has a hook or an aperture or ring at the upper part by which it may be raised from its developing compartment.

The developing tank is covered at the top and sides with an inspection cover, made of light-tight material with suitable panels at the sides, made for instance of red glass, or it may be made entirely of red transparent celluloid or glass. This inspection cover slides over the outside of the tank and fits this latter in a light-tight manner. It has one or more funnels in its top, which is or are so constructed as to admit liquid to the various compartments but not light.

The top of the inspection chamber is provided with one or more internally projecting hooks, which may be rotated from the exterior to engage with the hook or ring at the top of the slide when it is desired to lift a plate by sliding the inspection chamber upwards.

The plate or plates to be developed are each mounted in a slide or carrier, and inserted into the tank, and the top of the inspection cover is placed in position. These operations are performed in the dark or in a dark room. The tank is then taken into the daylight and developer is poured through a funnel into the compartment or compartments containing the plate or plates. After a short time the inspection cover is lifted, carrying with it one of the slides, with a plate therein, which is examined by looking through the red panel. If necessary some of the liquid may be run off and more or other developer may be added. When the plate is sufficiently developed the developer is run off and water is allowed to run through the tank.

A NEW STUDIO, designed by Mr. Drinkwater Butt, F.R.P.S., is now being erected on premises forming part of the estate of Lord Willoughby in the Market Place, Spilsby, Lincs, for the occupation of Mr. T. Bundock, B.Sc., who, on completion, will open a high-class photographic business therein.

LOST.—On Whit Monday, May 31, a No. 3 Folding Pocket Kodak camera, with spool of twelve films (eleven exposed), opposite the Gables, Bull Lane, Gerrard's Cross, Bucks. The Kodak was left on the bank by the roadside opposite, and was picked up while owner was in the garden of the Gables. Reward offered for return to Goadby, 54, Woodfield Crescent, Ealing, London, W.

A TABLE OF PLATE SPEEDS.

ALTHOUGH comparative figures drawn up with the object of enabling a plate-speed reading in one system to be converted into another may very frequently be misleading, some rough indication is occasionally of service, and tables for this purpose have been compiled in the past by various writers. Possibly, however, none have been quite as complete as one recently published in the "Photographische Rundschau" by Drs. R. Luther and H. Weisz, who comment upon the desirability of plate-speed numbers, which stand in a simple ratio to the exposures required. Thus, a plate of Watkins speed No. 5 requires double the exposure of a plate of speed number 10. The authors suggest that the most simple and correct unit for plate speeds would be a plate of such sensitiveness that on an exposure of one candle-metre-second—that is, an exposure of one second at one metre distance from a standard candle—a just developable image would be obtained. The absolute sensitiveness would thus be measured by the number of times a given plate was more sensitive than the unit plate; or, by the number of plates that could be exposed, one after the other, so as to give a developable image in one candle-metre-second. The absolute sensitiveness is thus a reciprocal of the minimum exposure for developable image or "schwollenwert" (as the Germans call it) in candle-metre-seconds.

The following table is given by the authors for the systems of plate-speed numbers in use in this country and on the Continent, or occurring in photographic literature. The numbers are only approximate, as the bases of the different systems do not permit of a strictly exact comparison. The table is drawn up so as to give the equivalents of the twenty degrees of sensitiveness adopted in the Scheiner system. The numbers of the first and second columns are exact within 1 per cent. Those of the Warnerke scales are given to one-tenth of a degree, whilst those of the H. and D., Watkins, and Wynne systems are rounded off to be exact within 1 per cent. The formulæ serving for a conversion of the different systems are as follows:—

1. Warnerke (less transparent—21) x. 1193=(Scheiner—11) x. 1053.
2. Warnerke transparent=Warnerke less transparent+3.
0,1193 (Warnerke transparent)
3. Hurter and Driffield= $\frac{1}{8,908} \cdot 10$
(Warnerke transparent—7,9615).
I.e. =1,3162.
4. Watkins=2 H. and D.
5. Wynne=9.057 $\sqrt{H. \text{ and } D.}$

Minimum light value in candle-metre-seconds producing developable image.	Absolute light-sensitiveness.	Degree Scheiner.	Degree Warnerke.		H. & D. Actinograph number.	Watkins plate number.	Wynne F. number.	Chapman Jones scale.	Unit number suggested by Schmidt-Eder's "relative sensitiveness."
			Less transparent scale.	Transparent scale.					
1.263	0.7918	1	12.2	15.2	7.2	14.5	24.3	14.9	1
0.9910	1.009	2	13.1	16.1	9.2	18.5	27.4	15.3	1.3
0.7776	1.285	3	13.9	16.9	11.8	23.5	30.9	15.8	1.6
0.6103	1.638	4	14.8	17.8	15.0	30.0	34.9	16.2	2.1
0.4793	2.086	5	15.7	18.7	19.1	38.2	39.4	16.8	2.6
0.3758	2.661	6	16.6	19.6	24.4	48.7	44.5	17.5	3.4
0.2949	3.390	7	17.5	20.5	31.1	62.1	50.2	18.5	4.3
0.2315	4.320	8	18.4	21.4	39.6	78.2	57.0	19.5	5.5
0.1817	5.404	9	19.2	22.2	50.4	101	64.0	20.6	7.0
0.1426	7.014	10	20.1	23.1	64.3	129	72.3	21.1	8.9
0.1118	8.938	11	21.0	24.0	82.0	164	81.5	21.7	11.3
0.0878	11.38	12	21.9	24.9	104	209	92.1	22.5	14.4
0.06892	14.52	13	22.8	25.8	133	266	104	23.0	18.3
0.05408	18.50	14	23.7	26.7	170	339	117	24.0	23.4
0.04244	23.56	15	24.5	27.5	216	432	132	25.0	29.8
0.03332	30.02	16	25.4	28.4	276	551	150	—	37.9
0.02614	38.26	17	(26.3)	29.3	351	702	169	—	48.3
0.02051	48.75	18	(27.2)	30.2	448	895	190	—	61.6
0.01610	62.13	19	(28.1)	31.1	570	1040	215	—	78.5
0.01263	79.18	20	(28.9)	31.9	727	1454	243	—	100

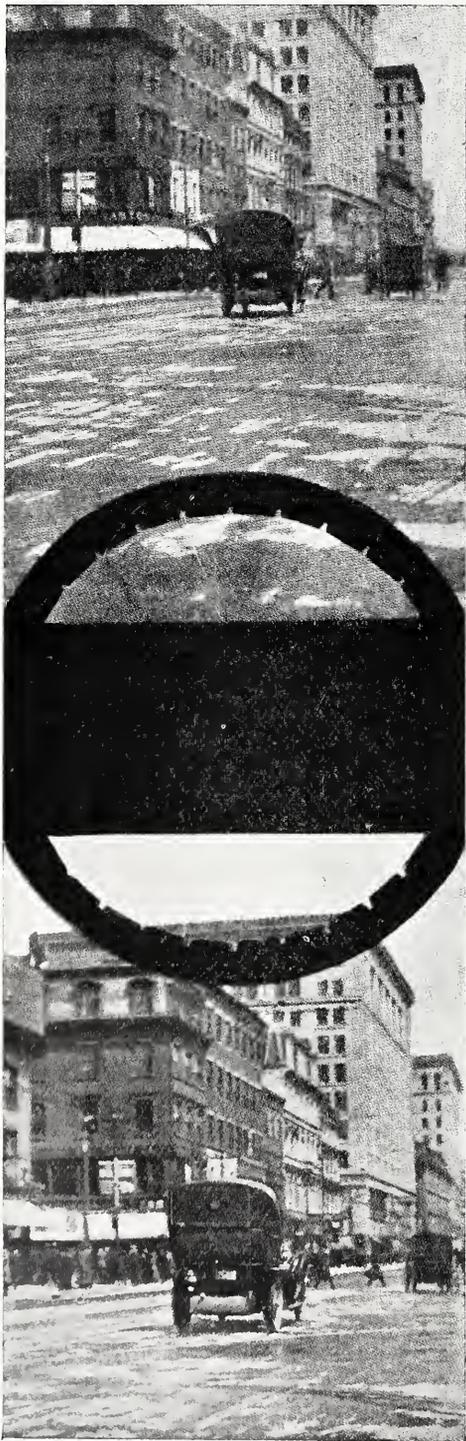
Whether the two different scales of the Warnerke instrument run above 25 degrees in actual practice has not been ascertained. In England the ordinary use of the Warnerke number applies to the transparent scale, whilst in Germany, as a rule, the Warnerke degree implies the instrument with less transparent scale, although

some use is also made of the other scale, for example, in the widely distributed "Agfa" exposure table.

It will be seen that the relation of the different systems to the Scheiner system becomes much more simple if the 1:100 interval of the Scheiner system be divided, not into 20, but into 21, degrees, giving 20, instead of 19, intervals. Further, the making of the characteristic curve on the Scheiner system is greatly simplified by this change. It is a matter for congratulation that marking according to the Scheiner system appears to be becoming more general. The marking of plates also with the absolute sensitiveness might be done with advantage, not as a substitute for the Scheiner number, but supplementary to it.

AN AUTOMOBILE SPEED-RECORDER.

THE "Photo-Era" reports that the first conviction in the U.S.A. of an overspeeding motorist by means of an automobile speed-recorder,



A Specimen Photograph made with the Automobile Speed-Recorder.

involving no measured "road-trap" or the use of a stop-watch, was secured April 30, in the Roxbury District Court, when the speed-

recorder, which is the joint invention of Dr. Herbert T. Kalmus and Dr. Daniel F. Comstock, instructors at the Massachusetts Institute of Technology, had its initial test before a judge. It won so signal a victory that this new method will probably supersede all others in use at the present time. With this device all an officer has to do is to step out behind a receding car which he thinks is going too fast, aim his instrument at it, and press a lever on the side of a small box which resembles a camera. This box is about 7 x 7 x 3 inches over all, and, in reality, consists of two cameras, one above another, with a single plate covering both lenses. Suitable mechanism is provided, so that when the operator presses the release lever a picture of the moving body is taken automatically by one of the lenses, and, approximately one second later, another picture is taken by the other lens. These two pictures appear on the same plate, as shown in the accompanying reproduction.

Immediately in front of the plate is a chronograph, so placed that it casts the shadow of its hand on the plate. The mechanism, which is put into operation by the lever which the operator moves, first starts this chronograph, and, after an extremely short interval of time, makes the first exposure. This watch is started in such a position that a shadow of the hand appears on the picture taken by the first exposure. Approximately one second later, the hand of the chronograph has passed through an arc of 180 degrees, and, consequently, casts its shadow upon the second picture. The time between these two exposures is definitely and accurately known from the position of these two shadows on the plate. This furnishes a complete record of all that is needed to calculate the velocity of the moving body—in this case the moving automobile.

If the size of the image and the distance of the image from the lens are known, the distance of the object from the lens may be calculated by simple laws of arithmetic. This may be done for the object in each of its positions, as shown on the plate. That is to say, the length of the wheel-tread of the image is measured directly on the plate by means of a carefully made steel scale, if necessary with the aid of the microscope. The size of the object is regarded as the standard width of this tread, which is a known constant for any given automobile. The distance of the image from the lens is experimentally determined by the focal length of the lens, and the distance of the body from the lens, which is desired, is a simple function of these first three qualities. The difference between the distance thus indicated for the first and second positions of the object is the distance that the moving object has moved in the time indicated by the chronograph; hence the velocity is known with a high degree of accuracy.

Photo-Mechanical Notes.

Process Work at the Chemical Congress.

In the photographic section of the Congress process work came in for its full share of attention, though nothing very new was brought forward. Mr. A. J. Newton's paper was chiefly interesting for the slides, showing magnified examples of comparative etchings by hand rocking and by various machines. The author showed the amount of side spread, and M. Clerc, in the discussion, pointed out that in a still-etched copper plate etched face downwards, the spread sideways was equal to the depth at the edge of the resist, so that if a point at this edge was taken as the centre of a circle, the amount of side spread and depth could be shown growing with the radius of the circle. With the machines this condition did not hold, and a greater depth than side spread was obtained, the figure around a point on the edge of the resist being an ellipse rather than a circle.

Mr. W. Gamble, in dealing with resists, pointed out that one of the best of them—namely, dragon's-blood resin—was always accompanied by considerable earthy matter, in some cases as much as 40 per cent. But he was doubtful whether the purification was sufficiently advantageous to justify the cost; some etchers find that even the best of the current commercial samples are more troublesome to work than those not so pure.

Mr. Chas. W. Gamble, in his paper on gelatose, pointed out that, when considering the sensitiveness of bichromated gelatines, insufficient attention had been paid to the condition of the gelatine itself, which had an enormous effect.

Mr. Howard Farmer's paper on Autochrome reproduction was illus-

trated by half a dozen capital half-tone reproductions of Autochromes. Such examples as these should prove to photo-engravers that there is a very large field of work open to them in this direction.

The Reproduction of Carpets.

We have recently had submitted to us some very fine reproductions of Turkey and Persian carpets, in which the imitation of the pile and colouring was quite remarkable. They were stated to be done in Germany at a price incredibly low. However, we know of at least two firms in England doing such work, with results quite as good as the samples submitted. The secret lies in the paper, which is one known as "flock"; it is sold in rolls of about ten yards long by 40 inches wide, at prices from about 11s. per roll to 15s., according to the quality of the pile or flock surface. The printing on to this paper is done only from flat tints; the ink must be very fluid and a considerable quantity carried in order to saturate the pile with colour. The colours are generally applied from relief blocks, though it is asserted that the printing can also be done lithographically. Naturally, the method is only of use to illustrate materials having a pile texture, but for that purpose the results are more nearly facsimile than would be possible in any other way.

PHOTO-MECHANICAL PATENTS.

The following patent has been applied for:—

PRINTING.—No. 12,214. Improvements in and relating to photo-mechanical printing. Carl Richter, 345, St. John Street, London.

Exhibitions.

THE PHOTOGRAPHIC SECTION AT THE IMPERIAL INTERNATIONAL EXHIBITION.

IN accordance with announcements which have been made, a section devoted to photography is to be found in the exhibition now being held at the grounds at Shepherd's Bush. It is housed in a series of five galleries in what last year was the Fine Arts Palace, a building standing on the right after passing through the Fountain Court from the Wood Lane entrance. This year fine and applied art meet in these spacious galleries. In addition to the paintings and statuary, there are a large number of commercial exhibits of carpets, furniture, etc. The photographic rooms are found immediately on the right on entering the palace. On their walls are displayed photographs derived from a variety of sources. A number of professional photographers make a good display of their work. Photographic societies to the number of a dozen or more send collections representing the work of their members; there are also a number of prints sent by individual workers, presumably by payment of a certain sum per frame, a method of exhibition making of which we felt compelled to disapprove in an earlier reference to the proposed exhibition. In addition to these, the work of photo-engravers, particularly in the three-colour process, nearly fills one room. We were informed that several stalls representing the photographic trade would be found in this section, but at the time of our visit, on Tuesday last, nothing could be seen of them. There is thus produced an exhibition which certainly contains a good deal of excellent photographic work. Its defect in the section made up by the work of amateur photographers is that it contains a good deal that does not deserve to be exhibited. This was an inevitable result from the somewhat promiscuous method of bringing the collections together, any photographic society that liked having apparently been given the opportunity to exhibit and to send any photographs it chose. The result, however, is interesting to any photographer making a study of such methods of producing an exhibition, and it must be said, too, that many of the pictures call forth expressions of approval from the lay public which inspects them. A few pictures may be singled out as worthy of special mention.

Among those shown by the Borough Polytechnic Society are "A Winter Afternoon," by A. C. Buckham; "The Village Tavern," by W. Page; "Evening Mists," by E. H. Roberts; and "The Rivulet," by Paul Carden. In those of the Woodford Photographic Society, W. L. F. Wastell shows a charming bit of landscape "On the Moselle"; another pleasing piece of work is "At Eventide," by

B. E. Stacey. Among the pictures of the South Essex Camera Club one very good piece of work is "The Outfall," apparently made in the precincts of a sewage works, but we were unable to discover the author's name. Among the prints of the Doncaster Camera Club the best are "On the Moors," by F. A. Jordan, and "Gooseberries," by W. R. Napier. The Wallington Camera Club's exhibit contains some very charming studies of children by W. Prout, one of the cleverest of which is entitled "Marbet." The prints of the Wimbledon Park Photographic Society had no authors' names on them, but two of woodland scenery, Nos. 297 and 384, represent very good work. The Ealing Photographic Society contains a very effective landscape by E. H. Atkinson, entitled "Misty Mountains." Two other prints, "In Cold Winter's Grip," by A. Richardson, and "Hound Tor, Dartmoor," by T. W. Bartlett, are worthy of mention.

From these we come to the exhibit of the Society of Night Photographers. Most of the prints must be considered in the nature of experiments in this fascinating field of work. About the only two which can profess any pictorial quality is one by A. H. Blake of a terrace or embankment on which are grouped three figures, and another of trees under arc light printed in rather bright greenish-blue. The photographic section of the Eastbourne Natural History Society contains two examples of the clever work of Ellis Kelsey, one of a motor car with lamps lighted at dusk and another entitled "When Lights Gleam Through the Mist." The exhibits of the Glasgow and West of Scotland Photographic Society have no names on them, but we would mention No. 172, "A Snow Scene," and two of John Hepburn's genre pictures—one of a boy undergoing the tortures of a hair cut, which is very comic, and another entitled "The Lesson." The South London Photographic Society shows a good deal of very excellent architectural photography, particularly from C. H. Oakden, E. Pady, and E. R. Bull. Among the exhibits of the Oxford Camera Club, No. 376, "A Flemish Canal," by G. Aitchison, may be mentioned. Among those of the Shropshire Camera Club, Nos. 104, 106, and 107, the two latter very fresh and airy renderings of seashore and sky. The Wearside Photographic Circle's two best prints are Nos. 183 and 198, the latter by H. Bradwell.

By far the best collective exhibit is that of the Postal Camera Club, the work in which is deserving of a much better place and more adequate display. Most of the pictures have become familiar in exhibitions or by reproductions in our contemporaries. Arthur Marshall sends one of his essays in coloured oil; J. M. Whitehead the familiar "Silent Guide"; Aubrey Harris the delightfully humorous "Darning Lesson," Bertram Park the portrait of G. A. Storey and a very charming study of a head and shoulders. Miss Brenda Johnson shows her Diana in the glade, Oscar Hardee "Isabella en Jan Wilden." This list does not by any means exhaust the contents of this section, which presumably has been got together by the secretary of the Postal Camera Club, Mr. J. C. Warburg.

Other societies represented are the Belmont Camera Club, Battersea; the Everton Camera Club; the Rotherham Photographic Society; and the Acton and Chiswick Camera Club.

Among the process exhibits the greatest display is that of John Swain and Son, Ltd., who show a large variety of three-colour work, and stages in the making of a sheet of three-colour prints. Messrs. André and Sleigh likewise show a number of reproductions of works of art in three-colour, and Messrs. Carl Hentschel, Ltd., exhibit not only specimens of their "Colourtype" process, but also show quite a large collection of books of travel, etc., illustrated in colour by them.

Among the professional exhibits, the leading place both as regards the work shown and the manner of its display is taken by Langfier, Ltd., 23a, Old Bond Street. The portraits include those of military and official personages, a larger number of fashionably dressed women, and some very dainty examples of child portraiture. All these are arranged round the walls of an alcove specially built to take them. Next to this exhibit is one by Roe McMahon, of Dublin, whose photographs of a number of types of Irish girls are offered for use as postcards or show cards. Two large spaces are taken by Messrs. Wakefields, 64, High Road, Chiswick. They consist entirely of photographs of motor cars, a branch of work in which the firm has specialised with much success. Mr. F. A. Swaine, 106, New Bond Street, has a panel of his portraiture, chiefly full-length portraits of women done in the vignette style with a background very lightly sketched in. Keith Danuatt, of Haslemere, has a variety of portraits on a light grey background placed within a white frame, the whole

result being very pleasing. The Mattype Studio, 30, New Bond Street, shows its characteristic work in sepia portraits. Miss Agnes Jennings, 10, Charles Street, Haymarket, shows a collection of portraits free from the customary accessories of the studio. Stephanie Maud, 25, Harrington Road, South Kensington, exhibits photographs only of children. Miss Ellen Macnaghten, 83A, Gloucester Road, South Kensington, shows work chiefly very delicate and charming coloured prints. Mr. William Gill, of Colchester, conveys a very strong impression of his work by showing simply one large carbon photograph—a portrait of a mother and her little boy. Copies of paintings are exhibited by Paul Laib, 95B, Drayton Gardens, South Kensington.

At the time of our visit the photographs by individual amateur photographers were in course of hanging, and it is therefore not possible to refer to them, but from casual examination of some of the frames it would not appear that they call for special mention.

Analecta.

Extracts from our weekly and monthly contemporaries.

The Autochrome under the Microscope.

Mr. E. Senior, writing on the above subject in "Photography and Focus" for June 8, gives the following particulars regarding the dimensions of the Autochrome film. "The following figures, from a number carefully ascertained by various methods, may be taken as closely approximate:—

Thickness of the combined films, 0.09 to 0.10 mm. (about 1-250 in.)	
Thickness of the layer of varnish fixing the starch grains to the glass.....	= 0.05 mm.
Thickness of the layer of starch itself.....	= 0.02 mm.
Thickness of the varnish separating the starch from the emulsion	= 0.01 mm.
Thickness of the emulsion itself	= 0.02 mm.
Total	0.10 mm.

The emulsion appears to be a gelatine one of rather a fine grain, the particles measuring about 0.0014 mm. in diameter. . . . The films from which the sections were cut were embedded in paraffin, and the sections mounted in balsam for examination."

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents have been received between May 24 and May 29:—

PHOTO-RELIEFS.—No. 12,302. Process for obtaining photo-reliefs. Carlo Baese, 77, Colmore Row, Birmingham.

CINEMATOGRAPHS.—No. 12,374. Improvements in cinematographs. Leo Kamm, 27, Powell Street, Goswell Road, London.

APPARATUS.—No. 12,571. Improvements in cinematographic and photographic apparatus. Paplo Audouard and Alberto Lleo Claudio Baradat, 27, Chancery Lane, London.

DEVELOPMENT.—No. 12,605. Improvements in developing machines. Magnus Niell, 88, High Holborn, London.

PHOTOGRAPHIC PENDANTS.—No. 12,629. Method to fix photographs in lockets without the use of metal mats. Thomas Able, 44½, Frederick Street, Birmingham.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

SHUTTERS.—No. 18,922. 1908 (September 9, 1908). The invention

relates to a method of actuating an inside single-flap photographic shutter by means of a flexible wire cable (as used on bicycle brakes) and a rack and pinion motion enabling the operator to act and control the shutter at a distance and also to see that the shutter operates, as all the mechanism is fixed in view outside the camera. Fig. 1 shows pinion A and rack B, with spring C to keep shutter

Fig. 1.

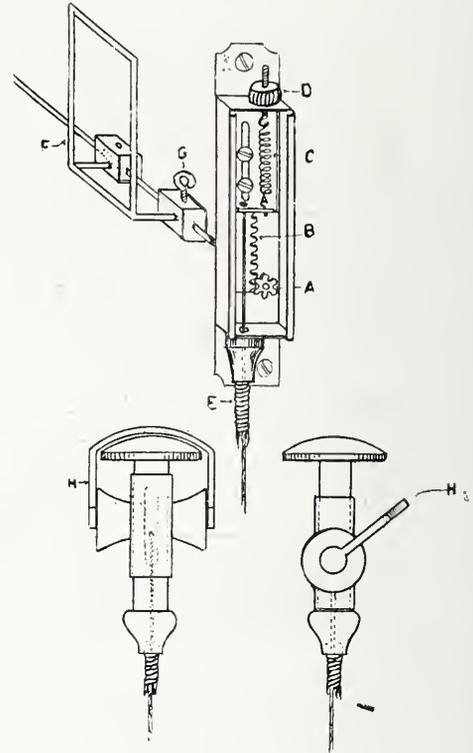


Fig. 3.

Fig. 2.

closed, and hold cable taut; D is nut for adjusting spring; E, flexible wire cable; F, frame for shutter, to be covered with any light stopping material; G, set screw to fix shutter frame on spindle of pinion A. Fig. 2 shows push ready to act and held in position by the spring C, Fig. 1. Fig. 3 shows push compressed, with bridge piece H in position to keep shutter open when required. Charles Henry Rott, 17, Orange Street, Swansea.

CINEMATOGRAPH MECHANISM.—No. 4,534. 1909 (February 24, 1909).

The invention consists of an improved form of mechanism for imparting an intermittent movement to the photographic film in a cinematograph camera of the kind in which the driving pins are given a positive movement into and out of the perforations in the photographic film. The object is to reduce the number and weight of the moving parts so tending to produce increased steadiness in the picture. Use is made of a rack and pinion operated by a single grooved cam to move the pins into and out of the perforations in the film; a crank and connecting rod impart the vertical movement to the film by means of a slide carrying the necessary driving pins. Ernest Francis Moy and Percy Henry Bastie, Greenland Place, Camden Town, London, N.W.

The following complete specifications, etc., are open to public inspection, before acceptance, under the Patents Act, 1901:—

COLOUR SCREENS.—No. 18,744, of 1908. Manufacture of screens for use in colour photography. Dufay.

POWDER PROCESS.—No. 7,932, of 1909. Photographic powdering process. Rieder.

New Trade Names.

B.B. (DEVICE).—No. 311,416. Bioscopes, their accessories and component parts, all being goods included in Class 8. The British Bioscope Manufacturing Company, Ltd., 11, Long Acre, London, W.C., bioscope manufacturers. March 17, 1909.

New Materials, &c.

Enlargements Framed and Unframed. Made by the Tress Co., 4, Rathbone Place, London, W.

Two new styles in enlarged photographs just being issued by the Tress Co. are the "Vandyke," a sepia enlargement placed under an oval cut-out and framed in a polished rosewood frame of 1½ in. width.



The "Vandyke"

The measurement of the framed picture over-all is 24 x 15½, and the result presents a most tasteful appearance. The price from print or negative is 7s. 6d.

A further line of unframed enlargement, made under the title of the "Academy," includes an oval or circle sepia print mounted on a canvas art board which is attached by the two corners to the back mount. The size of this latter is 15 x 12, and the price of the



The "Academy."

enlargement from either print or negative is 2s. 3d. The Tress Co. have just issued a large illustrated circular showing a number of their specialties in mounts, frames, and accessories.

DILOS FRAMES.—A very handsome frame for 20 x 16 enlargements has just been introduced by J. Epstein and Co., Rupert Street, Bristol, under the name of the "Dilos." The frame is of 5½ in. width, and of very striking design. It is issued complete with glass and backboard at the very moderate price of 54s. per dozen.

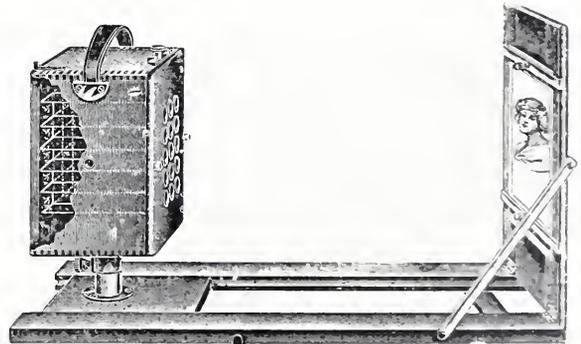
NAMES ON PRINTS.—In reference to the inquiry of a correspondent last week, we have inspected with much interest the celluloid "Name Films" made for photographers by the Autotype Company, 74, New Oxford Street, London, W.C. They are films of such thinness that their interposition between the negative and the paper does not affect the sharpness of the print, whilst the opacity of the lettering gives a perfectly white title on the print. The Autotype Company charge 5s. for writing name and address, photographing and supplying the film, subsequent films 5s. per dozen. They also supply from stock films bearing in neat lettering the words, "Rough Proof Only," at a price of 5d. each. This serves the very useful purpose of checking the practice of those sitters who seek to obtain photographs on the cheap.

"CROWN" MOUNTS.—The Crown Manufactory, Rotherham, sends us examples of several new mounts of theirs, among which we may name the "Melton Portfolio," a dark brown board with embossed plate-mark enclosed in brown folder with tissue. This sells at 9s. 6d. per 100 post free. The "Emboda" is a linen-surface mount with grey embossed border for print and round the edges. Price 6s. 6d. per 100. Another very neat mount is the "Oceana," a white board of figured surface, with sunk ornamental border round print. The price for cabinet prints is 5s. 6d. per 100. The Crown Manufactory offer to send sample selections of their mounts (returnable post free) to any photographer.

New Apparatus, &c.

The "Royal Mail" Stamp Camera and Easel. Sold by W. Butcher and Sons, Ltd., Camera House, Farringdon Avenue, London, E.C.

A fixed-focus stamp camera which Messrs. Butcher have supplied for the making of "stamp-photo" negatives is now issued by them with an easel and baseboard, which allows of a cabinet or carte-de-visite photograph being copied without any focussing being necessary. The baseboard carries a sliding piece, to which the camera is attached, and it is necessary simply to bring this piece opposite the cabinet or C.D.V. mark in order to obtain a copy of the required size. A single exposure then gives fifteen copies of the original on

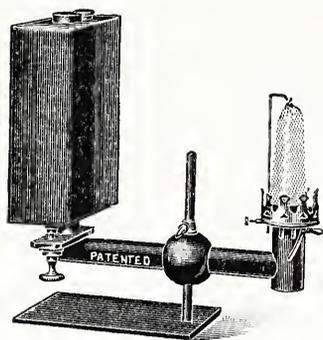


the quarter-plate negative. The easel is provided with a pair of springs which hold the photograph flatly to the surface, and at the same time allow of it being quickly placed centrally on the board. The apparatus folds flat when not in use, and the complete outfit of camera, easel, board, and one dark slide is supplied for £1 15s. Border negatives to be used in printing the "stamp-photos" are obtainable in a variety of designs at a price of 1s. each, complete with three of the necessary masks. Messrs. Butcher also supply ordinary P.O.P. for printing from the negatives, ready perforated after the method of postage stamps.

The "Petrolite" Enlarging Lamp. Sold by Albert J. Garrad, Southampton House, 517, High Holborn, London, W.C.

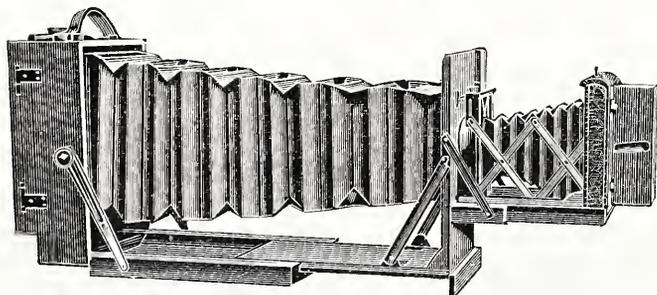
A new self-contained incandescent light for the optical or enlarging lantern has been designed by A. J. Garrad, by whom it is sold under the above name. The lamp burns petrol (motor spirit), and is of such very simple construction that it is difficult to see how any mishap

can occur with it. It consists of a saturator, placed, as shown in the drawing, at the back of the burner, that is to say, outside the lantern. The saturator is a metal chamber, supported through its centre on a pillar of about $\frac{3}{4}$ in. diameter, which communicates with the burner. The interior of the chamber is filled with an absorbent material, which is charged by filling it with petrol, allowing the latter to remain for a minute or so and then drawing off the excess.

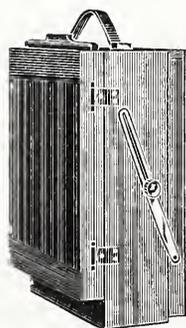


The action of the apparatus is thus to provide the burner with a current of air saturated with petrol, giving a very intense incandescent light without aid of a pump and in a very small space. One very great advantage of the lamp is that by means of the screw beneath the tank the light can be turned quite low. One charge of petrol suffices for a light of six hours' duration, at a cost of about one penny. As regards safety, the saturator can be taken off its pillar and a light applied to it; the only result is to inflame the traces of vapour in the tube. These features of the lamp should, we think, strongly appeal to those enlarging by artificial light, since even when gas is available, a light of this kind, which allows of the enlarging lantern being placed anywhere, is the most convenient, whilst the light given by it is a very great improvement on the ordinary incandescent burner. The price of the "Petrolite" lamp, complete with burner and mantle, but uncharged, is £1 10s. 6d.

AN "N. AND G." ENLARGER FOR "SIBYL" NEGATIVES.—A folding enlarger of very convenient pattern has just been introduced by Messrs. Newman and Guardia, of 17 and 18, Rathbone Place, London,



W., purely for use with their "Sibyl" cameras. The illustration shows the manner of using the apparatus, the "Sibyl" being simply placed on the outside board of the enlarger and a light-tight joint



made by the special mounting provided by the latter. The enlarger is made for both the $3\frac{1}{2} \times 2\frac{1}{2}$ and quarter-plate "Sibyls" to give a print of half-plate or whole-plate in each case. The prices are from £3 5s. to £4 5s., and the apparatus, which is instantly folded after

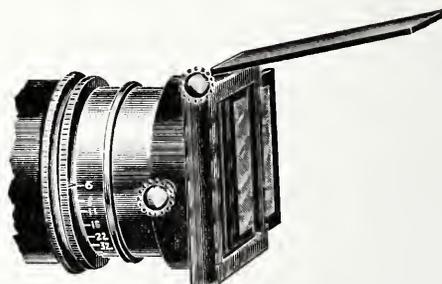
use, allows of large photographs being very quickly and easily made from the negatives of the "Sibyl."

AN ACTINOMETER of somewhat novel pattern has been introduced by Messrs. W. Butcher and Sons, under the name of the Primus "Photo-Meter." It consists of the usual graduated scale, running from 1 to 24. The scale, however, is duplicated, the two series of tints being placed side by side on a narrow strip, measuring about $1\frac{1}{2}$ in. x $6\frac{1}{2}$ in.



This allows of the following convenient method being employed:—A piece of P.O.P., the full size of the actinometer plate, is placed in the frame, and at the same time a piece of similar paper placed behind the negative, to be printed in carbon or platinotype. Both are exposed to light, until it is seen that the P.O.P. under the negative is printed to the necessary depth. The spring mask of black metal on the front of the actinometer frame is then pushed over from one strip of tints to the other, the carbon tissue placed behind the negative, and the two frames again put out to print. This time the printing of the negative is controlled by the actinometer, printing being continued until the two halves of the P.O.P. strip in the latter show the same numbers. The apparatus is neatly made, and costs two shillings.

A SCREEN-HOLDER WITH FLAP.—A little accessory which will need no recommendation to orthochromatic workers is shown in the illustration. It is a holder for a light filter and a flap shutter in one. The colour-screen is slipped into the frame of the holder, the flap of which is very lightly mounted, and is raised by the milled



knob seen in the figure. A second screw adjustment allows of the holder being firmly attached to the lens hood. As supplied by the designer of the holder, Mr. Albert J. Garrad, Southampton House, High Holborn, London, W.C., the price is 9s. 6d. in quarter-plate size, 10s. 6d. in 5 x 8, and 12s. 6d. in half-plate.

CATALOGUES AND TRADE NOTICES.

WHAT CAN BE DONE WITH A HAND-CAMERA.—A new book of photographs just issued by the C. P. Goerz Optical Works, Ltd., 1 to 6, Holborn Circus, London, E.C., provides a most admirable demonstration of the capabilities of the modern hand-camera of the highest class. The subjects are taken indoors and out, in rapid motion, such as jumping horses, ski sports, and in bright and dull light. They include also portraiture, landscape, etc., all done with one or other of the Goerz series of cameras—the Goerz-Anschütz folding, the Goerz folding reflex, Pocket Tenax, and Vest-Pocket Tenax. The text of the book gives much really useful advice on the selection of a hand-camera, and the booklet well repays study. It is sent post free.

AT THE LIVERPOOL B.P.A., Eberle Street, Dale Street, Liverpool, an exhibition of photographs by members of societies affiliated to the P.P.S. is being held. The prints are a selection from the 1908 competition, and may be seen until June 21 from 10 to 7, except on Saturdays, when the hours are from 10 to 4.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

SATURDAY, JUNE 12.

Handsworth Photographic Society. Excursion to Old Hill.
South Suburban Photographic Society. Excursion to West Wickham.
Kinning Park Co-operative Camera Club (Govan). Outing to Balloch.
Hackney Photographic Society. Outing to West Drayton.
Worthing Camera Club. Outing to Amberley.
Birmingham Photographic Society. Excursion to Warwick.

SUNDAY, JUNE 13.

Borough Polytechnic Photographic Society. Outing to Guildford.

TUESDAY, JUNE 15.

Hackney Photographic Society. Short Lectures by Members. (Excursion Committee Meeting.)

THURSDAY, JUNE 17.

Chelsea and District Photographic Society. "On the Printing, Developing, and Toning of Velox Papers." W. F. Slater.
Handsworth Photographic Society. Short Papers on Holiday Photography by Messrs. Collins, Grove, Teague, and others.

ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held Tuesday, June 8, the president (Mr. J. C. S. Mummery) in the chair.

Captain Owen Wheeler read a paper entitled "The Practical Side of Telephotography," a subject which he introduced in the first place by referring to the question of cost. Assuming that an amateur had got a good lens and a good camera, which could be used on a tripod, a £5 note would enable him to do a great deal of very good work in telephotography. The lecturer showed a 5 by 4 folding camera, with which much of his own work had been done up to seventeen and eighteen magnifications. It was simply a hand-stand camera of good construction not specially built for extra rigidity. As regards the tripod, the best advice he could give was to use one for a camera two sizes larger. At full extension a supporting strut for the front of the camera was certainly an advantage. He showed one in which the strut took the form of an extra leg, which supported the lens tube of the telephoto mount directly from the ground. The strut was the design of Mr. A. J. Garrad.

Coming to methods of telephotography, Captain Wheeler pointed out that the two systems on which a variety of work might be done were (1) to keep to one negative attachment and obtain the different magnifications by varying the camera extension, or (2) to adopt one or two camera extensions and obtain the various magnifications by means of a series of negative attachments. His own practice convinced him of the superiority of the latter system. It provided the means of securing a fully covered plate on all scales of magnification, and it reduced the necessity of long camera extensions, thereby removing one cause of failure in telephotography—that of the vibration of the apparatus. His own series of negative attachments had foci of $2\frac{3}{4}$, $2\frac{1}{4}$, $1\frac{3}{4}$, and $1\frac{1}{8}$ inches, this series allowing him, with the 5 x 4 camera which he showed (of extension about 15 inches), to secure telephoto negatives of magnifications from $3\frac{3}{4}$ to 14 or even up to 17.

As regards focussing, the use of a long hood or screen on the front of the lens lightened the task of the telephotographer. A large focussing cloth, a good magnifier, and a fine screen were the three essentials to getting sharp focus. Some preferred to cement a microscope cover-glass to the focussing screen, but he found that rubbing the ground glass with lanoline answered his purpose. One secret of focussing was to give plenty of time; the eye did not quickly discern the faint image on the screen. In the subsequent discussion Captain Wheeler confirmed the advice of another speaker to focus by separating the positive and negative of the telephoto, not by moving the ground glass or the lens front as a whole. A focussing hood over the ground glass was a drawback to a camera for telephoto work: the hood was useless as a screen, whilst it prevented the convenient use of a magnifier.

As regards the rule for exposure, Captain Wheeler preferred not to pronounce absolutely definitely, but his experiments led him to conclude that the theoretical rule that the exposure was proportional to the square of the magnification held good, provided that the photographer realised the altered conditions in telephotography,

whereunder a subject which would be reckoned as distant when using an ordinary lens came under the heading of "near object" or "strong foreground" in the case of telephoto work. Captain Wheeler pointed out the advantages of the orthochromatic screen for doing telephoto work under conditions of haze which would render good negatives impossible without it. For haze due to heat—a state of things which was described as a "boiling atmosphere"—there was no remedy, and in such weather the telephotographer might as well stay at home. In his own work Captain Wheeler had found that there was no very practical advantage in using a positive lens of greater aperture than $f/4.5$, $f/3$, and similar apertures. A very interesting series of slides, most of them consisting of comparative examples of subjects photographed with the ordinary lens and with the telephoto at various magnifications, were then shown, and illustrated the gain in vigour due to using a hood on the lens, as also the remarkable sharpness of definition secured in the negatives even at a magnification of twenty or thirty diameters. Captain Wheeler concluded his lecture by showing a few examples of instantaneous telephoto work.

In the discussion which followed Mr. Edgar Clifton said he must admit that Captain Wheeler had thoroughly made out his case for the lens hood. He had never seen better high-power telephotographs; at the same time he wished to emphasise the fact that for average purposes the most useful telephoto lenses were those of quite moderate power giving magnifications of three, four, and five diameters—that is to say, carrying on the greater focal length which a worker got from the use of the half-lens of his doublet. When opticians first introduced the telephoto they appeared to have gone on the principle that photographers could not have too much of a good thing, and devoted themselves to providing lenses of the higher powers. As regards the methods of telephotography, his experience was that those people who took a telephoto lens and used it just like any other, without worrying very much about theory or aperture calculations, actually got the best results. As regards the calculation of the magnification, and therefore of the exposure, he recommended the use of a piece of tape attached to the camera and marked off in divisions each equal to the focal length of the negative attachment. Allowance being made for the projection, if any, of the negative lens into the camera, the tape, if attached to the camera front, would show the magnification being employed. Focussing in telephoto work was more rapid and actually much more certain when done by racking the lens mount—that is, separating the tele-attachment from the positive lens—than when using the rack and pinion of the camera. The depth of focus in the latter case was so great that one was never certain whether the best focus was obtained, whereas in the other method either there was focus or there was not, and with a little skill the most exact focus was secured in this method, which resembled using the coarse adjustment of the microscope when focussing that instrument. As regards exposure, Mr. Clifton emphasised the fact that the theoretical rule of exposure proportional to the square of the magnification was only correct if account was taken of the distance of the object. One great advantage of telephoto work was in making full-scale photographs of small articles, such as ornaments, small boxes, etc., a species of photography which was frequently necessary for catalogue illustration. When a lens of ordinary focus was used the view-point which had to be taken was so near to the object that correct perspective was impossible, and he had had a case brought to his notice quite recently in which a whole series of such photographs had to be practically redrawn before they could be used for catalogue purposes. A similar instance had occurred in the use of the camera in a museum where it was required to take photographs of fossils, bones, etc., for record purposes or for exchange with other museums. Here, again, the bad perspective due to a near view-point when using an ordinary lens had led the authorities to condemn photography as useless. They had altered their opinion on employing a telephoto lens allowing of a distance of 14ft. or 15ft. from the object being taken up.

Mr. H. A. Sanders asked what was the shortest exposure which Captain Wheeler had been able to make in telephoto work. The reply was 1-150th of a second at five or six magnifications.

Mr. W. A. Furse, in reference to the tape method of indicating magnification, pointed out that it would not be accurate in the case of negative attachments which were moved by the pinion of the telephoto tube. He had seen such telephoto lenses, and he thought

that an engraved telephoto tube showing magnifications was a preferable method.

Mr. Madden pointed out that the graduations on the lens mount applied only to objects at infinity.

Mr. Ernest Marriage said that in his experience the figures for magnification on telephoto lenses were most fallacious; he had found that they were in error to the extent of three or four magnifications. In reply to a query, Mr. Marriage said that he had made instantaneous tele-photographs to a fair number using a reflex camera giving exposures of about 1-30th or 1-40th of a second.

Mr. C. F. Lan-Davis, in reference to instantaneous work, pointed out that there was no necessity to consider that an aperture which by calculation appeared to be very small prevented rapid exposures being given.

Mr. G. E. Brown pointed out the effect which telephoto lenses might be expected to have on hand-camera construction, fixed-focus telephoto objectives of comparatively large aperture providing considerable focal length without the need of double extension of the camera.

Mr. McIntosh remarked upon the advantage which might be taken of the telephoto principle by using a negative spectacle lens behind the ordinary rectilinear or triplet objective. A hearty vote of thanks to Captain Wheeler concluded the business of the evening.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.—Meeting held May 27, Mr. R. Beckett in the chair. Mr. Woodland showed plates that had been fixed one half in daylight and the other half in the dark-room, the experiment having been suggested by the fact that at a prior meeting one of the members had called attention to the fact that one of the plate makers had in the handbook issued by them said that no white light should be allowed to reach the plate until after fixation was complete. The plates that were fixed in the dark room had no sign of any stain, whilst those that had been fixed in white light showed a considerable amount of stain of a dirty yellow nature. The plates used were of a speed of about 60 Wynne, and had been developed with a pyro-soda developer.

On these plates being passed round, Mr. Teape produced and passed round five plates that had been fixed, half in the dark-room and half in the daylight. These had had a washing after development of from six minutes down to a mere rinse, and the one-half then placed in the fixing bath in the dark-room and the other half carried into the daylight, and placed in a fixing bath in the light. Upon examination it was found that neither half showed any sign of stain, and, in fact, had the two halves not have been marked it would not have been possible for any members to have said which was which. These plates were of a speed of about 200 H. and D., and were developed with rodinal.

The results led to a long discussion, and as the plates were of as near as possible the same speed the only decision that could be come to was that the developer made the difference, because, as was pointed out, it could not be the washing, as Mr. Woodland had given each of his plates a washing of fifteen minutes before fixing.

SOUTH LONDON PHOTOGRAPHIC SOCIETY.—Members and friends, to the number of twenty, under the leadership of Mr. W. F. Slater, spent the Whitsun vacation at St. Ives, Hunts. The immediate neighbourhood of this old-world town is rich in material for the pictorial landscape photographer. Plenty of work was found at Hemingford Grey, Hemingford Abbots, Houghton Mill, and Holywell, as well as in St. Ives. It would be difficult to say who was the more surprised at the chance meeting of the president of the R.P.S. and a party at Holywell, but Mr. Mummery's hearty wishes "For a good bag and a successful outing" were no surprise to anyone who knows the genial president of the R.P.S. The party were well catered for at the White Horse, and secretaries of other societies would do well to consider St. Ives when arranging their programmes.

LONDON TOPOGRAPHICAL SOCIETY.—His Royal Highness the Prince of Wales has expressed his desire to become a member of the London Topographical Society, and, at the request of the President of the Society, Lord Rosebery, has signified his pleasure to agree to the wish of the Council to become Patron of the Society.

Commercial & Legal Intelligence

LEGAL NOTICES.—A first dividend of 8s. in the £ is to be paid in the case of Edgar Wilkinson, photographer, carrying on business at 1, The Arcade, Norwich. The dividend is payable on June 17, at the offices of Messrs. Poppleton and Appleby, 4, Charterhouse Square, E.C.

Notice of intended dividend is given in the case of Arthur Sager, photographer, carrying on business at the Studio, Church Street, Keighley, Yorks. Proofs must be sent to the trustee, Mr. W. Durrance, 12, Duke Street, Bradford, by June 19.

Geo. Richard Knight, dealer in photographic apparatus, 63, Castle Road, Southsea, who failed in 1904, is to apply for his discharge in bankruptcy on July 8, at Portsmouth.

An order of adjudication, dated May 28, has been made in the case of Moss Wright and Joseph Heaney, trading together as Wright and Heaney and Mossherne, photographers, at 608, Attercliffe Road, Sheffield. Debtors filed their own petition on the same day that the Order was made.

News and Notes.

THE AFFILIATION OF PHOTOGRAPHIC SOCIETIES.—The awards in 1909 Slide Competition were as follows:—Plaques: H. Creighton Beckett (S. London P.S.); Rev. O. H. Fenton (Devonport C.C.); James Shaw (Manchester A.P.S.). Plaque in Scientific Section: Geo. H. Rodman, M.D. (Richmond C.C.). Certificates: 1, South London P.S.; 2, Manchester A.P.S.; 3, Belfast Y.M.C.A.C.C.

MR. FREDK. HOLLYER is exhibiting, during June and July, his platinotype reproductions of the works of Mr. G. F. Watts, R.A., O.M., including the pictures in the Tate Gallery, and the portraits in the National Portrait Gallery. These may be inspected at Mr. Hollyer's Studio, 9, Pembroke Square, Kensington (Earl's Court), daily from 10 to 6.

MR. W. A. SIMS, who for some years past has been with the Rotary Photography Co. as manager of the Photographic Paper Department, has joined the firm of Kosmos Photographics, Ltd., of Letchworth, as commercial manager. The company is shortly putting bromide, P.O.P., and other papers on the market, its London office being at 131, Fleet Street, E.C.

AT THE LAST MEETING of the Leyton District Council it was resolved that a whole-plate photographic outfit, for taking photographs of damaged tramway cars, etc., be purchased by Councillor Matthews, with the tramway manager.

FLASHLIGHT ACCIDENT.—At a meeting at Penzance, last week, Mr. Vaughan Paul took a flashlight photograph of the speakers on the platform for Press purposes. Under one of the balconies was placed a pair of high steps, on the top of which rested the camera. When the powder was ignited at the moment of exposure Mr. Paul received the full effect of the flashlight in his face, which was blackened and considerably injured, the eyes swelling to a great extent, and the moustache and eyelashes being burnt off.

THE NEW ENGLISH ART CLUB.—We must congratulate this band of artists upon their removal to the Suffolk Street galleries, which, gloomy and barn-like as they are, nevertheless surpass in fitness and convenience the back-attic arrangements recently adopted. The show is larger than usual, and fuller of good things. But, alas! the tares continue to grow with the wheat. The mid-Victorian craze is still an obsession. We find Philip Connard affecting the costumes of the sixties and the lustre chandeliers of that period; but the painting of the white interior and its distant figures would be successful enough were it not for the enormous proportions of the nearest lady. Henry Tonks, too, adopts the same bygone fashions in his painfully contrasted scheme of blue-greens and crimson, which appears to us a gross exaggeration of a truthful firelight effect. Prof. Fredk. Brown's portrait of himself is not flattering. At least, our personal knowledge of him denies this brick-red monotony of flesh

tint. A. E. John sends one of his supreme jokes in paint which only make us sad and sick. It is a pleasure to turn to such well-motived work as Gerard Chownp's flower paintings, the exquisite harmonies in which should be studied by all who are experimenting with colour-plates. Sydney Lee sends some fine landscapes, the difficult "Alpine Solitude" being the most remarkable on account of the "looking down" point of view. As to Wm. McTaggart's attempts to paint motion, we can only regard them as the *reductio ad absurdum* of realism. To paint children in the manner of planet "tracks" such as the telescope gives is obviously to give up altogether that *suggestion* which is Art's sweetest charm, and instead to force upon the eye and brain one of their most painful experiences in optical operations. The antithesis is in Prof. Holmes's stagnant forms, iron-bound with an aggressive outline—a recent development we much deplore in his hitherto poetical work. Sargent's sketches and many other delightful things we have no space left for, much as we should like to record our praise of them at length.

"THE AUSTRALASIAN PHOTO-REVIEW," our Melbourne contemporary, published by Baker and Rouse Proprietary, Ltd., has somewhat enlarged the size of its pages with its April issue. In matter and production it continues to offer remarkably good fare to its readers. The issue before us contains one chapter of a series on night photography, some interesting photographs by Paul Cinquevalli, and many good illustrations. Its news items and answers to correspondents show it to be closely in touch with photographic happenings.

ARE BEACH PHOTOGRAPHERS PEDLARS?—The Blackpool Bench of magistrates has ruled that photographers who make and sell photographs on the beach are pedlars, and must take out a licence. Recently a deputation from the Blackpool Professional Photographers' Association waited on the Chief Constable, and the co-operation of various public men was also enlisted in a crusade against the injustice of the summer invasion by all sorts and conditions of men with cameras. One of these itinerant photographers, Christopher Charles Arnold, a young man, was ruled by the magistrates to be a pedlar without a licence, and was fined 5s. and costs.

Correspondence.

- *• We do not undertake responsibility for the opinions expressed by our correspondents.
- *• Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

REDUCTION OF BROMIDE PRINTS.

To the Editors.

Gentlemen,—In "Ex Cathedra" for April 23, speaking of reduction of bromide prints, you state that any method of partial bleaching followed by fixing is only equivalent to the familiar Farmer's reducer. I believe you are referring to the use of iodine; but, as Farmer's reducer is mentioned, the remark would be taken to include the separation of the bleaching and fixing in that also.

I have shown by experiment, and considerable use, that such is not necessarily the case; and in an article in "Photography and Focus" on October 6 last gave details of working. May I refer you to that article? The absolutely essential feature of the process is the extreme weakness of the bleaching solution. The working bath is:

Potassium ferricyanide (5 per cent. sol.)	5 drams.
Sodium chloride (10 per cent. sol.)	5 drams.
Water	20 oz.

The slight bleaching takes from 3 to 8 minutes, according to reduction required. In the shorter time there is scarcely an apparent change before fixing. A few experiments on spoilt prints being the easiest way of determining the action. The prints, after well rinsing in several changes, are fixed in a plain hypo bath, say an ounce to the pint.

A mixture of the weak bleached and hypo baths, even with a

less amount of hypo, has not the same result by any means. By the method I advocated the shadows are reduced even more than the high-lights (with bromide paper), a result, I believe, not previously attained either with Farmer's or the modified Farmer's reducer. Nor is there any fringe of colour in the lighter half-tones, a result not unfrequent with the Farmer's reducer.

I did not see any extract in the "B.J." of my article, nor was any mention of the process in the "Almanac."

The paper used was Kodak bromide. I regret that I had not time or opportunity to experiment with a variety of makes. Out in South Africa one has not the convenience or possibilities of those at home.

—Yours faithfully,

HAROLD SMITH.

Eloff Street, Johannesburg,

May 17, 1909.

[We would point out that Mr. Smith's formula is a very different one from that which we criticised. He has only 1 part ferricyanide in 640 parts of water, while the procedure to which we took exception was the use of a ½ per cent. iodine solution in an exactly similar manner. Mr. Smith's method is safe enough, but numerous others which have been advocated are undoubtedly unsafe.—EDS. "B.J."]

TRADE, PROFESSION, AND PHOTOGRAPHERS' COMPETITIVE METHODS.

To the Editors.

Gentlemen,—I have read through my letter again, and I stand by every point—each is germane to the questions under consideration. If your readers will dissect my letter they will find the following components:—

That the photographic trade is in a deplorable condition.

That this condition is due largely to the competition by persons with no knowledge of the "craft," and no appreciation of the art side of photography, who embark in the "craft" to make money—somehow, anyhow—and to do this "exploit the poor assistant."

That unless remedial measures can be employed there is every prospect of the situation becoming worse instead of better.

That without cohesion assistants and employers are equally impotent.

That the subject, so far from being one easily disposed of by a bricklayer, is an exceedingly complex one, and would have to be dealt with in the manner indicated by my simile (the patient).

That there was no hope for legislation, for the reasons I gave.

Mr. Redmond may be—I have no doubt he is—very enthusiastic in his friend's cause, which, by the way, is also his own; but I cannot help thinking that his friend might have selected an advocate with a more evenly balanced mind from amongst the bricklayers, upon whose counsels Mr. Redfern places so much reliance. If photographers' assistants could at will stagnate the industries of the country, or even a limited area, there might be something to learn from the trades union artisan, but their "modus operandi" is an open book.

Thanking you in anticipation for the insertion of this letter, and awaiting with curiosity a report of the proceedings at the proposed somewhat incongruous gathering together in solemn conclave of bricklayers and photographers' assistants, I remain, etc., FAIRPLAY.

TELEPHOTO CALCULATIONS.

To the Editors.

Gentlemen,—In your issue of April 23 an interesting article on "Telephotography," by Dr. Edmund J. Mills, appeared. In the course of this Dr. Mills discusses the question of exposure, and points out the correct rule, namely $\left(\frac{m \times l}{n \times l}\right)$ for two magnifications, *m*, *n*, for calculating exposures in enlarging where a fixed lens system is used. This rule, in fact, applies to all cases in which different sizes of images are obtained by varying the distances of image and object from a fixed lens. A useful trial and error method of obtaining telephoto exposure time is also laid down.

Dr. Mills then seems to suggest that this rule can be used for comparing the exposures with a positive lens, and with the combination of this positive and a negative to form a telephoto lens.

"Magnification" with a telephoto lens is, however, used to denote the ratio of the size of image given by the combination to that given by the positive alone, and not to the actual magnification compared with the object. In this case, therefore, the rule does not apply, as the system is not a fixed one, and Mr. Dallmeyer was right in stating that, theoretically, the time of exposure depends on the square of the magnification. When comparing, therefore, exposures with the positive only, and with different images produced by the telephoto lens, keeping the distance between lens and object fixed, the rule of the square of the magnification should be adhered to. For distant objects it has been found by all workers that this rule gives considerable over-exposure, but the explanation of this would seem to be rather in the chemical action of the atmosphere. Of course, if the telephoto lens be fixed, and different sized images obtained by altering the separation of lens and object, the formula given by Dr. Mills applies.—Yours faithfully,
C. L. D.

HOSPITALITY FOR THE ROYAL PHOTOGRAPHIC SOCIETY.

To the Editors.

Gentlemen,—The members of the Royal Photographic Society may have the use of the M.P.C. Photographic Society's dark-room during the period of removal from 66 to 35 Russell Square. Application to the church caretaker is all that is necessary.

E. MARKWELL, Secretary.

Marylebone Presbyterian Church Photographic Society, Upper George Street, W.

INTENSIFICATION.

To the Editors.

Gentlemen,—In your last two issues I noticed Mr. Simpson's letter and your remarks re the effect of *prolonged washing*, prior to intensifying with chromium. I have several times come across a singular phenomenon in using the bichloride of mercury intensifier, and I should be glad to have your opinion as to the cause. The two prints enclosed are from negatives that were allowed to dry after the usual develop, fix, and wash; then placed in a grooved washing tank with water flowing in freely, and, I think, equally for an hour. On one you will see small thin streaks, on the other quite broad ones; neither appears till after they are placed in the ammonia to blacken throughout, but, once there, appears irremovable, making this method, as it appears, *also the chromium*, somewhat *risky*. Are these streaks the result of the *kind* of washing? I may add that the intensifier is composed only of mercury bichloride and water, as I have found the addition of hydrochloric acid has a tendency to cause reticulation of the film. Apart from these occasional streaks, it works all right, but these elements of uncertainty would be better gone, as they usually appear when least wanted, like other obnoxious things.—Yours,
PROF.

[The marks on the prints sent us are not unlike those which result when mercurial intensification is applied to imperfectly fixed plates. It is difficult to see how one hour's washing can have any ill-effects on an ordinary developed negative, though it is often detrimental to a bleached image. Possibly some of our readers have had experiences which will throw some light on this washing problem.—Eds., "B.J."]

THE HEIGHT OF THE CAMERA.—As a rule little attention is paid to the height of the camera by the average operator; the height of the camera is governed by the height of the operator. If he is a tall man, his camera will be high. If he is a short man, his camera will be low. What he should do is to raise and lower his camera after closely studying his subject's features. A short nose will appear more so if the camera is lowered. To lower the camera makes a low forehead appear lower. A long nose appears to an advantage when the camera is lowered, but a long neck looks like a "rubber neck." The operator should use judgment in the raising and lowering of his camera, for it is a feature of his work that will "make or mar a pretty face."—"Professional and Amateur Photographer."

Answers to Correspondents.

- All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.
- For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the

PHOTOGRAPHS REGISTERED:—

- Miss M. Wright, 75, Albert Road, Middlesbrough, Yorks. Three Photographs showing Interior of "Olympia" Skating Rink, Middlesbrough.
B. Hughes, 28, Patrick Street, Cork, Ireland. Photograph of Mrs. Desmond Humphreys (Rita).
C. E. Weale, 3, Victoria Road, Tamworth. Photograph of the Wilnecote United Football Team.
G. A. Dean, 14, High Street, Rugby, Warwick. Photograph of the Rev. H. A. James, D.D., Head Master, Rugby School.

PETER L. KIDD (Dorchester, Mass, U.S.A.)—From Dawbarn and Ward, Ltd., 6, Farringdon Avenue, London, E.C.

STEREOSCOPIC PROJECTION.—Can you inform me where to get particulars of magic lanterns for showing stereoscopic pictures on the screen, and of the coloured eye-pieces necessary for looking at these pictures? Are these lanterns made so that various-sized slides can be used, or must one size be adhered to?—WM. ZIMMERMAN.

So far as we know, no special lanterns are made. If they are, Messrs. Newton and Co., 3, Fleet Street, E.C., are the people most likely to be the manufacturers. The dyes as recommended in our columns ("B.J.," November 6, 1908) by Dr. König are obtainable from Messrs. Fuerst Bros., 17, Philpot Lane, E.C.

THE "B.J. ALMANAC."—I have seen from time to time in the "British Journal" references made to the "British Journal Almanac." Will you kindly let me have particulars as to price and contents, as I do not see it advertised in the "B.J.," as I am desirous of purchasing one if the particulars suits me.—J. W. C. COGAN.

The "Almanac" is published each year on or about December 1. That for the current year appeared December 1 last. The whole edition of 25,000 copies was sold out before that day, but you may perhaps be able to get a copy by inquiring at local dealers'. The total size of the book is over 1,000 pages. Price 1s. net.

STRIPPING WITHOUT HYDROFLUORIC ACID.—Will you tell me how to strip a 1-1 plate negative and stretch to 10 x 8 without hydrofluoric acid? The restrictions against hydrofluoric acid are so great and the acid so bad to keep in the dark-room that I would be obliged for the above information.—J. H. S.

We should advise you to try the use of 5 per cent. solution of ammonium fluoride, to which is added strong sulphuric acid in the proportion of 10 drops per ounce, in place of the hydrofluoric acid. Our experience of other methods is that they are less certain than that given on page 792 of the "Almanac," and really the inconvenience in handling the acid is not a very serious obstacle to its use. One other method which has been recommended, though we cannot speak from our own use of it, consists in laying the plates for ten minutes in a cold saturated solution of carbonate of soda, drying it without washing, and then immersing it again in the soda solution. We advise you to try this or the other method on a waste negative or two before applying it to one of value.

AUTOCHROMES.—I find enclosed in "Work" of April 24. Do you know if anybody has tried the experiment on this side of the Atlantic? And what is a "dilute solution"?—"Experiments with Autochromes by immersing the plates after exposure and before development in a dilute solution of potassium meta-bisulphite for thirty seconds to destroy the colour-sensitiveness, were related by Dr. Drake-Brockman to the Cleveland Camera Club. It was then found that the first development could be done with comfort,

using the yellow light usually used for working with ordinary bromide paper. The meta-bisulphite solution must be used in absolute darkness, and the dark-room light not turned up until after the plate is placed in the developer. If more contrast was required in the finished transparency, he immersed the plate, before development, for thirty seconds in thirty minims of a saturated solution of potassium bichromate added to about 5oz. of water."—TINSIA'S.

You are in error in supposing that the suggestion comes from America. Dr. Drake-Brockman resides at Middlesbrough, and he first described his method in the "Colour Photography" Supplement to "The British Journal of Photography" for October 2, 1908, to which we would refer you. The meta-bisulphite was used in 3 per cent. solution for 30 seconds.

UTOMATIC MACHINES, ETC.—1. We want the address of a firm of automatic penny-in-the-slot machines who do make or would make such a machine for selling postcards. (Such machines are in use on railways, etc.) 2. Can you describe method of transferring signature (our client's own written signature, not printing titles) to negatives so as to give facsimile of writing in white on finished print?—EASTMAN AND SONS.

1. Try George Salter and Co., 101, Leadenhall Street, E.C., or Godfrey Bros., 3 White Lion Street, Pentonville, N. 2. The best plan would be to reproduce the signature in black in a clear ground on a celluloid film and place between negative and printing paper. You could do this on thin film, such as Kodoid, or the copy could be made by the carbon process. The Autotype Co. make a special line of the latter method.

LENS QUERY.—Can you kindly give me any information of a lens which I have the offer of buying, as regards price, covering power, age. I believe it is about 6in. or 7in. focus, in a focussing mount, sold as a portrait lens, No. 3,638, made by Fredk. J. Cox, 22, Skinner Street, London.—F. A. Thain.

F. J. Cox was not a maker of lenses, but a dealer in photographic materials some forty years ago. The lens is probably one of the old quarter or half-plate ones of French make. It has really no market value at the present time. You had better try it and see what it will do. It is impossible for us to say what it will cover.

STUDIO QUERIES.—I am having a new studio built. It is to be of brick, size 33ft. 9in. x 16ft. 6in., with rooms on ground floor and studio on first floor, with north-west light, which will be practically unobstructed by any buildings within, say, 100ft. on N.W. side (glass side), and 30ft. S.W. side. I beg to enclose the proposed plans for your inspection, and any improvements you can recommend I shall be pleased to know. I enclose stamps for return of plans. Being an old reader of the "Journal" I would feel greatly obliged for your advice re above, also enclosed questions:—1. What amount of glass in studio 33ft. 9in. x 16ft. 6in. would you recommend? 2. What width of opaque wall should be from back end S.W. to glass? 3. What width sections for glass on roof and sides? 4. What style of framing for glazing, wood or iron sash bars, and the best method for fixing glass in same? 5. What kind of glass most suitable for all-round work, fluted, rough-rolled, ground, frosted, or plain glass, worked with blinds which could also be covered with tissue paper if required? 6. Do fluted and ground glass obstruct much more light than plain? if so, state at what percentage. 7. Would it be necessary to fix blinds with ground or fluted glass (as I have always used them with plain glass), and would the above glass diffuse any strong sun towards the evening? 8. I shall be taking at S.W. end of studio; or would you advise placing sitters at the N.E. end? 9. Would you recommend having a small portion of glass on opposite side of roof (facing S.E.); if so, how much?—W. NEWARK LEWIS.

1, 2, and 3. About 6ft. 6in. at either end may be solid, and the rest glass. You will then be able to work either end. If you elect to use one end only, the same amount may be solid and about 13 or 14 glass. 4. Stout iron sash bars and good ordinary putty. 5. White-rolled plate will be best for the roof, as that will resist hail-stones. Fluted or plain glass for the sides. The former will prevent the sitters being seen from the outside if the studio is overlooked. 6. Practically fluted glass obstructs no more light than plain. Ground glass stops out but little light, if kept clean. 7. Yes, blinds will be necessary. Just the same as with plain glass;

but the rolled plate in the roof will render it somewhat less troublesome. 8. We should advise the studio being glazed so as to use both ends, so that sitters may be lighted on either side as occasion may require. 9. Not necessary if the studio be worked as just suggested. The plans have been returned to you.

BROMIDES.—I am puzzled as to the veiling of bromide during development. You could only see a dim outline on looking through, and developing by that method. The image was bright enough. They fixed out very fair. I am wondering as to cause; perhaps under-exposure. It is a semi-matt. I never had the experience before.—BROMIDE.

Your information is too meagre for us to do more than guess, but it would appear that the developer was exhausted, or contaminated with hypo.

DEFECTIVE POSTCARDS.—I enclose a postcard. Will you kindly tell me the cause (or causes) of the failure and of the back being stained? It is one of a new lot that I got recently, and most of them are defective. The other card, of a cottage, shows another defect which many have, but not the staining of the back. If you will kindly tell me if it be my fault or that of the cards you will greatly oblige.—J. E. GUBBINS.

The particulars you give are so scanty that we really cannot suggest causes of trouble. If these are self-toning cards it would seem likely that the cards are at fault. Possibly stale.

CINEMATOGRAPHY.—(1) Could you recommend any books on cinematograph projection, electricity, etc., relative to animated pictures? I am thinking of taking up the business this coming season, and should like to read up some useful information before taking a few practical lessons. I want a book that avoids terms that are not really understood by novices. I understand the "handle-turning" part. It is the electrical part and the lenses required for varying distances between bioscope and screen, etc. (2) What class of material is best for a screen?—ANIMATED PHOTOGRAPHER.

(1) We should advise you to get "Animated Photography," by Cecil M. Hepworth (Hazell, Watson, Viney, Ltd., 1s.). You would also do well to study the "Kinematograph Journal" each week. (2) The material usually used is stout sheeting, with a coating of zinc white.

RIGHT TO PUBLISH COPIES.—I have been asked to print many postcards of late vicar of Church. Letter asking for permission from photographer who took this photograph having been returned "address unknown," should I be safe in doing these prints to sell for benefit of the church?—E.

Certainly not. If, as is most probably the case, the copyright is the photographer's, the fact that you do not know where he is does not give you the right to take his property.

BACKGROUNDS.—1. Would you kindly tell me through the "Journal" [the best way to get an intensely black background on a soft negative. Is there any method of blocking out or bleaching the film? I use a dark ground, but cannot get it a nice black, only with a very hard negative. 2. Is it quite safe when bromide-printing at night to give prints a good rinse, dry them and thoroughly wash next day? I often have to do that, and wondered if it would affect permanency.—J. S.

1. If the outlines of the negative allow of it the best way is to make a transparency, block out this and from it make a second negative. But that is making the best of a bad job; if you want to get a dead black ground, the best plan is to pose the sitter before a dark space, e.g., the doorway of a completely darkened room. 2. It is not the best plan, but if the fixing be very thoroughly done the prints ought not to suffer. We should not advise a regular practice being made of it.

WINDSOR CASTLE. (1) Can you tell me if the State apartments of Windsor Castle have been photographed? (2) Whether any special permission is required to use a camera on days when they are open to the public? (3) If so, who are the proper parties to apply to for it? (4) Whether any permit is required to photograph the castle from the outside?—TASMANIAN.

(1) The State apartments of the castle have been photographed over and over again, and the pictures published. (2) Yes, certainly it is. (3) From the Lord Chamberlain's Department, Windsor Castle. Written application should be made some days before you desire to do the work. (4) None, if the camera is used from outside the

castle grounds. If you wish to take photographs from the inside of the grounds, open to the public, you will, no doubt, be able to obtain verbal permission to do so from the Inspector of the Castle at the time of your visit.

PHOTOGRAVURE PLATES.—I am anxious to make some experiments in photogravure, but I am in a difficulty about the cost of the copper plates. What I want are about the half-plate size, and, on inquiry at one or two of the houses that supply printing materials, I find that the prices are exorbitant as compared with the present price of copper. As I must be prepared to spoil a number of plates the cost is, with me, a serious item. Can you give me your advice in the matter?—W. CROWE.

Messrs. Penrose and Co., Farringdon Road, make a speciality of copper plates for photogravure and like purposes, and we should advise you to get their prices. You must understand that the cost of plates for engravers' purposes is due to the workmanship in their manufacture rather than that of the raw copper.

ECONOMY.—A hypo bath that has been used for fixing P.O.P. prints may be used for fixing negatives. But one that has been employed for fixing negatives should not be used for fixing prints, or trouble may be expected. Surely hypo is cheap enough to render it unnecessary to stint its use in the way you propose—particularly if the stability of your work is of any consideration whatever.

OPERATOR.—There is no law that will compel an employer to let an assistant take specimens of portraits he may have taken of sitters during his employment. It is usual to let an operator have a few on his leaving, so as to enable him more easily to obtain another engagement, but that is done as a matter of grace, and not because he has any legal rights with regard to them.

STUDIO ROOF.—Can you please tell us how we can make the roof of our studio completely watertight? It is an old one, and we have had a lot of trouble with it during the past two or three years. It seems as if when one place is repaired, leaks appear in others.—C. A. R. R.

This is a query that a local builder after seeing the place can answer better than we can. It is not an easy matter to make a neglected studio roof thoroughly watertight. However, if the place is in the bad state described, the best thing to do will be to scrape or "hack" out the whole of the old putty on the upper side of the sash bars and apply a couple of coats of thin paint—the first liberally applied—when it is dry to re-putty the work and afterwards repaint. It is possible, as the studio is old, that the sash bars give with a strong wind and thus cause the putty to crack. In this case they should be strengthened. This may be done by a couple of bars of "T" iron, fixed horizontally, inside, and screwed to the sash bars.

AJAX.—We cannot tell you a "suitable strength," to employ, inasmuch as gelatine is quite insoluble in absolute alcohol. Your friend has, no doubt, made a mistake in the translation of the formula into English. Possibly acetic acid and not alcohol was what was given in the formula, as gelatine is soluble in that.

STAINED PRINTS.—Can you tell me the cause of the stains on the enclosed prints? They are not due, I am sure, to their being imperfectly fixed. You will notice that the whites of the vignette are somewhat fogged and are not, as they should be, pure white.—C. SIMMONS.

The "stains" and impaired whites are due to the prints having been toned in too strong a light. That is proved by two of the prints sent being marked where they were overlaid by others while in the toning bath.

THINNING VARNISH.—I have the best part of a pint of negative varnish that has become too thick to use, through the cork being left out of the bottle. Can you please tell me how to thin it so as to make it useable?—W. BRYCE.

We cannot tell without knowing what kind of varnish it is. If it is a spirit varnish it must be thinned with methylated spirit. If a celluloid one, it can be thinned with amyl-acetate, or acetone, or a mixture of the two. Should it be a dammar varnish benzole will be the proper thing to use.

BUCKLED PRINTS.—I shall be indebted to you if you will be good enough to help me out of a difficulty. I mount certain of my pictures on special mounts by attaching them only at the edges with the cement. They are perfectly attached and are quite flat at first.

After a day or two they become buckled in the middle, though still secure at the edges. The reason that the prints are not cemented all over is that the mounts used for these particular pictures are very costly, and, with care, we can take rejected proofs off and use the mounts again. Any hints will be greatly appreciated.—A. G.

The only suggestion we can make is that the prints were over-dry when they were cemented to the mounts. If they were abnormally dry when they were mounted the paper would be in its most contracted state. Then when it regained its normal condition it would expand again and become more or less buckled. Try keeping the prints in a cool and rather damp place for a few hours before they are mounted. That will probably overcome the buckling trouble.

DISCOUNTS.—Will you please tell me the largest discount that manufacturers allow off plates and paper? As I am an amateur, and get nothing for my work, I want to get my material at the lowest possible price?—J. C. J.

We cannot say what the largest discount is that manufacturers allow, and they are probably not all alike. As you are neither a dealer nor a professional photographer, we do not see that you should be allowed any, except, perhaps, a small cash discount. Why should you?

CYANIDE OF POTASSIUM.—I want a little cyanide of potassium. I have applied for it at three dealers, and they all tell me that they do not keep it, and that I shall not be able to get it. I only want about an ounce or so for some experiments. Will you kindly say where I should be likely to get it?—CYANIDE.

This salt is one of scheduled poisons under the Pharmacy Act, and is only allowed to be sold in small quantities by pharmaceutical chemists. Any pharmaceutical chemist who makes a feature of photographic materials will doubtless supply what you require. According to the Act you will have to be introduced by some one who is known to him; but, as a rule, chemists neglect this, so long as the poisons book is signed by the purchaser.

DISHONEST CANVASSER.—Some months ago a man, who seemed to be a respectable one, applied to me for a berth, saying that he was very hard up. He said he would canvass for me as agent, on commission only—that is, if he did no business he would get no pay. To this I agreed on condition that he rendered an account every Saturday night. He did very well up till just now. He has now left without notice and is working for another photographer a mile or two off. I now find that he has been taking money which he has not accounted for to me. Also that he has taken deposits for pictures to be made at ridiculously low prices—ones that will not pay me. I have seen the fellow, and threatened him with the police for embezzling unless he settled up at once. He laughed at me, defied me, etc. Will you please tell me what to do? Of course I shall not take the pictures at the price he has agreed for.—A. L.

It seems to us that as the man was not paid a salary he was not a servant, and therefore cannot be charged with embezzlement. You appointed him as your agent, so that you can only sue him in the County Court for what money he may owe you as such. We expect you will have to take the portraits at the prices the man contracted for, as a principal is bound by agreements that an appointed agent may make.

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SUMMARY.

The Dresden Exhibition.—We review this week the sections labelled "Amateur Photography" by the Dresden authorities, and devoted to exhibits claiming pictorial merit. Of these, the "International Union of Art Photographers" provides by far the most interesting sub-section. The twenty-eight other rooms devoted to pictorial photography prove rather tiring, though the Dresden executive has done everything possible, in the way of hanging and furnishing, to relieve the monotony. (P. 471.)

We commend to all teachers and demonstrators of photography the description of the devices of Dr. E. Goldberg shown at the Dresden Exhibition for presenting the elementary facts of photography, light and colour, in a way which impresses them upon the mind even of the non-scientific person. (P. 476.)

Dr. D'Arcy Power, in "Camera Craft," has described a convenient form of vertical enlarging camera. To save shifting the shelf or easel bearing the sensitive paper, he alters the focus of the lens by means of a supplementary glass. (P. 475.)

A method of converting a bromide into a pigment print by brushing over it a mixture of casein and pigment has been patented. The process is based on the ozobrome method. (P. 480.)

Intensification markings and the speed numbers of plates are topics dealt with under "Correspondence." (P. 486.)

A little-used method which may often be applied with advantage for the improvement of negatives is the subject of an article on page 470.

A hint to fine-etchers and a new device for checking the type-height of blocks are items included in "Photo-Mechanical Notes." (P. 480.)

EX CATHEDRA.

A Possible Window Attraction.

The other afternoon, when spending an hour or two in the side-shows of the Earl's Court Exhibition, we came across one which suggested possibilities in the ways of an attraction for a photographer's shop window. We do not expect to find it taken up down both sides of Baker Street and Bond Street, but in many small towns a business which caters for middle-class people might do worse than provide something which, photography apart, would excite wonder. The attraction is for night time only, since the illumination must be confined to two "line-o-light" lamps placed one on either side, and quite close to the wall or panel to which the exhibit is attached. This consists of a relief made in "plasticine," or any convenient material, in such a way that a different picture is seen according to whether the lighting is from the right or left. The change results from the fact that under a lighting falling across the surface of the relief from a source close to it, the shadow side of each ridge of the subject is really invisible, though the mind, by suggestion, appears to see there the appropriate detail. Thus in the case of a portrait the two halves of the face can be made to represent different persons, a race-horse is convertible into a cart-horse, and other equally astonishing effects are easily secured.

* * *

Formula or No Formula.

While there are many photographers who seem to be impressed with the idea that great virtue rests in some particular development formula, there are a few photographic writers who go to the opposite extreme and denounce formulæ as worthless. One such writer in a contemporary states, in italics, that "the formula does not matter." This dogma is just as misleading as the opposite idea, for the only information it conveys to the beginner, who takes instruction very literally, is that it does not matter how we proportion the ingredients of the developer so long as the necessary ones are all in. The real fact, of course, is that formulæ do matter, and while our knowledge of the science of development is not yet complete enough to enable us to determine the ideal formulæ, yet it is well known that we cannot depart very far from certain proportions without getting into trouble. The fallacy in the statement that "the formula does not matter," is as great and misleading as that involved in the further one, that if exposures are not correct no developer will put them right. Such dogmatic statements only contain a grain of truth which is too perfectly concealed to be of any value, and if they are interpreted literally and as baldly as they are written, the result is quite at variance with well-known facts. It is a good plan to impress upon the beginner the great importance of correct exposure, but there is no need to back up the advice by the assertion that all the formulæ in the world

will not save an incorrectly exposed plate. If it happens to be over-exposed there are several well-known methods of saving it, and the photographer gains nothing, and may lose a good deal if kept in ignorance of this fact.

* * *

Cheap v. Free Enlargements.

We note that in a neighbourhood that has recently been infested with free portrait swindlers a local dealer is advertising his willingness to supply 15 by 12 enlargements from prints or negatives for three shillings each, and frames of the same size for another three shillings, the total cost being, therefore, less than one-third of the amount that the itinerant swindler tries to extract from his victims. The dealer in question being well known in the neighbourhood, there is no longer any great field open to the free philanthropist, whose victims will now be limited to those who imagine that "free" means no cash payment. Hitherto this gentleman has done the greater part of his business with the little more intelligent class who know they are not being dealt with honestly, and yet think they are getting good value for their money. They will now, no doubt, jump at the chance of getting the same value for one-third the money, in which case the strange canvasser with his free offer will lose their custom and a proportion of his own profits.

* * *

Stains in Chromium Intensification

Sometimes when a plate is put through the chromium intensification process the final result shows brown stains, especially where fingermarks existed on the original. These stains, particularly when due to the existence of grease on the negative, are easily removed if the plate is first soaked in a solution of sulphite of soda and hydrochloric acid, and then rubbed with a wad of cotton-wool. The slighter stains will rub off immediately, while the stronger ones will yield to two or three applications of the solution. Incidentally the solution will slightly reduce the intensification obtained, and for this reason it is better to soak the whole plate than to merely apply the solution locally. The reduction is, however, not very great in any case, unless a great deal of acid is used, and three or four drops in two ounces of 5 per cent. sulphite solution are usually quite enough. Sulphuric acid will no doubt serve, though it so happens that hydrochloric is the only acid we have actually used for the purpose. It is, of course, better to prevent rather than to cure the stains, and they will not appear if the negative is thoroughly cleaned before intensification, and the film is not touched between bleaching and redevelop-ment.

LOCAL INTENSIFICATION TO ANY DEGREE.

It is not uncommon for us to receive inquiries as to the intensification of negatives from which it is evident that the real object of the inquirer is to produce very considerable local treatment of the negative, rather than a general intensification. Often in such cases it is intended to take a very large number of prints from the negative, and therefore some little trouble in securing the most perfect conditions at the outset are of no consideration. The dusting-on method, now little practised in this country, affords a means of attaining this end which those who have not practised it will, perhaps, fail to put at its proper value. One great advantage of it is that the change in the negative, if not thought perfectly satisfactory, can be destroyed, and the operation started afresh. The method is simple in practice, and may be said to be quite a mechanical one. It may here be as well to explain what this process is, for the benefit of those who are not conversant with the principle upon which it is based. If a

plate be coated with a bichromated colloid, which is of a somewhat tacky nature, it is greatly modified by exposure to light. Thus if we coat a glass plate with, say, gum arabic, mixed with a little glucose, honey, or the like, plus a bichromate, and dry it, a pigment brushed over as a fine powder will adhere evenly all over. If, however, the plate be exposed for a while to light the character of the colloid will be altered, and the powder will not take at all. With this brief explanation, it is easy to see that if certain parts are protected, as by exposing through a negative, that another negative can be directly obtained, and this process has been largely used, though not so much here as on the Continent, for producing reversed negatives for collotype and similar processes. With this little preamble, we will now describe the method of working the process for our present purpose.

In the first instance it will be well to varnish the negative to be dealt with. This is not really necessary, but it is a wise precaution to take, because if in coating the back of the varnished negative a little of the mixture gets on the front it can easily be wiped off, whereas if it is not varnished the negative film would be liable to be stained by the bichromate. The back of the plate must be made thoroughly clean, otherwise the mixture to be applied would not flow evenly over it, and an even coating will not be obtained. As regards formulæ for the powder process, very many have from time to time been published, but so far as our experience has gone with them they are all workable. The following are two which are reliable and easily prepared:—

- A.—Gum arabic 4 drams.
- Glucose 10 drams.
- Honey 2 drams.
- Water 10 ozs.

When dissolved, add alcohol 1½ drams.

- B.—Ammonium bichromate 1 oz.
- Water 10 oz.

For use, add one part of A to two parts of B.

The second is a one-solution mixture:—

- Dextrine 2 drams.
- Sugar candy 2 drams.
- Ammonium bichromate 1 dram.
- Water 8 oz.

The solutions when mixed with the bichromate will keep good for a few days only; but if the bichromate be kept separate they keep for weeks.

The back of the negative, being thoroughly clean, is flowed over with the sensitive solution, drained, and then dried before the fire or over a spirit lamp. Only a very thin coating is required, so that the plate should be well drained before it is dried. While the plate is still warm it is laid on a piece of thoroughly dry black velvet or black paper, and exposed (face upward, of course) to light for a few minutes. After the exposure the plate is again warmed and allowed to rest for a short time. It is scarcely necessary to say that this, like the preparation of the plate, must be done in a very subdued light. When the plate has become cold, if the negative has to be generally intensified all over, a little fine plumbago—that sold for electrotyping purposes is the kind to use—is lightly dusted over with a flat camel-hair brush, when it will be found to take on in proportion as the light has not acted on the coating; that is, the lights will take the colour freely, while the shadows will hold but little, and the deepest ones none at all, as in them the tackiness of the film has been practically destroyed by the action of the light. A word of caution will not be out of place here. It is that only a very thin deposit of plumbago is necessary, as it obstructs far more light than would be suspected by the novice.

Supposing local treatment is required, then the plumbago is applied (with a camel-hair pencil) only to those parts that require strengthening, while the other portions are kept clear of the powder. Should the detail in the shadows be too weak to print well, the powder should be applied to those parts and kept away from the denser portions. If the lights only want more vigour, the plumbago is applied only on them. In this way there is immense scope for converting an inferior negative into a really good one, and with advantage that, if the first essay is not quite satisfactory, the work can all be cleaned off with a damp rag and the plate re-coated. Although the work is on the back of the negative, it serves its purpose quite well, while it does not require such nicety in the manipulation as if it were on the film side.

With regard to the exposure, all must necessarily depend upon the light and the density of the negative. But there is great latitude in this matter. If it is found when the powder is first applied that it takes too freely, it shows that the plate has been insufficiently exposed, or that the film is in a too moist condition. Still, it may generally be made right by warming it before the fire so as to drive off some of the moisture. If, on the other hand, the plumbago does

not take kindly, it shows that the exposure has been too long; but that can usually be remedied within very wide limits. What we do in this case is to put the plate in a damp place for a quarter of an hour or less, so that it can absorb more moisture. The same end may be attained by gently breathing on the plate; but when that is done the powder should not be applied for a few minutes afterwards, so that the moisture may become evenly absorbed by the film. If it were applied at once brush-marks would probably be produced. It will thus be seen that the successful working of the powder process depends entirely on the hygroscopic condition of the film.

When the work is finished, the superfluous powder is removed lightly with a broad camel-hair brush; but the plates should be well warmed beforehand, otherwise there might be sufficient moisture in the film to cause some of it to stick. The work being completed, it only remains to fix it. This is done by simply exposing the back of the plate to a strong light—sunlight is best—for an hour or so. This will harden the film, and so destroy, permanently, its tackiness. There is no necessity to remove the bichromate, as the film is so thin its presence will not appreciably retard the printing.

THE DRESDEN EXHIBITION.

IV.

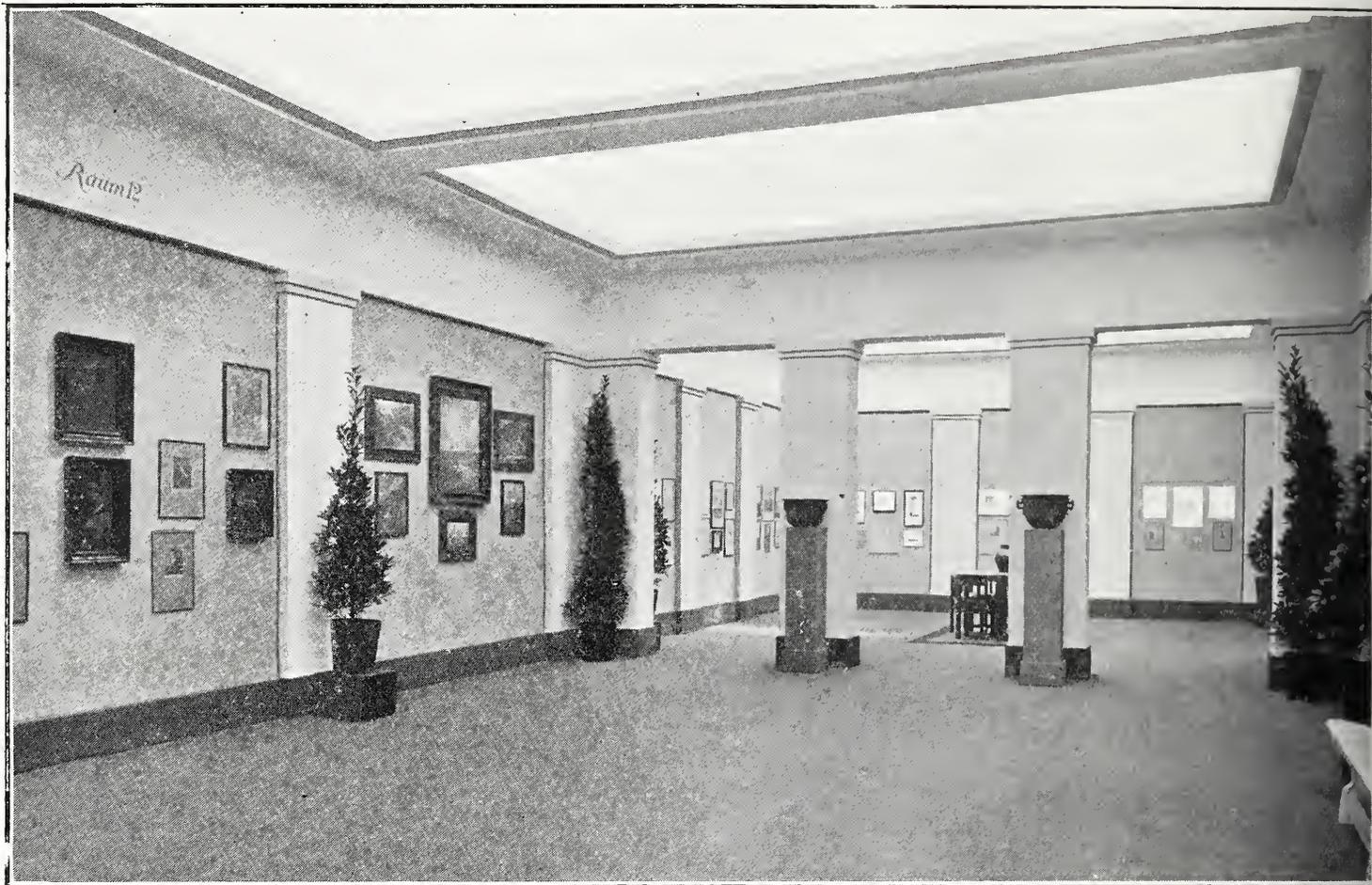
As we wrote in the first article on the Dresden Exhibition, the most striking feature of interest within its many galleries is the one to be found and studied in all of them—namely, the art of arranging and mounting a whole series of collections of photographs. That impression remains one of the most persistent of those formed, and, on that account alone, a visit to the exhibition comes near to being an education for those who may be entrusted with the duties of supervising the display of photographs for public inspection. And, unfortunately, it is a feature of an exhibition most difficult to describe. The photographs which we reproduce in this issue will give some idea of the details of arrangement, furnishing, and lighting, but they cannot convey the niceties of tonal harmonies and contrasts practised throughout with great skill. In every instance these arrangements were in the hands of artists working in conjunction with the executive of the exhibition. Very likely the result in every case would not commend itself to our English ideas of what is fit and proper, but, as already pointed out, in some instances almost vivid contrasts between floor-covering and those on the walls have been adopted in order, as it were, to administer an æsthetic tonic to the visitor making a conscientious tour of the galleries. This explanation, which is quite seriously given, would seem to amount to the damning admission that the photographs themselves do not provide the jaded observer with sufficient variety, and, frankly, no truer criticism than that could be passed on the pictorial

sections of the exhibition. It is not particularly comforting to be told that the sensation of weariness produced by series of "photographic pictures" supposed to be the pick of pretty nearly every country in the world requires to be—and may be—dispelled by offering to the eye an expanse of ochre carpet below a saffron frieze. We will not say that the plan of the German decorators has this result, but we cannot disguise the fact that there is the need of some tonic (or should it be balm?) more potent than contrasted tones of arras cloth. If ever a cult or a craft suffered by being presented in too liberal a measure, the so-called pictorial photography of the present day has suffered at the hands of the Dresden organisers. Granted—there is no reason to do otherwise—that they erred with good intent. Their aim was manifestly at a highly comprehensive demonstration of what photography could do in the hands of people of cultivated taste; but they carried a system of classification and sub-division according to place or country to a foolish excess, with the result that the larger number of the photographs have no other result than to make you very tired, and to cause you to take a solemn vow never to go to another world exhibition of pictorial photography. Years ago, in the early days of the pictorial photograph, Sir William Abney declared that one out-of-focus photograph produced in him an absolute sensation of nausea. If Sir William Abney should visit the galleries of "amateurphotographie" at Dresden—

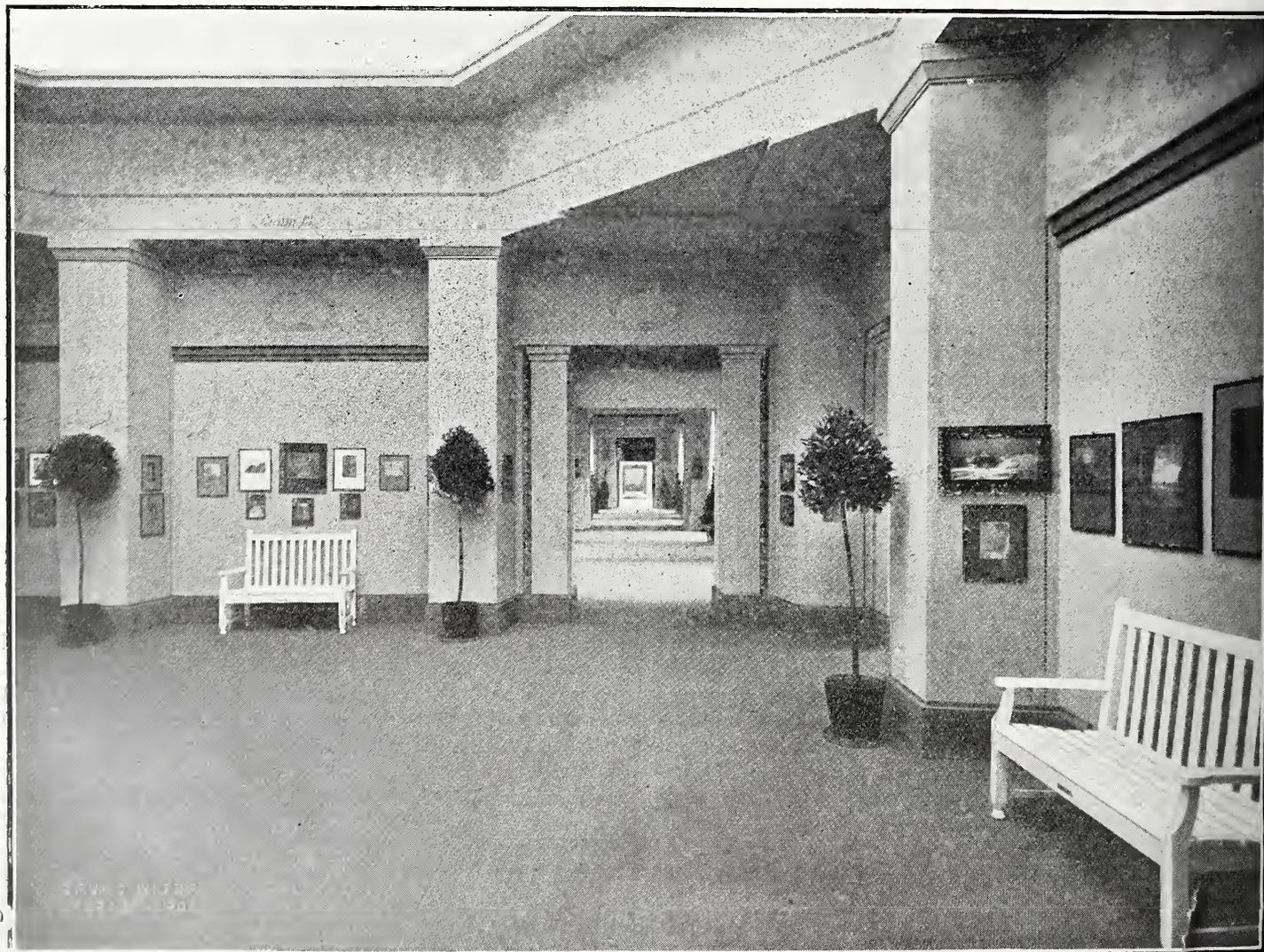
THE AMATEUR PHOTOGRAPHY SECTION.

We have written above of the general impression obtained on conscientiously studying the contents of the twenty-nine separate apartments in which the work of the amateur photographers are collected, but it would be most unfair to dismiss this section of the exhibition in this perfunctory way, particularly as at least one sub-section deserves to be excepted from the general criticism: we refer to that of the so-called "International Union of Art Photographers" (Internationale Vereinigung der Kunstphotographen). In the catalogue this body stands next to the section devoted to photographs by royal personages, including the King of Saxony and his sister, the

Princess Mathilde, some of whose photographs are of very nice technical quality. In the arrangement of the galleries, however, the International Union has the place of honour. Its works are shown in a room of noble proportions, where the 200 pictures are hung with plenty of space between them. As we pointed out in a previous issue, the largest exhibitors are E. J. Steichen and Clarence H. White. A. L. Coburn, Alfred Stieglitz, and Heinrich Kühn come next. Other American workers are Mrs. Brigman with 8 pictures, F. Holland Day with 5, W. B. Dyer with 2, Frank Eugene with 13, H. G. French with 4, J. T. Keiley with 6, and G. H. Seeley with the same number. J.



A general view of the larger of the two galleries in which the English pictorial work is shown.



On each side of the corridor are five separate small galleries containing German pictorial work. The gallery occupying the foreground contains the American amateur section.

Craig Annan (8) pictures, George Davison (5), and A. von Meyer (8) are the three English members of the Union. R. Demachy, with 10 oil prints, is the sole French member, if we except A. Personnaz, who exhibits 10 landscapes amongst the Autochromes, whilst Austria is further represented by F. V. Spitzer, of Vienna.

The larger proportion of the collection is thus the work of the Americans, and a curious emphasis is given to the fact in the catalogue by the insertion after the title of each picture by F. Holland Day, Keiley, Steichen, Stieglitz, and White of the date of its production. As the catalogue number immediately follows, the result is something of an embarrassment when going round the walls, but, presumably, one's compensation for the trouble is the interesting retrospective view thus afforded of the progress of these workers.

So much for the composition of the International Union. We hasten to add that the contents of its gallery tower above the other pictorial collections largely because of Steichen, White, and Kühn, the bigness and certainty of whose work impresses on one the mastery of his art possessed by each author. Although these men may at times scandalise us by their insubordination in the matter of art-discipline, in the long run they usually prove themselves to be the pioneers of work and ways that widen and enrich pictorial photography. If a large exhibition, even of good things, be a surfeit, it must become tiresome; and the new idea, the daring method, the outrageous motive will stand out in our impression as a welcome landmark—an oasis of interest in a desert of level merit. We dare not say that such works need not be good also. Original though they may be, they must not fail to bear the impress of single-heartedness and a conviction that artistic impulses alone have prompted them. Mere bids for popularity that are nothing else simply emphasise our worst impressions of an exhibition.

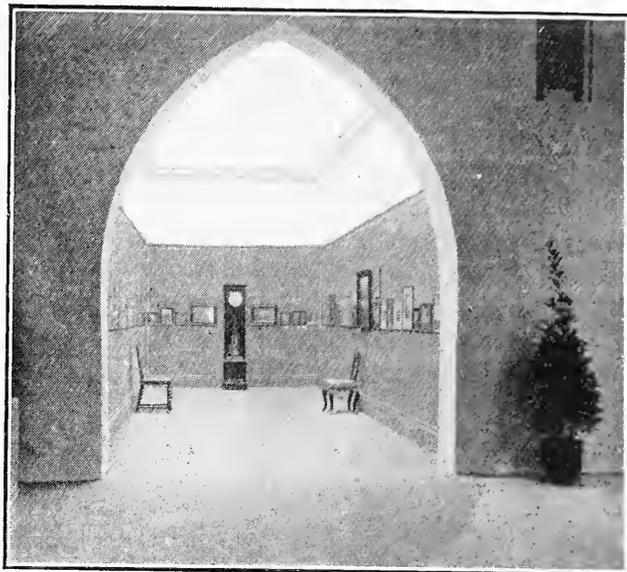
The nude studies of Miss Annie Brigman are, we think, too ambitious in their literary interest. She is too anxious to tell a story, with the result that her figures are combined in an uncomfortable way with various natural objects, and the legitimate interest of nude studies—namely, beauty of form and modelling—is dissipated in far-fetched ideas of the romantic, where nudity seems to be forcibly imported. Much of Mr. Coburn's work suffers from a similar striving. His faculty of beauty-perception seems to become atrophied at times when he produces Flip-Flaps, or selects disorderly lines and ugly masses simply because everybody before him has rejected them. The inclusion of such examples in an international exhibition cannot enhance his reputation among people who are able to judge.

The few works by H. G. French have distinction and novelty also. They are decidedly the result of a purely personal approach, and appear to be independent of that sheep-like discipleship which degrades much work of the romantic and poetic class. Mr. French is his own master, and his work is a great support to the International section. Robert Demachy also is *sui generis*, but in another way. His work is incompatible with the American products surrounding it. As oil prints these pictures require to be seen in a class with others of their kind, where their painter-like qualities would not clash with the smoothness of the photographically derived prints.

Passing through the collection of the International Union, one comes upon a long corridor on each side of which are five separate small galleries containing the work of the German amateurs. These are subdivided so as to give a separate representation to workers in Dresden, Leipsic, Saxony, Berlin, Hamburg, Bavaria (there is a separate section for Munich), Rheinland, and Westphalia, and, lastly, various parts of Germany. The result of this necessarily large representation of amateur work is, we fear, not to the advantage of the German workers, since work which has outstanding merits has to be looked for among a great many prints which are scarcely de-

serving of a place in an exhibition such as this. Any detailed criticism of these many pictures would, we think, serve no useful purpose, but we may make a note of some few pictures of special merit, and thus do some service to those in this country who may be anxious to secure a representation of German pictorial photography at exhibitions here.

Otto Ehrhardt in a print "Weisses Schloss" contributes an imposing rendering of a lofty castle standing among trees. Dr. Kuhfahl in No. 721-39, "März Stimmung an der Elbquelle," gives a fine version of a storm in the snow. J. Ostermaier, whose excellent work in flower photography we have already alluded to, shows in No. 727-52 a very pictorial treatment of a glacier stream. The portraits by R. Renger-Patzsch (730-56) are of large heads of children, and are technically beyond



One of eight small galleries containing German pictorial work.

reproach, whilst they portray the subjects free from the appearance of staring at the camera. In the section of the Berlin workers the three exhibits by W. von Gloeden are by no means the best by this accomplished worker. The Hamburg exhibits, arranged by Herr Ernst Juhl, are naturally interesting, since they include a selection of work, old and new, from the Hofmeister brothers and H. W. Müller. Photographers in Bavaria scarcely seem to have done justice to the many natural beauties of this part of Germany. Two prints which stand out for their charming rendering of landscape scenes are "Sommernachmittag," by Alfred Erdmann (No. 851-3), and "Sommerlandschaft" (No. 860-28), by Albert Mayer. Among a number of prints by workers scattered in different parts of Germany there is one which is a perfect triumph of indoor photography, entitled "Raucherkathe" (No. 873-21), by Andreas Rohwer; it is a view of a workroom lighted by one little window, near to which a figure sits at work. Landscape predominates through these collections, and apparently the German amateur workers have not devoted themselves so much as in France and England to portrait and figure studies. The title of one figure study (No. 761-22) by Elsa Gysac struck a note of humour. It is "Missstimmung" (bad temper), and shows a mournful-looking man waiting while a girl does up her hair preparatory, apparently, to the two emerging together from the front door of their house which stands open.

Next in order of tour through the exhibition comes the English section, the arrangement and hanging of which have been very carefully done by Mr. E. O. Hoppé, who has adopted a scheme of tones for wall and floor covering which are quite English in their note of quietness. Most of the pictures, it need hardly be said, have already been seen in the exhibitions here, and the first impression which is made by the collection is the freshness and charm of the landscapes by the late Horsley

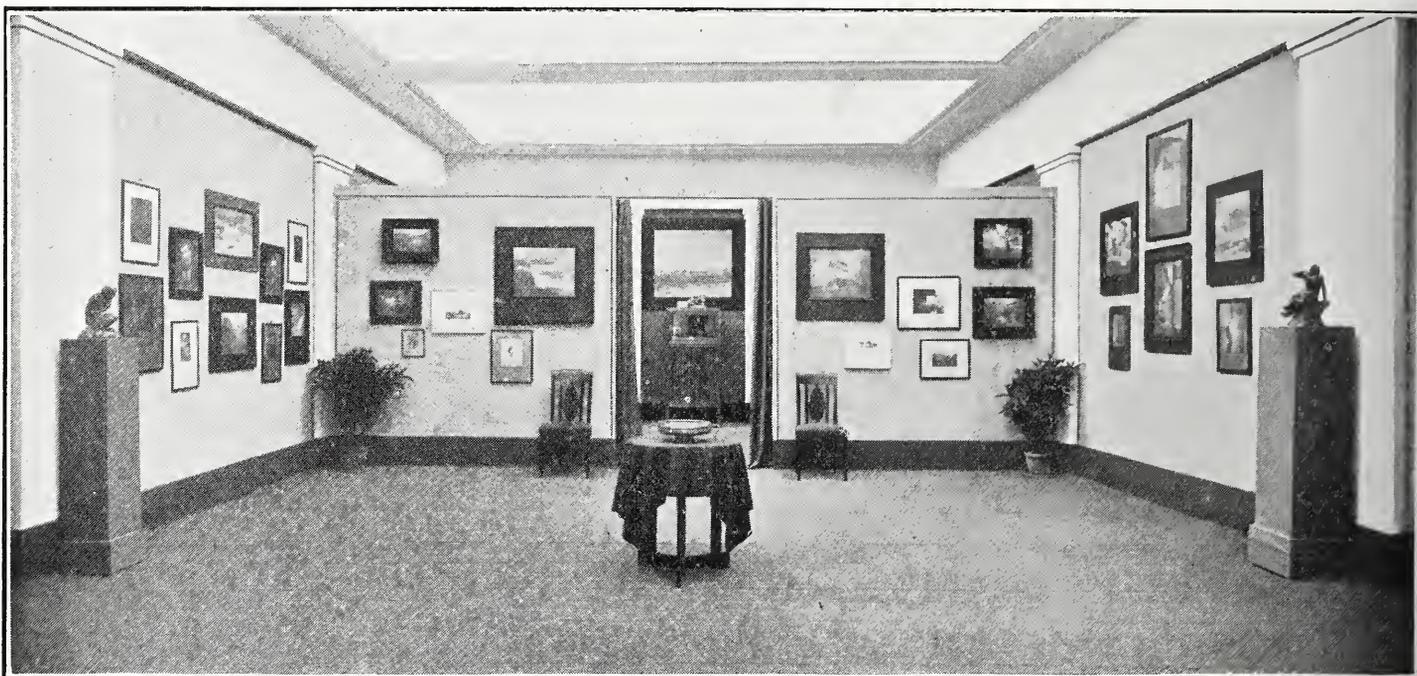
Hinton; these, not only from their size, but from the evident certainty with which the author has translated impressions which appealed to him, take the leading place upon the walls. As regards its representation of other workers the English section fairly completely represents the work of exponents of pictorial photography of this country, not only those regularly sending to exhibitions, but also workers whose pictures are usually seen only at the annual exhibitions of the Linked Ring.

Opening out of the second gallery accommodating the English work is a small collection of pictures collected under the heading in the catalogue of "Englische Lehranstalt für das künstlerische Kamerabildnis und für die wissenschaftliche Photographie," which we may translate as "English school for technical and scientific photography." The exhibits are the work of the scholars and the teaching staff, the chief contribution from the latter being a series of portraits by E. O. Hoppé, and of photographs of natural history subjects by F. Martin Duncan. There are also one or two of the well-known pictures of A. H. Blake, and two of the even more familiar sea subjects of F. J. Mortimer. The work of the students is represented by photographs by Grete Back, Russell Burchall, W. Fells, Chs. Rolph, and C. Wille.

it represents the work of the Italian amateurs. In fact, it is self-evident that it does not, for it includes among some five-and-twenty photographs, mostly of very mediocre quality, only one example of the charming work of Guido Rey. Another Italian worker, Edouarda Garrona, of Turin, whose pictures on the few occasions on which they have been shown in this country have merited the highest praise, is not represented at all, and it would therefore be unfair to make any adverse criticism of Italian work which on the face of it does not represent the best of which workers in that country are capable.

The sections devoted to work of amateur photographers in Budapest and Switzerland do not call for any special remark. Those from the former source indulge the taste for two-colour effects which appear harsh and discordant—to English eyes, at any rate. The subjects are usually landscape and street views of natural beauty, as well as of portraits of ladies of somewhat ample proportions. Of the Swiss photographs all that may be said is that they represent beautiful or pretty subjects and at the same time excellent technical photography. The only one which we could select for mention is a fine study of clouds and landscape by Adolf Gurtner.

Only two workers contribute the section representing Belgium,



Part of the second gallery allocated to the English pictorial work. Through the central doorway is the exhibition by students and teachers in the English school for pictorial and scientific photography.

So far as we can learn, the exhibit represents the first public announcement of this London school of photography, of which we had heard in a semi-private way, and even now the Dresden catalogue does not name the address at which the instruction is given.

America.

Mr. F. R. Fraprie has brought together in this section over 100 examples of the pictorial work done in America by workers outside the charmed circle of the Photo-Secession. The works which appealed most to us were those—and there are quite a number of them—of winter landscapes, in the rendering of which several workers—J. Chislett, J. H. Field, and W. A. Scott—show that they have taken to heart the lesson set in this branch of work first by Rudolf Eickemeyer, jun. "The Snowy Hillside," by Mr. Field, is quite after the manner of Eickemeyer. Other workers who may be mentioned are D. H. Brockins, C. F. Clarke, and E. J. Keller.

Italy.

We cannot say very much for the collection got together by Ernesto Baum, of Rome. We should be sorry to think that

but one of them is L. Missonne, whose work we have seen and admired at past exhibitions of the Royal Photographic Society. The work of photographers in Finland certainly shows a certain character common to most of the exhibits; the taste seems to be almost entirely for evening effects of lighting or for winter subjects, in both cases the strangest colours being selected for the prints.

From Denmark, Sweden, and Holland only a very few prints are sent, to the number only of between sixty and seventy for the three countries. Workers whose pictures show notable merit are A. and D. Duckert, Niels Fischer, and Carl Frederiksen (all of Copenhagen), Nils Bagge and Hugo Beyer, of Stockholm, and W. T. C. Hoffman, of Amsterdam.

Russia.

By far the most interesting pictorial work is that from Russia, and particularly the figure and character studies by S. A. Lobiwikkoff, of Wiatka. He has taken as his subjects types of peasant life, which are treated in the simplest manner against a background which is almost plain or with one or two rude

articles of furniture included in the subject. In most of them there is a note of pathos from the very wretchedness of the sitters, whilst in the case of one or two of the portraits of children there is an air of comicality which appears quite natural to the subjects. Among a collection sent by the Amateur Photographic Society of Kiev one more ambitious subject by W. Ruszejky deserves to be mentioned. It is entitled "Grief," and represents a mother holding her head in her hands whilst a

sewing machine with a child's frock in it stands idle by the side. One last small gallery in the amateur section is devoted to a very interesting historical collection of silhouettes and miniatures, passing from which we come into the Austrian house, specially built by the Austrian Government, and including in its galleries not only amateur and professional work, but also process and trade exhibits, some description of which must be postponed to another occasion.

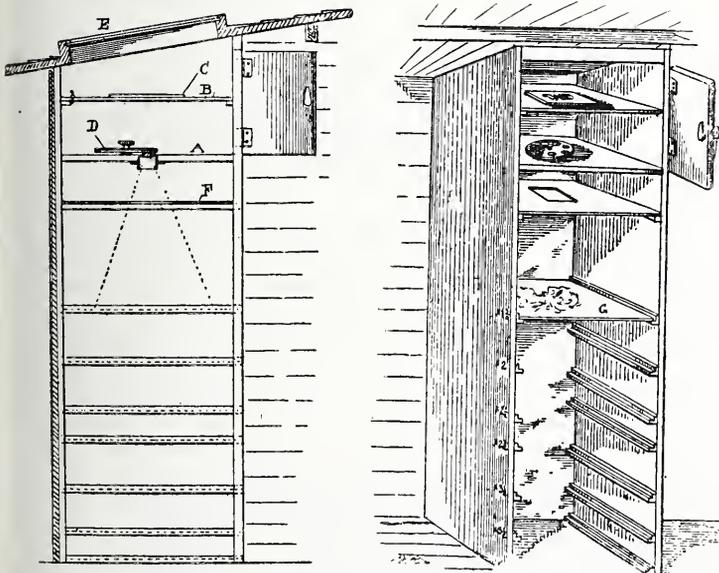
A NOVEL METHOD OF ENLARGING.

[Enlarging cameras built vertically have been designed on many occasions in the past, but have been found to possess drawbacks, chiefly that of the difficulty of moving the various parts in relation to each other. The device of using lenses of different focal lengths described by Dr. d'Arcy Power in the following article from the current issue of "Camera Craft" removes this drawback, and will no doubt allow of the vertical system being adopted more frequently.—Eds. "B.J."]

It sounds almost preposterous to announce anything new in enlarging, which is probably the most written-over topic in photography. Nevertheless, the method I am about to describe, and have successfully used for two years, does not appear in the text-books, and I have not met with it in my reading. This is my excuse for describing it.

The Vertical (Skylight) Enlarger.

I have used all kinds of enlarging apparatus, from a box with a pin-hole to massive and complex apparatus suggestive of a deadly compact between the higher mathematics and applied mechanics; but, for all the purposes for which I use enlarging, nothing has given me such satisfaction as my present arrangement. It arose out of my necessities, which were conditioned



by my environment. In other words, I had to enlarge quarter-plate negatives to various sizes up to 14 x 17 without having a large camera or much room in my workshop. My dark-room was located in the attic immediately under the slanting roof. A horizontal apparatus of the usual type would have taken up too much room. I overcame this objection by cutting a small skylight, E in sketch, in the lowest part of the roof, about six feet from the floor; and this I boxed in on three sides. On the fourth side, that looking directly into the room, I closed in the upper part with a light-tight door, immediately level with the lower edge of which is a shelf (A in the drawing), closing in the upper part of this long cupboard. This shelf has an opening in its centre into which my lens board accurately fits. Eight inches above this shelf is another, B, with a central opening to take a 7 x 5 plate or carrier, or, as I now have it, a sheet of plate glass. The cupboard below the lens is

grooved at the sides to take a movable shelf, G, at any desired level. This is nearly all there is to it; it is simply a long box, with a skylight forming its one end and the floor the other, enclosed as described. How is it used? We take, say, a quarter-plate negative, shown at C, and place it on the glass shelf above the lens and close the door. Its image is projected on the floor, fifty-six inches below, seven times enlarged, 22 x 30 inches; but you say: "I don't want that enlargement; I want an 11 x 14, about three times the size of the negative." All right; we put the movable shelf in a groove at twenty-eight inches, and we have an image of the size desired, but it is all out of focus; the lens needs moving nearer the camera which our simple arrangement does not permit. But, if we drop an ordinary plus spectacle lens over our seven-inch enlarging lens, we change its focal length to six inches, which gives a three-fold magnification at twenty-four inches. Do we only need a two-diameter enlargement, we use a plus two spectacle lens, the paper being placed sixteen inches below the lens. So with all other enlargements. Half a dozen unground periscopic spectacle lenses, which cost only a few cents apiece, will cover all ordinary requirements. They can be kept loose in a box on the lens shelf and slipped over when wanted, or mounted on a disc which can be rotated over the lens. Now, in practice, most of us work at more or less fixed sizes. We use 4½ x 3¼ or 5 x 4 or 7 x 5 plates, and we enlarge on 10 x 8 or 15 x 12 bromide paper. It is a very easy matter to find the supplemental lens that shall exactly give our usual enlargement; and, having marked it, and also marked the groove in the enlarging cupboard where a test slide gives a dead sharp image, we never have any more focussing troubles.

The Saving in Space.

From the construction of the apparatus, neither lens, negative, nor paper can ever fall into different planes, the commonest fault in horizontal enlarging apparatus. The work of printing enlargements is by this means actually more rapid than printing by contact from a negative. There is nothing to do but put the movable shelf in the groove marked for the required enlargement, slip the similarly marked supplemental lens over the enlarging lens, close the door, and, with the usual yellow cap on the lens, adjust the bromide paper (it does not need pinning), remove the cap, expose for necessary time, and develop. The total space taken from your dark-room is only the size of the largest sheet of bromide you are likely to use, in my case, 17 x 14. The cost of the apparatus (you use your camera lens) is, outside of the cost of the small skylight, little more than the price of the spectacle lenses.

Facilities for Vignetting, etc.

But these are not the only advantages. It offers ideal facilities for modifying the print, double printing, and the like. A sheet of plate glass can be slipped into a groove at any desired

height above the print, and thereon a mask arranged that shall accurately cut out or hold back any desired portion; according to the distance this is placed from the paper, so will the line of demarcation be soft or hard. Secondly, all forms of enlarging apparatus are troubled with reflected light when the whole of the image is not taken up by the paper. With this form, every superfluous ray can be cut out by the simple device of introducing between the lens and the paper a piece of cardboard, F in sketch, with a rectangular hole cut out. My plan is to keep such a piece of board permanently in position just under the lens, at D; the aperture is large enough to permit the projection of the largest sized image; when a smaller image is thrown on the screen, the opening is diminished to the size of the part to be printed by narrowing the opening with two pieces of cardboard cut in the form of L squares and used to enclose the portion desired. I never have degradation from reflected light. Let me further point out that, if you are about to enlarge only part of a negative, you are able to place this part over the centre of the lens, thus securing the best definition. The negative-bearing shelf being of plate glass enables you to place the negative in any position, and also to make use of various devices for printing enlargements with toned mount effects.

The Optical Equipment.

Finally, let me give a few hints as to the enlarging lens and spectacle lenses to be used. Be it first understood that, if the principal lens be of short focus, say five inches, the ratio of enlargement rapidly increases, so that at a distance of fifty inches from the negative the image would be magnified eight diameters; whereas, with an eight-inch lens, the same distance would only give a magnification of four diameters. To obtain eight diameters with this lens would require a total

distance from the negative of eighty-one inches. Now, the covering power of a five-inch lens is less than that of an eight-inch, so that, if enlargements are to be made from large negatives, it may not suffice. Whatever lens is used, place as near the negative shelf as may be required to give the largest enlargement you are likely to need. It will be some guide to give you my own arrangement, which, if of limited capacity, is all I need.

My lens is between seven and eight inches focal length. It is fixed about forty-two inches above the floor and about eight and one-half inches beneath the glass negative shelf. It projects a sharp image on the floor magnified four diameters. Fastened by a nail to the negative shelf is a freely rotating disc, home made, of stout mill-board, carrying seven perforations, one open, the others closed by periscopic plus spectacle lenses of denominations given below, and each lens is plainly marked with the magnification it will give. The grooves for the bromide shelf are correspondingly marked. They are as follows:—

Lens.	Distance to paper shelf.	Magnification.
7-inch lens alone.....	41½ inches	4 diameters.
7-inch lens plus 0.12 spectacle lens...	38 inches	3½ diameters.
7-inch lens plus 0.25 spectacle lens...	34½ inches	3⅓ diameters.
7-inch lens plus 0.50 spectacle lens...	29 inches	2¾ diameters.
7-inch lens plus 1.00 spectacle lens...	26½ inches	2½ diameters.
7-inch lens plus 1.25 spectacle lens...	21½ inches	2 diameters.
7-inch lens plus 2.00 spectacle lens...	16½ inches	1⅔ diameters.

These distances and magnifications could all be obtained by calculations based on the foci of the lenses, but I have little confidence in the statements of manufacturers, and always prefer to determine such questions by trial.

H. D'ARCY POWER.

DEVICES FOR THE AUTOMATIC DEMONSTRATION OF FACTS OF LIGHT, COLOUR, AND PHOTOGRAPHY.

When first reviewing the general features of the International Exhibition of Photography at Dresden we referred in appreciative terms to the section arranged by Dr. Goldberg, of the Leipsic School of Graphic Arts, in which means were provided for teaching or demonstrating in a very simple way a large number of the principles on which vision, photography, and colour photography are based. In designing these the evident aim has been to arrange matters in such a way that, while the manipulation should be of the simplest kind, so simple, in fact, that a moment's inspection of the printed directions sufficed to tell the visitor what he had to do, yet practically every exhibit is in the nature of an experiment by which the observer is caused to see for himself that such and such a phenomenon takes place instead of simply taking it for granted from a diagram or printed page. Such a method of cultivating the observing powers of the student is expected in class instruction, though we fear that in many instances the less laborious use of diagrams and lantern slides is made to take its place. This is less excusable, since in a

class it is easy to arrange experiments of this kind to be performed by students under the teacher's direction. The task which Dr. Goldberg and his assistants have had before them for the Dresden Exhibition was one much more difficult, and therefore one cannot but praise the most ingenious arrangement by which each separate experiment is arranged within the space of a cabinet of about the same size in each instance (about 20 x 12 x 12 inches). The interest which these arrangements have for everyone studying photography themselves or engaged in teaching it to others leads us to give a translation of the description of each experiment, and to supplement it, where necessary, with one or two diagrams showing the device employed in certain cases for demonstrating the particular fact.

In each case the fact which the experiment is designed to demonstrate is first stated, and underneath it are given the directions for the performance of the latter. To this plan we will adhere in describing the series.

* * * * *

* * * * *

1. *The Eye.*—The human eye is very similar to the photographic camera. Like the camera, the eye possesses a lens, sensitive plate, a stop or diaphragm, focussing arrangement, etc. (Diagram showing an enlarged sectional drawing of the eye with those parts corresponding to the different portions of a camera.)

observe the writing at the back of the cabinet. Midway between the peep-hole and this writing is a fine piece of net, which, while the eye is fixed on the writing, is scarcely noticeable. Now fix the eye on the net, which will then be seen sharply, whilst the writing will disappear. In the case of old people this mechanism of the eye works badly, and the experiment will not succeed in such cases.

2. *Accommodation of the Eye.*—The lens of the eye having a relatively long focus, objects very near to the eye appear very un-sharp. In order, therefore, to obtain sharp focus the eye is provided with an arrangement which alters the focal length. In this way the eye can bring into action a lens of greater or less focus, and thus with the same "camera extension" perceive sharply an object which is either near or distant.

3. *Explanation of the Mechanism of Accommodation.*—In order to explain the accommodation of the eye the following experiment is made:—Two lenses of different focus are fitted to a camera of fixed extension. The object consists of two electric lamps, placed at different distances from the lenses (corresponding with the writing and the net in Experiment 2). With one lens one lamp is obtained

Experiment.—Place the eye close up against the peep-hole and

sharp, with the second the other. It is impossible to get both lamps sharp at the same time.

Experiment.—Move the lever on the outside of the cabinet so as to focus the image of the lamps on the ground glass screen.

4. *The Diaphragm of the Eye.*—The eye possesses an excellent automatic arrangement for protecting the sensitive film from over-exposure. For this purpose a small stop comes into operation on too strong a light affecting the eye, whilst, when the eye is exposed to weaker illumination, the stop is enlarged.

Experiment.—Bring the eye as near as possible to the peep-hole of the cabinet. The reflection of the pupil (stop) of the eye is seen in a mirror. On now pressing a button the second lamp is brought into operation, strongly illuminating the eye. The instant contraction of the stop (iris) of the eye is very plainly seen.

5. *Halation of the Eye (Irradiation).*—Despite its many mechanical devices, the eye camera has also many drawbacks. For example, halation is very strongly marked in the eye.

Experiment.—Place the eye to the peep-hole and look at the filament of the lighted electric lamp, which appears much thicker than it really is, in consequence of irradiation. Now press a lever, which lets down in front of the lamp a grey screen. It will be seen that the filament now appears of its natural thickness, due to the lessened illumination.

6. *Chromatic Aberration of the Eye.*—The lens of the eye as an optical instrument is in some respects greatly excelled by the modern photographic lens. The eye-lens possesses practically all the defects of a bad cheap lens. One of the most marked is chromatic aberration, that is, the incapacity to focus two different colours sharply at the same time. When an attempt is made to do this, the eye from habit suggests that the colours are in different planes, and a "plastic" effect of semi-relief is thus obtained.

Experiment.—Some lettering is printed in deep red, on a deep green or blue paper. The letters appear to stand out from the paper, owing to the fact that the eye cannot focus both lettering and ground at the same time, and the different coloured rays thus appear to proceed from surfaces at different distances.

7. *The Blood Vessels of the Eye.*—The surface of the sensitive plate in the eye is covered with a network of blood vessels, which interferes with the vision, although the effect is not recognised, since persons have become used to it from birth.

Experiment.—Bring the eye as near as possible to the peep-hole and place it so that the white in the eye is as strongly illuminated as possible. This is done by means of a small mirror in the cabinet. There is then seen by the eye the phenomenon recalling the representation of rivers on a map. If this experiment does not succeed the first time, repeat it, as some practice is necessary.

8. *Blind Spot.*—The sensitive plate of the eye also suffers from many defects. There is in the eye, for example, one rather large area which is lacking in sensitiveness (the blind spot). Persons



FIG. 1

Fig. 1.

have become so unconscious of this defect that the experiment for showing it requires some practice and care.

Experiment.—A small white disc and a much smaller square are mounted on a board, which can move to and fro in a direct line from the peep-hole. Fix the right eye perfectly steadily on the white circle and move the lever so as to cause the board to approach the eye. At a certain place, without the eye being removed from the circle, the small square disappears. On turning the lever further the square again makes its appearance. If the experiment does not succeed it should be repeated, with slight inclination of the head.

9. *Seeing with One Eye.*—When only one eye is used, objects

appear, not in relief, but flat, just as an ordinary photograph is flat, as compared with a stereoscopic print. Usually persons do not notice this, since the forms of objects have become fixed in their minds.

Experiment.—At a short distance from the peep-hole are placed several cardboard shells, or hollow figures, in the shape of half cubes. The peep-hole is large enough for both eyes, but is covered by a plate with an aperture in it for one eye only. Look through this first, and the objects will appear to be perfectly solid cubes. On pressing the lever, so as to allow both eyes to be used, the objects will instantly be seen in their true character, that of hollow shells (one of the most effective of the experiments).

10. *Colours in Twilight.*—Characteristic colours exist only while the coloured objects are sufficiently strongly illuminated. With reduced illumination the "saturation" of the colours quickly falls off to nothing, even while the illumination is sufficient to allow of the outlines of the object being recognised.

Experiment.—Turn the lever slowly so as to gradually reduce the illumination down to the point of extinction. It will be seen that whilst an inscription in writing at the back of the cabinet can still be read when faintly illuminated the different colours of the letters and the ground have completely disappeared, all appearing more or less dark grey. (We did not find it possible to obtain this effect.—Eds. "B.J.")

11. *Small Differences in Brightness.*—A very small difference in brightness between two areas can only be recognised when the areas

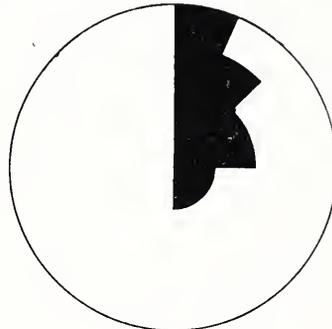


Fig. 2.

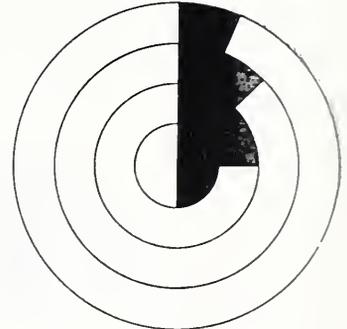


Fig. 3.

are quite close against each other. Even a very thin black line is sufficient to obliterate the differences.

Experiment.—At the back of the cabinet are mounted two cardboard discs marked in black, as shown in Figs. 2 and 3, the only difference between these being the continuous black circles, which in Fig. 3 separate the different annular spaces. The two discs being rotated by actuating a motor, the different annular tints do not appear the same in each. In those of the disc shown in Fig. 3 the areas appear equal in depth, whereas the different gradations of tone are clearly seen in those of Fig. 2.

12. *Colour Contrast.*—Where the grey area comes against a coloured one the grey obtains by contrast a colour the complementary of that of the area opposed to it.

Experiment.—A rod is placed in the cabinet in front of the peep-hole, and can be illuminated either by a white and a red light or by a white and a green light, the shadows due to the two lights being thrown on a screen at the back. It will be seen that in the case of the red and white pair of lights the grey shadows of the rod appear blue-green, whilst in the case of the green and white illumination the shadows appear red.

13. *Complementary Images.*—By tiring the eye for a given colour by allowing it to gaze steadily at it for some time, it will see in its place, when the colour is suddenly removed, a patch of the complementary colour.

Experiment.—Close in front of a white screen at the back of the cabinet a blue disc is placed, mounted so that it can instantly be put on one side by the outside lever. On looking at this for about a minute and then pressing the lever a pale yellow spot is seen on the white wall behind.

14. *Rotating Discs.*—If a screen is slowly rotated in front of the eye, the eye can distinguish the different parts of the screen; for example, the spokes of a wheel. With a greater speed of rotation these separate impressions disappear and the eye sees only a disagreeable flicker. With still greater speed the flicker disappears, and the

eye experiences the sensation of viewing a uniformly illuminated screen. The speed with which the disc must rotate in order not to show flicker is dependent on the strength of the light. The stronger the light, the greater the speed must be. In strong light this will be about 40 revolutions per second; in weak light about 20.

Experiment.—A disc in front of the peep-hole has drawn upon it a series of radii like the spokes of a wheel, and is illuminated by one lamp. On pressing a lever the disc is rotated by a motor, the speed of which can be increased until the flicker disappears. The speed of the motor can be read on a dial. On increasing the illumination by switching on another lamp the flicker re-appears, and to get rid of it the motor must be further accelerated, the nearly doubled speed being registered on the dial.

15. *Instantaneous Photography of Moving Objects.*—In cinematography the wheels of a carriage often show the appearance of turning backwards. The following experiment explains this curious phenomenon:—A rotating disc is observed through a similarly rotating disc placed in front of it. If the front disc is rotating more slowly than that behind, the latter appears blurred (slow shutter, rapidly moving wheel). When the speed of the two discs is the same that behind appears stationary. With a greater speed of the front disc, that behind appears to turn first slowly forwards, then slowly backwards. Finally, if the speed of the front disc (as in the shutter of the cinematograph camera) be twice as quick as that of the hinder disc (corresponding to the wheels of the carriage) all parts of the latter appear doubled.

Experiment.—The handle outside the cabinet regulates the speed of the motor, and allows of the appearance of the hinder disc being observed with different rapidities of the front disc.

16. *Intermittent Illumination.*—When light is broken into intervals so short that no effect of flicker is obtained, the eye obtains the total

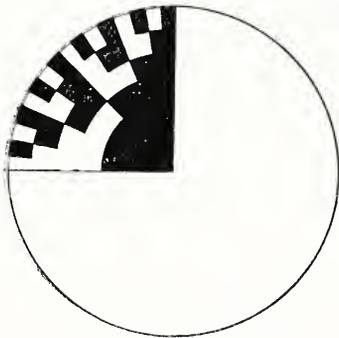


Fig. 4.

impression of the light, so that it is immaterial how often the light is interrupted.

Experiment.—By means of a disc having sector markings on it the light is interrupted about 40 times per second by the solid portion of the disc near to the centre, whilst the black portions near to the circumference of the disc interrupt it about 1,000 times per second, the total volume of light being the same in each case. On turning the disc by the motor the area is seen to be of uniform illumination from centre to circumference.

17. The rotating disc allows of very subtle differences in illumination being shown. In this way it can be seen how much stronger one light must be than another, in order that the difference is perceptible to the eye. It must be remembered that it is not the *difference* between the lights, but the ratio between them as regards strength, which is the factor in the case.

Experiment.—On turning the disc with a motor, grey rings are formed upon it as the result of the black sector marking. Although seven different rings are formed on it, only five can be actually seen in good lighting. On reducing the strength of the light these five rings remain visible (the fifth only weakly), as the ratio of the light intensities of the rings and of the white ground remains the same in all strengths of light.

18. *Properties of Colour-Tone.*—So far the experiments have dealt only with mixtures of black and white, but the rotating disc also shows the properties of mixtures of colours. Colours are mixed, and are altered in three separate ways:—First, a colour can be altered in tone without affecting its other characteristics. Thus colour can pass by imperceptible changes from red to blue, giving all the tones

between the two, such as purple and violet, the brightness and "saturation" of the colour remains the same.

Experiment.—A rotating cylinder is provided (as in Fig. 5) with alternating wedge-shaped regions of red and blue which

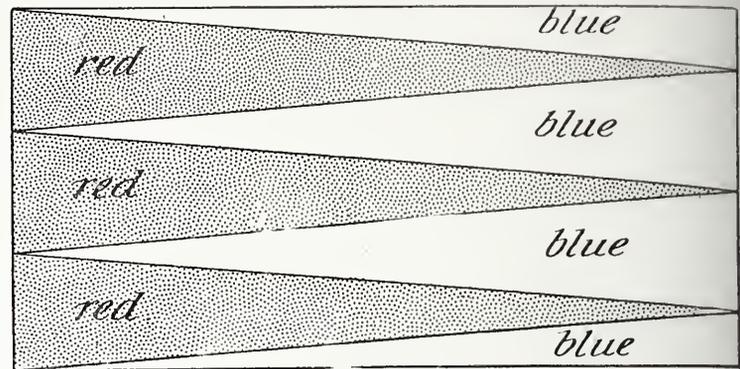


Fig. 5.

run the length of the cylinder. When this latter is rotated the mixtures of these colours in different proportions can be seen along the length of the cylinder.

19. *Properties of Colour-Brightness.*—The brightness of a colour depends upon its admixture with black or white. A colour may pass into black or white without alteration of its tone. The saturation

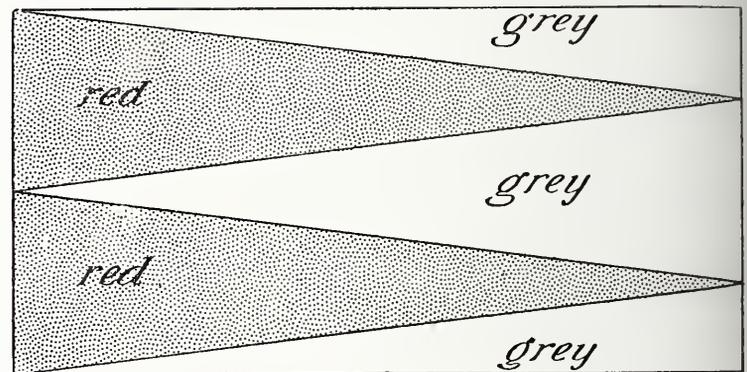


Fig. 6.

thereby sinks to zero, since black and white, as also grey, are quite unsaturated.

Experiment.—A cylinder is marked (as in Fig. 6) with wedge-shaped areas, alternating with similar areas of grey, both of which run the length of the cylinder, the latter being rotated by pressing a motor switch on the outside of the cabinet. The gradual alteration of the brightness of the colour due to admixture with grey is seen.

20. *Properties of Colour-Saturation.* (Degree of "purity.")—A

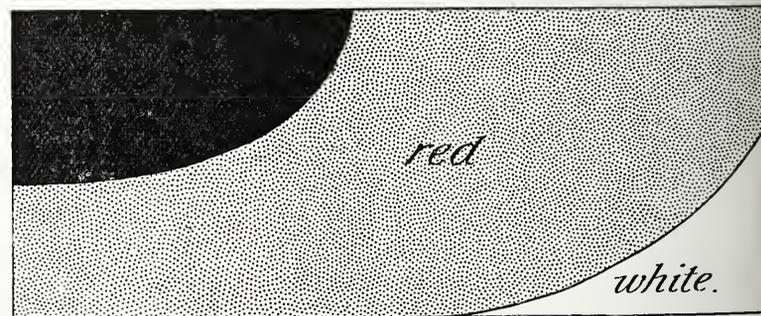


Fig. 7.

colour may be gradually changed into grey of equal brightness without its tone and brightness altering.

Experiment.—A cylinder, mounted as in Nos. 18 and 19, is provided with red, black, and white areas (as shown in Fig. 7). The rotating of the cylinder gives the various degrees of saturation of the red colour.

21. *Difference Between Black and White.*—It is most difficult to define the difference between black and white. It is said that a body is white when it reflects the whole of the light, but this is not correct;

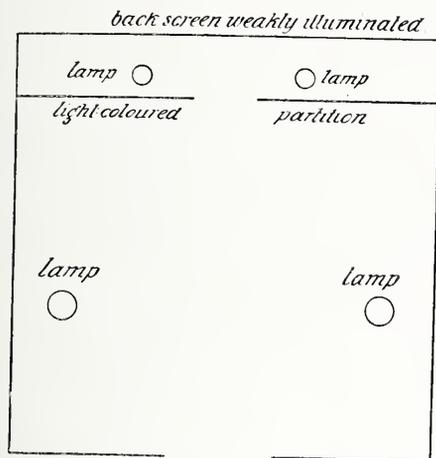


Fig. 8.

one and the same substance with the same illumination appears black or white, according to its surroundings.

Experiment.—Midway between the peep-hole and the back of the cabinet is placed a screen faced with a medium tint, with a central circular aperture in it. The back of the cabinet is somewhat feebly illuminated by lamps A and B, so that on looking into the peep-hole there is seen a white disc on a dark ground. On pressing the switch of lamps C and D, placed between the peep-hole and the mid-way screen, the hole itself appears perfectly black, whilst the screen looks white, a reversal of the previous conditions.

22. *Absolute Black.*—Thus, whilst the previous experiment shows that it is very difficult to say what is white and what is black, it is easy to affirm that no absolute black surface exists. Even the most dead-black can be made to look white in comparison with the absolute blackness of space.

Experiment.—A rather large aperture, about four inches square, is made in the front of the cabinet, the inside of which is lined with black velvet. A piece of black paper affixed to the outside wall of the cabinet appears perfectly black, but when held against the opening of the dark chamber the latter is seen to be very much darker.

23. *Different Kinds of Colour Mixture.*—In mixing colours there are two distinct methods. A mixture of colour sensations may be allowed to take place in the eye itself, or the mixture may be first made and the result thereof allowed to affect the eye. The first

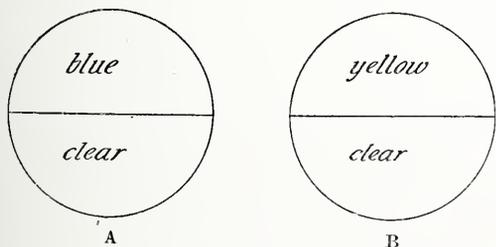


Fig. 9.

method is that known as "additive," the second as "subtractive." Almost all the most recent methods of colour photography are founded on one or other of these methods of mixture. The difference between the two will be seen from the following experiment.

Experiment.—Two pairs of discs, of the form shown in A and B (Fig. 9), are mounted together on the one axis. Pair No. 1 is so mounted that the blue occupies one full half-circle, the yellow the other, without overlap. In the case of pair No. 2 the blue and yellow semi-circles wholly or partially cover each other. On looking through the peep-hole and putting in action the motor which rotates both pairs of discs, it is seen that the light from pair No. 1, consisting of the two complementary colours, blue and yellow, mixes in the eye and produces white. In the case of pair No. 2, the mixture takes place before the light reaches the eye. The action in the first case

is additive. In the second case, the nearer of the two plates subtracts the light transmitted by the first.

24. *Additive Mixture of all Colours.*—The first and most important law of additive mixture is that all colours mixed in equal proportions give a result in which there is no colour.

Experiment.—A disc is provided with sectors of the different colours, the result of rotation being simply to give a uniform grey.

25. *Primary Colours in Additive Mixture.*—It can be shown that all possible colours can be prepared from three only. It is almost

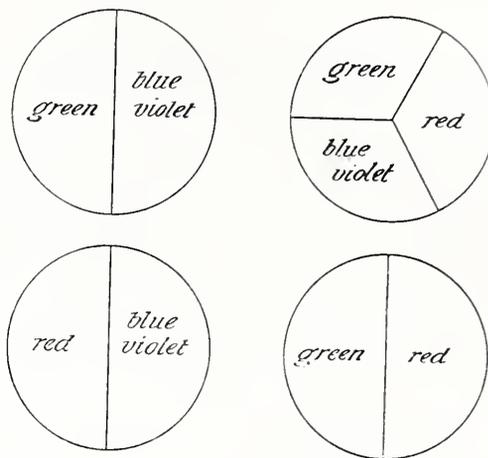


Fig. 10.

an invariable rule in additive mixture to take orange, green, and blue-violet as the three primary colours.

Experiment.—Four discs are mounted so as to rotate together on touching the switch of the motor. The colours on the discs are shown in Fig. 10. The disc with orange, green, and blue gives white, whilst the primary colours in pairs give additive colour mixtures. An important characteristic of the mixed colours is that they are appreciably more whitish than the primary colours.

26. *Primary Colours in Additive Mixture.*—In the choice of three primary colours one is not tied down to orange, green, and violet: any other group of three colours which splits up the spectrum may

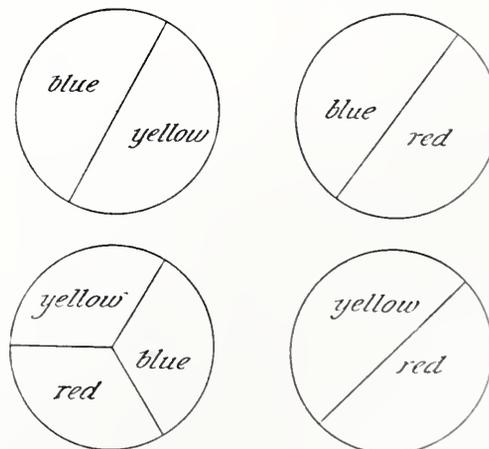


Fig. 11.

be chosen as a primary system, but in other cases the mixed colours are seen to be distinctly more whitish than in Experiment 25.

Experiment.—The four discs rotated from a single motor, as in Experiment 25, are made up with yellow, red, and blue as the primary colours. These three together give white, whilst yellow and red give an orange, blue, and red-violet, and blue and yellow-green. The green with this choice of primaries is much too whitish.

27. *Colour Mixture by Defective Vision of the Eye.*—A method of colour mixture, which is of importance in colour photography (screen-plates), depends on the incapacity of the eye to see perfectly sharply. If a series of lines or dots be placed so near together on a surface

that the eye cannot distinguish them the result is no longer that of the separate lines, but mixture (additive) takes place of the different colours.

Experiment.—A plate ruled with coloured lines, to the number of about 100 to the inch, is placed in an aperture of the cabinet and illuminated from inside. Examined closely, the separate green and red lines can be seen. At a distance depending on the sharpness of vision, the plate appears brownish-yellow, due to the mixture of green and red.

(To be continued.)

Photo-Mechanical Notes.

Measurement of the Height of Blocks.

Blocks as supplied to printers are often not exactly type-high and the machine-minder has to spend considerable time in underlaying them until he gets them right by repeated trials. A machine applying micrometric measurement to this end has now been placed on the market, and should prove exceedingly useful both to blockmakers and printers. The block, which may be any size up to 15 in. in one direction and any length in the other, is laid on the bed of the machine, and a spring released. This brings a bar into contact with the block. The bar controls a pointer which indicates on a scale exactly how much the block is above or below type height. This scale could be marked in any unit desired; in the machine sold to printers it reads so many sheets of paper of a certain thickness. Thus the machine-minder after placing his block on the measurer knows instantly that he must take so many sheets of such paper to bring it to type height and no time is wasted. The machine is sold at £3 10s., by Morton and Co., 32, Emerald Street, Theobald's Road, London, W.C.

Labour-Saving in Process Work.

There is no doubt that the introduction of the etching machine is affording opportunities for economies in labour, sometimes in unexpected directions. It has always been felt that the etching staff might be affected, but now several firms are finding that it is more economical and more satisfactory to have any large spaces deep etched in the machine instead of routed out. Now this will not necessarily affect much the man who did the routing, because the same man usually does the mounting also, though it will affect this sort of labour in large-scale businesses where the avoidance of a considerable amount of routing may give the opportunity of dispensing with, say, one man's services. But nearly all routed work has to be "scorped" round by an engraver, either before or after routing; if before, to make an outline to guide the router, if after, to remove any burr formed by the tool, or to cut away close to the work where the routing tool has been unable to approach. This work being no longer necessary, the engraver has been dismissed. In another department the very great improvement of late years in the character of the dot negative is also affecting the etcher, in this case the "fine-etcher," many of whom are finding their services no longer necessary. On the other hand, the preparation of the original before reproduction is becoming increasingly common, and photographs can nearly always be "touched up" with advantage before being placed on the copy board. This is a direction to which the fine-etcher should turn his education. He must be able to draw, but then a man should not be a fine-etcher without knowing how to draw well, and he must realise that there is a good deal to learn before his efforts are likely to be satisfactory, but it appears to be worth while, since this is a field that is increasing, while fine-etching is undoubtedly decreasing.

THE "FINANCIAL NEWS" HOLIDAY NUMBER, which was presented with the ordinary issue for Monday last, contains a quantity of useful information in concise form for the tourist, whether at home or abroad, including such practical items as routes, fares, names of chief hotels, etc. Two large-size maps—one of Great Britain and the other of Central Europe—add considerably to the value of the publication.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents have been received between June 1 and 5:—

FILM-PACKS.—No. 12,932. Improvements in photographic film-packs and films therefor. John Owden O'Brien, 6, Bank Street, Manchester, for John Edward Thornton, United States.

FILM-PACK ADAPTORS.—No. 12,933. Improvements in adaptors and camera backs for photographic film-packs. John Owden O'Brien, 6, Bank Street, Manchester, for John Edward Thornton, United States.

PLATE ADAPTORS.—No. 12,934. Improvements in adaptors and camera backs for photographic plate-holders and film-packs. John Owden O'Brien, 6, Bank Street, Manchester, for John Edward Thornton, United States.

CINEMATOGRAPHS.—No. 13,030. Improvements in cinematograph cameras and projectors. Leo Kamm, 27, Powell Street, Goswell Road, London.

CINEMATOGRAPH-PHONOGRAPH.—No. 13,031. Improvements in synchronism between cinematograph projectors or cameras and talking machines. Leo Kamm, 27, Powell Street, Goswell Road, London.

SHUTTERS.—No. 13,032. Improvements in cinematograph shutters. Leo Kamm, 27, Powell Street, Goswell Road, London.

LENSES.—No. 13,170. Improvements in or relating to the manufacture of lenses. Alfred Julius Boulton, 111, Hatton Garden, London, for the Bausch and Lomb Optical Co., United States.

RACKS.—Improvements in supporting racks for use in photography. Edgar Delacourt Smith, 15, Coniston Road, Muswell Hill, London.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

CASEIN-PIGMENT PRINTS FROM BROMIDES.—No. 19,297, 1908 (September 14, 1908). The invention relates to the preparation of carbon or pigment prints from bromides or other silver prints by contact without exposure to light, somewhat as in Manly's Ozobrome process.

According to Manly's Patent No. 17,007 of 1905, the reduction of chromates by silver images has been already used for manufacturing pigment pictures by means of gelatine pigment paper. The process is said to be also suitable for pigmented gum printing. No good results have been, however, obtained with pigmented gum up to the present, whilst the first method is intended to be carried out with the use of a finished pigment paper. When using casein as a colloid, casein in any shape, the so-called curd, which is usually insoluble in water, or acid or alkaline solutions of the same are mixed with colours which do not make the casein more insoluble. While casein is, as a rule, insoluble in cold water, means are known to make it soluble. The colours which are used should not be such as those derived from metals, which render the casein quite insoluble in water.

The mixture is put on by means of brushes or a roller, on a silver print either fixed or unfixed, whereupon the latter is left to dry and placed with the casein coating in a solution of ferricyanide of potassium and bichromate, to which can be added for accelerating the action a halogen salt of the alkalis, e.g., potassium bromide. The silver reduces the ferricyanide of potassium, and the ferrocyanide produced reduces in its turn the chromate, which renders the casein insoluble in hot water, to which could also be added slightly alkaline salts. After all soluble pigment casein is dissolved, the silver compounds are removed by hyposulphite of soda, whereupon the fixing salt is washed out and the pigment picture is finished.

The appearance of the pictures differs considerably from that of

the gelatine pigment pictures. They have not the reflections in the deep shadows which often have a very disturbing effect. According as dissolved or undissolved casein is used, the appearance of the picture is different; when the latter is used the pictures have the appearance of photo-engravings.

If it is desired to produce pictures in several colours, two processes can be used.

The separate casein colour mixtures are put at the desired places on the picture to be converted into a multi-coloured one, and after the picture has been completely covered with a layer of casein paint or colour it is treated as described; or the whole picture is first covered with pigment-casein of the predominating colour, and the process carried through up to the fixing. The casein mass is again wiped or rubbed off from the still moist picture at the places which are to have a different colour. This can be done very easily, although the casein mass is only slightly sensitive to a jet of water. The remaining mass is preferably hardened with alum or other tanning substances, and left to dry. After the drying the converted silver picture is treated in the exposed portions with any desired developer, and after the latter has been washed off, the process is repeated with other colours.

The proportions in which the colours can be mixed with casein differ considerably. They depend first of all on whether it is desired to put the colour on by means of a roll or by means of a brush. For rolling on, the casein must be of greater consistency than for putting on by a brush.

It is also possible to add other colloids, such as gum-arabic, fish-glue, gelatine, etc., if it is decided to affect the solubility or the spreading capacity. The casein colour mixture can be, of course, also diluted to such an extent that it will be possible to let the silver picture float on the liquid.

The following is an example of carrying out the process:—

250 gms. of pressed-out curds are thoroughly ground with 50 to 60 gms. of water-colour, the mixture is spread uniformly on a previously hardened bromide print. After the drying the picture is left for ten to fifteen minutes in a bath of solution consisting of 10 gms. bichromate of potassium, 10 gms. of ferricyanide of potassium, and 10 gms. of potassium bromide in 1,000 gms. of water, then the picture is placed into water of 105 to 125 deg. F., to which can be added a small quantity of alkaline salts, such as, for instance, oxalate of potash, bicarbonate of soda, etc., in order to get the lights clearer. When alkaline casein solution is used, the picture partly develops in the bath of chromate. If desired, a small quantity of an organic acid—for instance, 0.5 to 1 gm. of citric acid—can be added to the chromate bath. After complete development, the fixing is done in hyposulphite of soda (1:10), the latter is washed out, and then, if necessary, a 5 per cent. alum bath is used for hardening.

The possibility of making the casein, or the mixture of casein with the metal salts, insoluble in hot water, in the manner described, is not the only possible method. Another method when starting from a silver picture is as follows:—

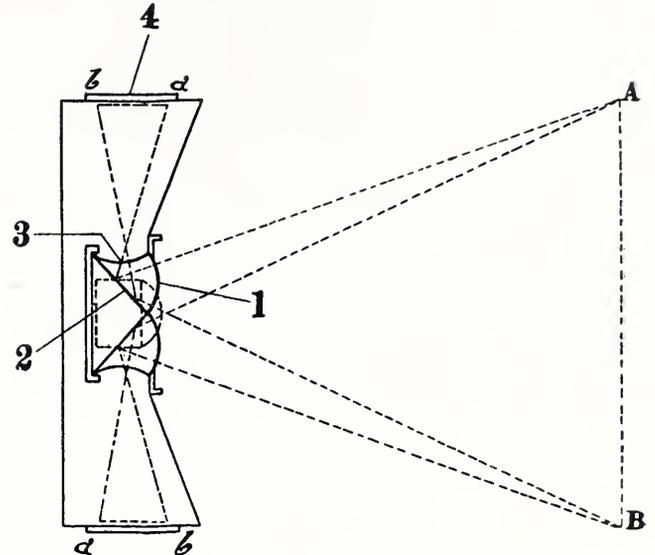
A silver picture is left in a bath of a 5 to 10 per cent. solution of ferricyanide of potassium until it is completely bleached. The ferricyanide salt is washed out, and the picture covered with casein pigment mixture. After the drying, the picture is placed into a bath of a solution of, say, 2 gms. of potassium bromide and 2 gms. of bichromate of potassium in 100 gms. of water for ten to fifteen minutes, then it is washed with warm water and fixed with hyposulphite. A J. Boulton, for Neue Photographische Gesellschaft, 27, Siemens Strasse, Steglitz, Berlin.

LENS FOR COLOUR PHOTOGRAPHY.—No. 27,793, 1908 (December 21, 1908). The present invention relates to a photographic objective composed of two, three, or more objectives of a prismatic triangular form, of which one face receives the rays of light from another face acting as a front lens, directing them towards the third face, which acts as a back lens.

In this manner three distinct images of the same object are formed on the three sensitive plates placed at the three sides of the apparatus, or on a photographic film placed round the three sides.

In the drawing showing a section of the objective described above, 1 is convex face of the prismatic objective; 2, plane face of the prismatic objective; 3, concave face of the prismatic objective; 4, sensitive surface.

These prismatic objectives cut in the same way (one face being plane and the other two having a curvature such that their combined refractions at the entrance and exit of the rays produce the effect of a convergent meniscus) are placed one beside the the other in the same frame so that the distance between their optical axes is less than two centimetres. The rays emitted by the object A B, entering the prismatic objective by the convex face 1, are totally reflected from the plane face 2, and are refracted by the concave face 3. These rays then form a real image on a b, and at this place is a sensitive surface 4.



This objective could also be composed of two prismatic triangular objectives as described above, and of an ordinary photographic objective, this latter forming its image in the back of the apparatus.

It is needless to say that the foci of the three prismatic objectives are exactly the same, and that they give three identical images, allowing exact superposition. It is already known to employ a mirror, and triangular prisms serving as a convergent lens, arranged in such a manner that one of the faces being plane, the two others have a curvature such that their combined refractions at the entrance and exit of the rays produce the effect of a convergent meniscus. Moreover, it will be understood that no novelty is claimed for this kind of prism, but only the disposition one by the side of the other of three similar prismatic objectives, so as to form three images in a different sense, as well as the utilisation for three-colour work of prismatic objectives arranged in this manner. Société Anonyme, La Photographie des Couleurs, 24 Courte rue de S'Hapital, Antwerp, Belgium; Joseph Sury, Wyneghem, Belgium; and Edmond Bastyns, 29, Rue des Tanneurs, Antwerp.

DEVELOPING ROLL FILM.—No. 11,162, 1908 (May 22, 1908). It has heretofore been proposed as described in Boulton's (Blair's) Patent Specification 5,504 of 1893 to manufacture a flexible apron for supporting a photographic film, the apron being provided with transverse wooden slats having raised edges between which the film

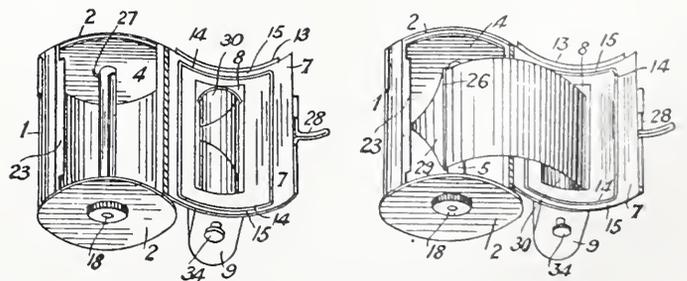


Fig. 1.

Fig. 2.

rests for the purpose of preventing contact between the coils of the film when rolled up with the supporting apron. Also as described in Fiedler's Patent, No. 14,714, of 1902, to manufacture a celluloid apron provided with raised corrugated rubber edges. Also as

described in Thompson's (McCurthy's) Patent No. 21,243, of 1899, of a casing in which a photographic film is placed, to be therein developed and treated without the use of a dark-room and without the necessity of opening the casing during the various steps of developing and fixing.

The object of this invention is to carry out all the operations in and relating to the development of photographic films in the form of daylight-loading spools (so-called roll films) by daylight or by any actinic light, without the employment of a separate dark chamber or box for transferring the exposed film to the developing reel or flexible apron. The developing chamber, in conjunction with the removable spool box, forms a suitable transferring chamber.

The following is a suitable form of apparatus for carrying the invention into effect:—There is provided a chamber, box, or casing of metal or other suitable opaque material (and preferably of a cylindrical shape), with closed ends which are fitted with small holes for the inlet and outlet of air and liquid, these holes being trapped so as to prevent the entry of light. This chamber is provided with a lateral opening, covered light-tight by a hinged door. This door has an aperture which can be covered when required by a spool box adapted to receive the spool of exposed film to be treated as it comes from the camera. This spool box is adapted to slide over or otherwise cover the aperture in the hinged door, so as to exclude the light. Within the chamber is provided a flanged reel with spindle which can be rotated from the outside of the chamber. The film is wound on a flexible apron with thickened edges of rubber or other suitable material having longitudinal ribs,

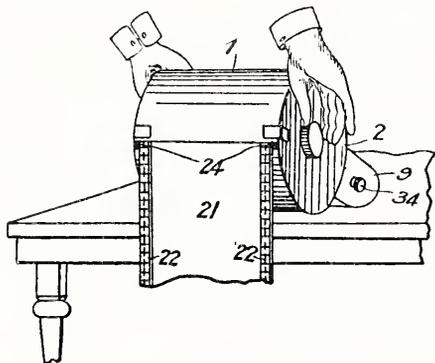


Fig. 3.

the apron itself being made preferably of celluloid; the thickened edges are by preference attached to the apron by stitching along the depressed centre of each thickened edge. The apron can at one end be clipped or otherwise attached to the reel spindle and coiled round it together with the film. The thickened edges of the apron keep the sensitive surface of the film from contact with itself and with the supporting apron, as is well known. Within the chamber or casing is provided an inner portion of a wall bent to the curve of the outer wall, and between the two there is a space or channel. This inner wall extends from end to end of the chamber, and, in conjunction with the ends of the chamber, forms a light trap, the space or channel between the two walls also forming an aperture for the passage of the flexible apron.

In using the apparatus the method consists in first attaching the loose end of the film to its black paper wrapping, then placing the spool in a spool box, which closes an aperture in a door hinged to the casing; next drawing the end of the black paper through the aperture, attaching the end to a reel spindle in the casing, rotating the spindle till the "stop" mark appears on the black paper, passing the end of the film apron into a circular inner channel in the casing, attaching the end of the apron to the spindle, closing the door, rotating the reel till the whole of the film has been drawn into the casing and wound on the reel, removing the spool box, and, if desired, sliding a lid over the aperture in the door, and immersing the casing and its contents in the developing fluid, the parts being so constructed that light is excluded during changing and development. James Wyndham Meek, 32, Albert Road, Stroud Green, London, N., and David Brown Thomas, 119 and 120, Finsbury Pavement, London, E.C.

CHEAP ENVELOPE PLATE-HOLDERS.—No. 10,555, 1908 (May 15, 1908). This invention relates to improvements in photographic plate-

holders of the class wherein holes are provided in the plate tray which engage with pins on the adapter or camera for retaining the sheath when the envelope shutter is withdrawn for exposure, and stops on the envelope cover to prevent the complete withdrawal of the envelope from the casing.

Plate-holders of this class being destroyed after use, in order to render them commercially practicable they must be of very cheap construction. The invention consists of a particular construction and arrangement of the plate-holding tray and removable envelope, which, while being easy of manufacture, will be light-proof and efficient in use.

Fig. 1 is a perspective view of a back of camera designed to accommodate the plate-holder, with a plate in position ready for

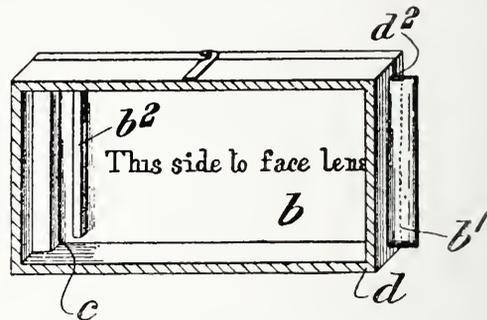


Fig. 1.

exposure and view from the front of the camera, while Fig. 2 is a view of Fig. 1 with a corner broken away and the plate shown exposed.

In these drawings *a* designates a shallow tray of stiff light-proof paper or cardboard with its ends closed by wooden or other stiff members *a*¹, and the plate is arranged in this tray with its sensitive surface uppermost. To accommodate the plate-holding tray *a* there is provided an envelope *b* of light-proof paper or cardboard, and the closed end *b*¹ of this envelope may be stiffened and rendered light-proof by means of an inserted piece of material *b*¹ glued or otherwise fixed in position, or in folding the envelope simply the thicknesses may be glued together.

Upon this envelope it is proposed to give an indication as to which side is to face the lens of the camera so that the plate will be exposed with the sensitive side facing the lens.

At that end where the open edge of the envelope meets the end

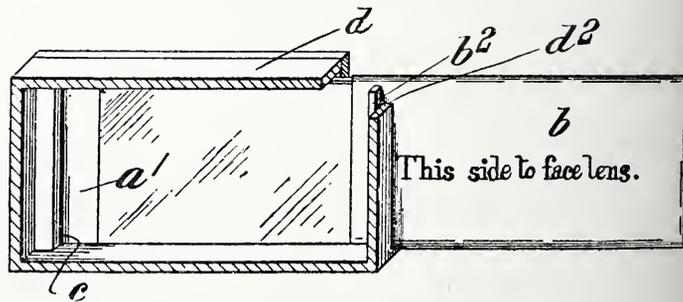


Fig. 2.

of the tray carrying the plate is arranged a felt or other strip *c* so that the open end of the envelope will be embedded in this strip, and thus obviate any danger of light entering. The inner preferably wooden end *a*¹ of the plate-carrying tray *a* is provided with a small hole or recess, or several such holes or recesses *a*³, and in operation these holes engage on a pin or pins, *d*¹ in the camera *d*. When the plate in its holder is arranged in position the camera is closed up and the closed end *b*¹ of the envelope *b* projects outside the camera.

In order to prevent the envelope being drawn too far, a projection *b*² is provided, which engages with the wall of the camera, through a slot *d*² in which the envelope passes. After the plate has been exposed the envelope is again pushed in, when the plate can safely be removed for development.

It may be found necessary to provide the plate-carrying tray

with ledges or lips to obviate any liability of the plate falling out of position when the envelope is drawn off. Robert Marriner Painter, 21, Preston Road, Brighton, Sussex.

New Trade Dames.

ILFORD ALLIANCE (LABEL).—No. 312,008. Photographic dry plates and films and all other photographic goods included in Class 1, but not including glycerine. Ilford, Ltd., Britannia Works, Roden Street, Ilford, London, E., manufacturers of photographic plates, papers, and films. April 5, 1909.

Analecta.

Extracts from our weekly and monthly contemporaries.

Placing Plate and Subject Parallel.

In the issue of "Photo-Notes" for June the method devised by Mr. Montague Troup for securing the parallelism of plate and subject when photographing a painting or other original is described as follows:—

A white metal tube, six inches long, $1\frac{1}{2}$ inches in diameter, and not less than 1-16 thick, is fixed at right angles to the centre of a piece of blackened board six inches square and one inch thick. To each corner of the board a piece of narrow tape is attached, and this completes the apparatus. For the sake of portability the tape is made detachable, fitting over a short piece of inner tube permanently fixed to the board.

To use the instrument it is placed against and in contact with the object to be photographed, as near the centre as possible, and the four pieces of tape are fixed with pins to the edge of the frame or board, stretching them tightly, so that the tube stands at right angles to the object. The camera is then set up and the image brought to the size required.

On looking at the screen the instrument will show as a white tube with a black centre, standing forward on a black border.

As long as the screen in the camera is not truly parallel to the object we shall see the white tube elongated on one side, but as soon as the camera and object are truly parallel the front edge of the tube will show as a true white circle, with a black centre and black background. The entire operation is very simple and takes no time to complete, while the instrument can be made out of the simplest materials.

Ozobromes in Colour.

Writing on the above subject in "The Amateur Photographer and Photographic News" for June 15, Mr. W. Ermen says:—"Let us suppose that we have an open landscape, in which there is a blue sky with white clouds, green hills, water, ships, and beach. Make a good bromide print of this, and after washing thoroughly, rinse in dilute formaldehyde and allow to dry. The sand, and any other portion of the picture which is wanted yellow, is carefully washed over with a brush just moistened in ozobrome stock solution until bleached, and the print then flooded with water, so that the excess of solution is washed off without damaging the rest of the print. The whole print is next treated with marine blue ozobrome tissue, which gives us the landscape all in blue, except the sand, which is left bare of pigment.

The print must now be dried again, to enable the newly deposited gelatine to stand the next processes.

When quite dry take a fine camel-hair pencil, just moistened with a strong developer, and go over all the portions of the print that are required black, such as the hulls of ships or rocks. With a weaker developer clouds may also have their shadows slightly emphasised.

For the production of greens we proceed in the same manner, only using sodium sulphide solution of the ordinary toning strength. The yellowish tone of this combines with the blue pigment deposited to give just the dull green required for grass. The tone of green can be modified at will by varying the amount of sulphide applied, and can be shaded off to the blue of the distance without any difficulty.

Finally, the yellow sand is got by painting the portions of the print which were bleached before pigmenting.

The finished print is finally fixed in hypo after a slight washing to remove the last traces of developer and sulphide.

The introduction of other colours into our print offers no difficulty. Suppose that in the print which we have already discussed we wish to bring out a red sandstone wall running over the hill. Those portions of the print reserved for red are protected by a preliminary bleaching. The print is then manipulated as before, but instead of fixing after sulphiding, the reserved portion is redeveloped instead of the rocks and the ships. The print is then washed and rinsed in formaldehyde, and dried to harden the pigment layer. The ozobrome manipulation inserts red pigment on all the developed portions. A slight reddish tint may show on other light portions of the paper, but this can be scrubbed off without fear of disturbing the underlying blue pigment, which not even boiling water will remove. Further layers of colour can be put on to any portion of the unsulphided portions by redeveloping as before, after drying with formaldehyde. The last stage is always the blackening with developer where required followed by fixing.

One word of warning. If the sky is reserved by bleaching, with the object of putting on the blue layer last of all, the pigment tissue must not be allowed to remain too long in contact with the print, or else the sky will come out much too dark. I expect that this is due to the insolubilising action of developer left in the paper, which is subsequently oxidised by the ozobrome solution."

New Books.

PHOTOGRAPHY WITH SMALL CAMERAS.—Just as many people are debating in their minds the expediency of replacing the cumbersome outfit by a slim pocket-camera, the "Photo-Miniature" appears with a very useful manual of photography with the small camera. Therein is pointed out the advantages of this type of instrument as regards depth of focus and certainty of action. The writer confines himself to cameras in the British and American markets which take a plate or film less than quarter-plate size, and those who would become acquainted with the recent great advances made in pocket cameras can have no better or practical source of reference. The monograph further describes advisable methods of developing, printing and enlarging such small negatives. The number (No. 97) is obtainable in England from Messrs. Dawbarn and Ward; in America from Tennant and Ward, 122, East Twenty-fifth Street, New York.

CATALOGUES AND TRADE NOTICES.

ILFORD GOODS.—A full catalogue of the plates and papers, and photographic accessories for use therewith, has just been issued by Ilford, Limited, and will be sent post free to any applicant. It very conveniently specifies the materials manufactured by the firm, and will be useful both to dealers and users on account of the full list of all the sizes, from small to large, in which an Ilford plate or paper is supplied from stock. The prices are very cleverly displayed for rapid reference, a point for which a dealer, who has often to turn to a list in a hurry, will bless the Ilford Company.

ROSS CAMERAS AND LENSES.—A new list just issued by Messrs. Ross, Limited, from 3, North Side, Clapham Common, London, S.W., gives details of the latest manufactures in lenses and cameras, among which latter is the new "Panros" camera, with its new focal-plane shutter of most convenient adjustment. The list, as also one of binoculars, telescopes, etc., is sent free.

THE WESTMINSTER PHOTOGRAPHIC EXCHANGE, LTD., in issuing the 1909 edition of their comprehensive catalogue, have evidently spared no effort in endeavouring to make it of value to intending purchasers of photographic apparatus or accessories. The 240 pages are well illustrated, contain up-to-date particulars of the apparatus, etc., at present on the market, and certainly confirms the company's claim that they are prepared to supply "everything photographic." The list before us deals exclusively with new goods, but the Westminster Exchange also make a specialty of second-hand apparatus, lists of which are published periodically. Those in need of anything photographic cannot do better than obtain a copy of

this new catalogue, or, if in London, visit the company's premises at either 119, Victoria Street, Westminster, S.W., or 111, Oxford Street, W.

"A HOBBY FOR YOU" is the title of an illustrated price-list of the photographic apparatus and accessories supplied by Messrs. A. E. Coe and Son, of 32, London Road, Norwich. A perusal of the booklet, which is tastefully got up, shows that Messrs. Coe fully realise the requirements of the present-day photographer, and tourists visiting or passing through Norwich would do well to note the fact that at the above address they can replenish or add to their stock of photographic materials. Particulars of a number of electrical specialties are also included in the list.

PHOTOGRAPHIC MACHINERY.—The well-known firm of August Koebig, of Radebeul, Dresden, manufacturers of photographic manufacturing machinery, have just issued a large new catalogue fully describing the various types of machines made by them for the coating, drying, cutting, etc., of plates and papers. This new list is in German, but Messrs. Koebig inform us that they are shortly issuing an English edition, which will describe their well-known machines in the necessary detail.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

SATURDAY, JUNE 19.

Birmingham Photographic Society. Excursion to Haughmond Abbey and Woods.

SUNDAY, JUNE 20.

United Stereoscopic Society. Outing to Botolph-Clydon.

MONDAY, JUNE 21.

South London Photographic Society. "The Eye and the Camera." Dr. A. R. F. Evershed. Monthly Competition—(Prints.)
Southampton Camera Club. "Radiography." W. P. Purvis.

TUESDAY, JUNE 22.

Kinning Park Co-operative Camera Club (Govan). Club Meeting.
Hackney Photographic Society. Negative Retouching. "The Improvement of Bromide Prints with Meglip." S. Woodhouse.

WEDNESDAY, JUNE 23.

Worthing Camera Club. Outing to Shoreham.

THURSDAY, JUNE 24.

Handsworth Photographic Society. "Flower Photography." A. A. Major.
Sale Photographic Society. Sale Portfolio.

THE PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

A MEETING of the General Committee was held at the Royal Photographic Society, 66, Russell Square, W.C., on Friday June 11. Present, Messrs. H. A. Chapman, J.P. (Swansea), Lang Sims, Gordon Chase, A. Mackie, A. Ellis, W. Illingworth (Northampton), S. H. Fry and C. S. Skillman; Mr. Lang Sims, President, in the chair.

The hon. secretary reported that the Association was dealing Elliott, had been summoned to give evidence before the House of Commons Committee on the Berne Convention for Tuesday, June 15.

A long discussion took place upon the commission charged by certain press agencies, and it was finally agreed that the hon. secretary should communicate with a number of agencies inquiring their terms, the information to be available to members.

The hon. secretary reported that the association was dealing with two important infringements of copyright cases on behalf of members. In one of the cases it had been found necessary to place the matter in solicitor's hands.

In reference to the usual summer recess it was agreed that no meeting of the committee be summoned for July or August, and that a meeting be called in September only if the business required it.

Mr. W. Illingworth proposed that the meeting day of the committee be altered from Friday to Thursday in order to give country members greater opportunity for attending, Thursday being the early closing day in the majority of the towns, where the members were resident. After some discussion the proposition was carried. This decision will not affect the members' meetings, the dates of which are fixed by the rules.

It was further agreed that the meetings take place at 6.30 instead of heretofore at 6 o'clock.

Sundry accounts were passed for payment, and various matters discussed relating to the business matters of members.

HACKNEY PHOTOGRAPHIC SOCIETY.—On the 8th inst. a lecture on portraiture was given by Mr. C. Wille, who showed, by precept and example, that artistic portrait work is to be done at home with simple apparatus. The lecturer gave full details of his own methods, and the examples he showed proved such methods to be successful. Exposures were made in a room lighted by one window, and many variations of lighting were obtained by altering the positions of the sitter and camera relatively to the window. Mr. Wille advocated direct work for portraiture, as he thought that enlarging destroyed the tone quality, particularly in the high lights, so whole-plate was the smallest size to work at. The focus of the lens should be a long one, and supplementary negative lenses were useful to lengthen the focus of an ordinary lens. The lens aperture should be large, $f/5.8$ at least, as great depth of focus was not required, the lecturer being satisfied to get the nose and eyes of the sitter in focus. He gave a full exposure, which in his case ranged from 15 seconds upwards. He rarely gave less than 15, and sometimes gave as much as 25 seconds. He found that in such long exposures slight movement of the sitter did not matter, and the long exposure produced a better and more natural expression. These and many other points in Mr. Wille's lecture produced a long discussion, at the close of which the lecturer was accorded a hearty vote of thanks.

Commercial & Legal Intelligence.

A first and final dividend of 2s. 0½d. is to be paid to the creditors of Florence Pattie Brown, photographic chemist, trading as Mrs. G. W. Brown, Liphook, Hants.

NEW COMPANIES.

BIOPTICS, LTD.—Registered June 4, by J. G. Dalzell, 76, Victoria Street, Westminster. Capital, £1,000, in 950 ordinary shares of £1 each and 1,000 deferred shares of 1s. each. Objects: To carry on the business of photographers, manufacturers of and dealers in photographic cameras and materials and cinematograph films, proprietors of cinematograph exhibitions, etc. Private company.

J. WAGNER, LTD.—Capital, £500 in £1 shares. To acquire the business of a photographic paper manufacturer and printer, carried on by John Wagner, at 122, Beulah Hill, Upper Norwood. The first subscribers are: J. Wagner, Mrs. H. Wagner, and E. Wagner, all of 122 Beulah Hill, Upper Norwood, S.E. The first directors are J. Wagner and Mrs. H. Wagner (both permanent; special qualification, fifty ordinary shares). Qualification of ordinary directors, ten ordinary shares. Remuneration, one guinea each per meeting. Registered office: 122, Beulah Hill, Upper Norwood, S.E.

GEVAERT, LTD.—Capital, £5,000 in £1 shares. To carry on the business of manufacturers of and dealers in photographic materials, etc. The first subscribers are: L. Gevaert, Boulevard Leopold 168, Antwerp; P. Koep, 35, Rue d'Edeghem, Vieux-Dieu, near Antwerp; and C. J. Miller, 7, Rathgar Avenue, West Ealing Private company. The first directors are: L. Gevaert and P. Koep. Registered office: 26-7, Farringdon Street, E.C.

THE HACKNEY PHOTOGRAPHIC SOCIETY'S annual exhibition will be held from November 10 to 13 next. Full particulars will be published later.

MR. CHARLES H. HORTON writes that, owing to increasing trade he has removed his showrooms from 21, Lower Park Row, to larger and more commodious premises at 2, Christmas Steps, Bristol to which address all communications should in future be addressed. In addition to developing, printing, enlarging, etc., Mr. Horton makes a specialty of architectural and engineering photography for the purposes of catalogue illustration, and the buyer of picture post cards also will here find a large selection of views of Bristol and other places of interest.

News and Notes.

THE PARTNERSHIP between Messrs. F. R. Griffiths and A. J. Walmsley, exhibitors, manufacturers, and exporters of cinematograph goods and appliances, 1, 3, and 5, Cecil Court, Charing Cross Road, W.C., and trading as the New Bioscope Trading Company, has been dissolved.

DRESDEN EXHIBITION.—Messrs. Thomas Cook and Son, Ludgate Circus, London, E.C., send us a circular of fares to Dresden, and of tours in Germany, in which the visitor to the International exhibition may also visit Berlin, Leipsic, Nuremberg, Cologne, Wiesbaden, and other German towns.

MR. HAMMOND HALL, late editor of the *Daily Graphic*, has accepted the editorship of "Hazell's Annual" in succession to Mr. Wm. Palmer, who, after seventeen years' service, has resigned in order to devote himself entirely to his work as managing director of the Beds Times Publishing Company, Ltd., and editor of the *Bedfordshire Times*.

THE CURRENT ISSUE OF "CAMERA HOUSE JOURNAL," in addition to particulars of Messrs. Butcher's seasonable novelties, contains an article entitled "Di-chromic or Natural Colour Stereo-transparencies," which claims to be a new method of making colour photographs in which two colours only are employed. Full working directions are given, together with a list of the necessary materials and their prices for use with various makes of cameras.

ROYALTY UNDERGROUND.—Though many photographers have taken portraits of Royal personages, it is not often that they have the experience which recently befell Mr. John H. Coath, F.R.P.S., of Liskeard, by whom several negatives of the Royal party who recently visited Cornwall were taken at the bottom of the Phoenix mines, 1,000 ft. underground. The making of an excellent group negative under these conditions is a feat upon which Mr. Coath may be congratulated, as those who have seen the photograph reproduced in several of the illustrated papers will have recognised.

FREE PLATINOTYPE DEMONSTRATION.—The Platinotype Company are giving a demonstration of this beautiful process on Wednesday evening, June 23, before the South Suburban Photographic Society, at their headquarters, Plough Hall, High Street, Lewisham. By arrangement with the Society, any photographer interested, amateur or professional, will be welcomed at the meeting, and every facility will be afforded the inquirer who wishes to keep himself abreast of the latest developments. There will be no charge for admission, which can be obtained on presentation of business or private card. Professional photographers in the South London district may be advised to take a note of this fixture.

A CHINESE SHOWCARD is one of Messrs. Butcher and Sons' latest novelties, and is designed to illustrate the use of their popular cameras in China by the Chinese. The card, which measures about 20in. by 30in., is printed in colours, and depicts Chinese figures and landscape scenes, some of the former being in the attitude of posing for their portraits whilst others are manipulating the cameras. Although originally produced only for the Chinese market, Messrs. Butcher have now issued a limited edition for dealers at home, and those who have not yet secured one of these attractive advertisements should apply to Messrs. Butcher and Sons, Ltd., Camera House, Farringdon Avenue, London, E.C.

PHOTOGRAPHIC METHODS OF IDENTIFICATION.—Among the doctors attached to the French detective service (writes the "English Mechanic") there is some difference of opinion concerning the advisability of abandoning the present method of identification of prisoners—by finger-print—in favour of a new method, devised by an Italian professor, Dr. Tomassia, in which identification is proved by means of photographs taken of the veins on the back of the hand. Professor Tomassia bases his method on the observation that no two persons have the veins on the back of the hand so much alike as to allow room for confusion—less, indeed, than with finger-prints. The prisoner's hand is held downwards for several minutes, or the pulse at the wrist is restrained, and the veins are then photographed. This photograph, Professor Tomassia says, will always be available for explicit proof, whereas criminals now understand that

with an ordinary razor they can operate on their own hands without much pain or inconvenience, and may change the pattern of the finger-print beyond chance of identification. To burn the fingertips is more painful, but perhaps even more effective. On the other hand, as Professor Tomassia points out, only a serious and dangerous operation can modify the veinal system.

FIELD WORK FOR BEGINNERS.—The second of the series of beginners' outings arranged by the South Suburban Photographic Society will take place at Monk Wood, Epping Forest, on Saturday, June 26. As before, friendly assistance will be offered to beginners in the selection of a subject, as well as in matters of exposure, lighting, etc. Members and friends will meet at Liverpool Street Station, and travel by the 2.41 train to Loughton. Non-members are invited to join this outing.

CAMERAS FOR THE TROPICS.—The London Stereoscopic Company, Ltd., are now holding in one of their studios at 106-108, Regent Street, W., an exhibition of photographic apparatus supplied by them for use under trying climatic conditions, such as those of the tropics. In addition, an interesting collection of photographs is shown from negatives made in all parts of the world. The majority of these are 15 by 12 or 12 by 10 enlargements from very small negatives, and show the very excellent results to be obtained from the small negatives. The apparatus includes a number of examples of the company's products in the way of folding cameras, made in teak, with extra brass binding and bellows of Russian leather. The tropical model of the Goerz-Anschütz folding focal-plane camera is represented by one or two of the actual instruments, and some illustrations of fine work done with them. The Stereoscopic Company's "Vesca" pocket camera is supplied not only as a single instrument, with or without a detachable film roll-holder, but as a complete outfit, including folding fixed focus-enlarger, changing tent, chemicals, etc. The whole forms an ideal photographic equipment of the smallest bulk and weight, yet capable of giving first-rate results. Reflex and telephoto cameras also figure in the collection, a visit to which cannot fail to show the pains which the Stereoscopic Company have taken in the production of apparatus for the tourist in all quarters of the globe. The exhibition is open from 12 to 4 until July 4, and the features of the apparatus are courteously explained by a representative of the company.

TESTING PHOTOGRAPHIC SHUTTERS.—At a recent meeting of the Physical Society a paper on a new method of measuring the speed and efficiency of photographic shutters by Messrs. A. Campbell and T. Smith, of the National Physical Laboratory, was read by Mr. Smith.

A vibrating beam of light falling through a narrow slit on to a moving plate serves to measure the time. This beam is obtained by reflecting the light of a Nernst lamp from the mirror (area 50 sq. mm.) of a vibration galvanometer actuated by a current of fixed frequency (say 100 to 500 vibrations per second) obtained from a microphone hummer. The use of the vibration galvanometer, in which the amplitude is enormously increased by resonance, greatly facilitates the measurements.

When the total duration of exposure only is required, the vibrating beam of light is passed through the shutter, tracing a sine-curve on the moving plate. The duration of exposure is immediately found by counting the number of ripples recorded on the plate. Ten records of the various speeds of a shutter can be taken side by side on one 5in. x 4in. plate in one minute. The accuracy of the method was found to be within .0001 second (one ten-thousandth of a second), at the highest speeds.

When the efficiency, in addition to the duration of exposure, is required, the method adopted is essentially that of Sir Wm. Abney, but the time measurements are made with the vibrating beam of light instead of a screen. The sine-curve now extends over the length of the plate, and serves as a continuous time record, and is to be preferred to any intermittent method of measuring the time. A slit is placed in a diameter of the shutter-opening as close to the shutter leaves as possible, and an image of a line source of light is made to fill this slit. By means of a concave mirror an image of this slit is formed on the plate by the side of the vibrating beam of light. As the shutter opens, the length of the slit through which light can reach the plate increases, and the record on the plate gives the length of the slit, which is opened at every instant of time. Measurements are then taken of the area of the shutter aperture and

sponding to a number of lengths of the slit-opening. Combining these records the area of the shutter aperture at every instant of the exposure is obtained, and by integrating this area with respect to time the equivalent exposure at full aperture and the efficiency are calculated.

Mr. Baker expressed his interest in the method, which he said was the most satisfactory yet produced. It was difficult to say exactly what to call exposure. In photographing moving objects it was advisable to use as the effective time the time during which the central eight-tenths of the shutter was open.

Mr. Duddell said the method was an ingenious one for determining the efficiencies of shutters. He suggested that by using an arc it might be possible to reduce the size of the mirror and thus work at higher frequencies. Instead of using a slit it might be better to use a short focus cylindrical lens.

Mr. Campbell, referring to Mr. Duddell's remarks, said that with a Nernst lamp it was possible to obtain high frequency curves showing very little tendency to tail off.

Correspondence.

*• *We do not undertake responsibility for the opinions expressed by our correspondents.*

*• *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

TELEPHOTO CALCULATIONS.

To the Editors.

Gentlemen,—May I point out that in the letter printed to-day on page 465 there is a mistake? The formula should be $\left(\frac{m+1}{n+1}\right)^2$.

Yours faithfully,

C. L. D.

THE SPEED NUMBERS OF PLATES.

To the Editors.

Gentlemen,—On reading the report of the Chemical Congress in your issue of the 4th inst., I note with interest the papers that were read on sensitometry, and the proposition coming from Sir William Abney, and it looks now as if something will be done towards standardising plate-speed marking.

Although most of the plate makers have adopted the H. and D. system, the results obtained by different makers are really too absurd. I enclose the results of tests of three different makes of plates for your observation. The tests were carried out under the following conditions: A Chapman Jones plate tester was placed in contact with a 175-line ruled screen, the screen being next to the plate and set at the usual working distance and exposed to the light of two Cooper Hewitt tubes reflected by a sheet of white blotting paper. The distance from the reflector, diaphragm and exposure were identical in each case, development 7 minutes with hydroquinone at 65 deg. Fahr.

No. 1 was marked H. and D. 15; No. 2, H. and D. 80; No. 3, H. and D. 95. Result: No. 1 is practically 50 per cent. faster than No. 2, and No. 3 is $2\frac{1}{2}$ times faster than No. 1, or to put it another way: If the H. and D. 80 is correct the 95 ought to be marked 320, and the 15 should be 120. All these tests are borne out by actual exposures on copies for half-tone negatives, so I can only repeat that the so-called H. and D. speed marking is absurd, and that the whole question seems to be in a state of hopeless muddle. It is difficult even to find two makers who give the same ratio between Wynne and Watkins.

Following a paper on exposure, which I gave before the Handsworth Society in March last, a resolution was drawn up calling attention to the present state of speed marking, and sent to the R.P.S. with a request that the matter be taken up seriously to endeavour to bring about a standard. A reply was received to the effect that the makers had already been approached, but that they each stood by their own rendering of the system, and that there was little hope of anything being done. So at the quarterly meeting of the Midland Federation on April 29, it was resolved to approach all the other Federations with the object of bringing pressure to bear from all quarters upon the R.P.S., and failing any

good result to endeavour to bring about some concerted action with the makers direct. I mention this simply to show, if this were necessary, that the movement is likely to have the heartiest support from all classes of photographers.

There is much to be said for the suggestion of Mr. F. W. T. Krohn of marking plates as slow, rapid, etc., when coming between certain fixed limits of speed, but the makers must be induced to use the same methods of arriving at these limits or we shall not be any better off than at present where one maker uses H. and D. 300 for the same speed of plate that another maker will mark H. and D. 150, or thereabouts, and many others dropping in between with various figures, and for what are for all practical purposes the same speed of plate, because everyone knows that fractional differences in speed are of no account whatever.—Yours faithfully,

E. A. BIEMANN.

[In the prints sent by our correspondent, 13 is just readable in No. 1, but not in No. 2. In No. 3 the highest readable number is 15. We give these data in place of reproducing the prints since differences of this kind are apt to suffer alteration in the course of blockmaking and printing.—Eds., "B.J."]

TRADE PROFESSION AND PHOTOGRAPHERS' COMPETITIVE METHODS.

To the Editors.

Gentlemen,—I am very much surprised to see with what eel-like dexterity, "Fairplay," alias "Playfair," is trying to extricate himself from the scrape, but I am confident that the readers of your esteemed paper who will take the trouble to "dissect" his letter which appeared in your issue of the 28th ult., and compare it with my two letters of the 21st ult., and 4th inst., will probably agree with me that his words in the current issue are (politely speaking) hardly justified by the facts of the case. It strikes me, however, that I am perhaps too severe with "Playfair," and, after all, he is probably no more guilty for misrepresenting facts than a squinting person is for looking askint.

In that case I do not see what benefit the photographers' assistants will reap from this controversy, and since the modus operandi of the trades union artisan is not endorsed by "Fairplay," I would propose that, whilst "awaiting with curiosity a report of the proceedings at the proposed somewhat incongruous gathering together in solemn conclave of bricklayers and photographers' assistants," he should proceed to treat photography according to his simile—i.e., as "a patient in very poor health."

But before starting on this medical research it would be advisable, I think, that he provide himself with a good treatise on logic and carefully study the chapter on the construction of syllogisms, for this may help him to correct his squinting mind's eye.

May he act on my disinterested advice and thus enable us to soon peruse the first part of his medical thesis; meanwhile I hope some photographers' assistants will satisfy "Playfair" with the report of the proceedings, etc., and I remain, with best wishes for the realisation of some sort of union, yours very respectfully,

A. REDMOND.
4, Mildmay Road, N.

INTENSIFICATION MARKINGS.

To the Editors.

Gentlemen,—Although I have intensified probably many hundreds of negatives with mercury, both with and without hydrochloric acid, I have never to my recollection had any trouble of the kind stated by "Prof." I have, however, when washing the bleached plate under the tap, found that the "whirl" or vortex, caused by the flow of water, leaves a circular patch of different density, and sometimes of a slightly brown colour. As this patch always disappears on blackening I have never troubled about it, but it may bear some relation to the markings complained of. I have always understood that a very thorough washing is desirable between the mercury and the ammonia, though in an emergency I have given only ten minutes without any apparent detriment.—Yours faithfully,

D. BERLIN.

To the Editors.

Gentlemen,—In the "B.J." of this week I noticed a letter from "Professional" concerning streaky marks on plates intensi-

ed with mercury bichloride. I also have experienced them, but with continued circular rubbing with a tuft of cotton-wool immersed in a solution of iodide they always disappear.—I remain yours truly,
W. E. BURNETT.
Eversfield House, 5, East Cliff, Dover,
June 13, 1909.

Answers to Correspondents.

* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.

* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED :—

G. Busby, 122A, Chepstow Road, Newport, Mon. Photograph of the Freedom of the Borough of Newport, Mon., being conferred on His Lordship, the Right Hon. Viscount Tredegar, June 9, 1909.

CASE (Swansea).—Certainly; there is no reason why you should not sell any photographic articles.

NEMATOGRAPHY.—Will you, through the medium of your columns, refer me to a good practical work dealing with the cinematograph? I especially desire some information with regard to the electrical details and operating.—F.

We should advise you to get "Animated Photography," by Cecil M. Hepworth (Hazell, Watson, Viney, Ltd., 1s.). You would also do well to study the "Kinematograph Journal" each week.

L.—18s. to 25s. Dark-room assistant.

"TRUE TO SCALE" PROCESS.—Having used the "true to scale" process with very indifferent success I should be greatly obliged if you would clear up the following. I used the "B.J." formula No. 1, and made up evaporation loss after, and still it was far stiffer than the usual office ink hectograph pad. Is this too stiff? If you could give me the action that takes place between the print and the jelly it would be easier to know in which direction to look for the cause of failure.—HECTOGRAPH.

So far as we know, no satisfactory explanation of the process or of the action of the iron salt has yet been given. We know of none. Evidently the effect is produced by insolubilising the gelatine in the line of the drawing. If the graph is too stiff you need only add a little more water to the composition. It should be a little stiffer than the usual hectograph office composition.

LENS QUERY.—I have a lens with the name "Vogel, Philadelphia, U.S.," and number "5,379" upon it. It has a small lens in the centre which is removable. As it is, its focus is 10½in., with the smaller (or between lens) out it is only 4½in. focus and only covers quarter-plate. The front lens alone is 7½in. focus, while the back part used alone is 15in. focus and covers half-plates well and sharp. In fact, it seems best of all. Can you tell me for what this lens was originally used and its market value, and about what would be its present worth? 2. Of late we have unconsciously been using potass. sulphocyanide instead of ammonia sulphocyanide for toning P.O.P. prints. Can you tell us the difference, and say if the one would do as well as the other for purpose named?—J. A. K.

1. From the description we should say that the lens is the old form of triplet. That lens was designed for such work as is now done with the rapid rectilinear, but it was much slower. It has

no market value now. 2. The difference is that the one is a potassium salt and the other an ammonium one. It is the latter that is usually employed for toning P.O.P. If you find the other answers your purpose there is no objection to its use.

BROMIDE.—Bromide would not give you surface veil; on the contrary, it would tend to density more deeply seated in the paper. We advise you to change the developer, say, to hydroquinone; and, if that does not remove the trouble, the paper.

RIGHT TO NEGATIVE.—I have been doing a quantity of 12 x 10 enlargements for a canvasser. He brings me any old photograph and I produce the enlargement finished. He now asks me for the negatives. I have refused, as I naturally think they belong to me. He says he has only to demand them to get them, as it is trade work.—RETOL.

Let him demand them. In no circumstances where a photographer supplies prints, etc., can any claim be made to the negatives by the customers, not even if, for special purposes, negatives have to be made and separately charged for. The negatives are your property, to be used for your customer.

PHOTOGRAPHING SILVER CUPS.—1. What is the means generally adopted by the most successful workers in the photography of silver cups and trophies? I have seen photographs in which the plain surfaces are quite free from reflections, although they had obviously not been frosted. 2. Can a flashlamp (magnesium and permanganate) be satisfactorily fired by the discharge from two motor bicycle accumulators, each of 10 amp. hours capacity, and if so, what gauge wire should be used for heating purposes? 3. What is the relation between the weight of flash-powder employed and the area to be illuminated? How much of the average powder distributed into two equal heaps at different points would be required to make a satisfactory exposure on a group, say, 20ft. wide and 30ft. distant from the camera, F.6 being employed?—D. W. (Oxford).

1. The only way is to be careful in the lighting so that there are no reflections from the plain surfaces in the direction of the lens. Direct front light should be shut off. Usually the surface is slightly dulled, say by pouring some ice-cold water into the vessels a moment or two before exposure, a film of moisture condensing on the outside. 2. You will find information on the subject on pp. 390 and 410 (May 14 and 21 last). 3. We should advise you to obtain a work by F. J. Mortimer, "Magnesium Light Photography" (Dawbarn and Ward, 1s.); but we would say that the colour and illumination of objects render any rule for the quantity of flash-powder apt to prove misleading.

FINGER-PRINT PHOTOGRAPHS.—Will you kindly inform me the details of process for taking copies of finger-prints before photographing them? I am at present taking the matter up, but cannot get information how the impression is taken from the object before the plate is exposed. What would be the procedure (1) for taking impression from glass; (2) from black surface, such as a cash-box; (3) from ruby surface, such as mahogany chair? I have obtained a satisfactory impression from the hand upon paper, so any process you can give me for the comparative transfer will be greatly welcomed.—JAS. DUNNING.

We do not think that, as a rule, any attempt is made to transfer the finger-print from the original object. It is photographed direct, using suitable filter-screens and colour-sensitive plates, and adjusting the lighting so as to show up the mark as much as possible. For advice as to suitable filter-screens you should consult Messrs. Wratten and Wainwright, who can supply screens for any special purpose.

HYPALUM TONING.—Will you kindly inform us through the "B.J." if a zinc tank would answer for hypo-alum toning of bromide cards, and if not, what material tank should be made of?—TANK.

Zinc would only withstand the hot bath for a time. A tank of enamelled iron or porcelain should be used.

PHOTOGRAMMETRY.—Kindly give me simple formulæ for calculating (a) distance of object—viz., house or town. (b) height of same, with lens of given focus, the corresponding light of image on screen and distance of screen from central stop, when focussed, being known. (c) is there a method through using two lenses—viz., whole and

single combination, knowing differences of focus and image?—**PROGRESSIVE.**

(a and b) The ordinary law of conjugate foci will give these dimensions. Subtract focal length of lens from the distance between plate and lens and divide the difference into the focal length. The result is the proportion of object to image and also of distance of object to distance of image. The most accurate method is to focus sharply on infinity and then measure the extra extension of the camera when focussing on the given object. Thus, suppose the focal length to be 6 inches and the extra extension $\frac{1}{4}$ -inch. Six inches divided by $\frac{1}{4}$ -inch, equals 24, therefore the height of the object is 24 times that of the image, and the distance is 24 times the distance of plate from node of lens. This method cannot be applied if the extra extension is so small as to be unmeasurable, and in such a case we cannot suggest a method. (c) We do not know of any method, based on the factors you mention, but one might perhaps be devised. The safest method of all in practice is to place a scale or rod of known length against the subject and photograph this with it. The scale of reduction is then clearly indicated.

DEFECTIVE NEGATIVE.—I would be much obliged if you can point out any error on the enclosed negative and a remedy for the blotchy surface. The plate is developed with metol-hydroquinone and fixed in hypo, 1 lb. to 40 ozs. water and alum $\frac{1}{4}$ lb. I seem to have most of my negatives coming blotchy this last few days, and should be glad if you will point out where I have gone wrong. I may say I have been taking photos this last five or six years and have not experienced anything like this before.—**NEGATIVE.**

Nothing can possibly be done to remedy the marks, as the gelatine is partly destroyed. It looks very much as if the plate had been treated with hot water. In any case, your fixing bath is twice as strong as it should be, and the alum should be left out. If you get the same effect with weaker fixing bath and solutions at normal temperature you had better refer the matter to the plate makers.

OLD NEGATIVES.—We have a quantity of old negative glass, and, wishing to dispose of same, would be pleased if you could furnish us with the address of a buyer.—**M McNAMARA AND SON.**

Chas. Bowen, 58, Grove Road, Holloway, N.

JEWELLING TINSEL.—Can you oblige me with the name of a firm who supply tinsel for jewelling postcards? They used to advertise in your columns, but apparently do not do so now.—**C. TESLA.**
Reinemann and Co., 7, New Zealand Avenue, London, E.C.

PORTRAIT LENS.—I have lately bought a second-hand lens, which was advertised as Dallmeyer's L.B. extra quick acting patent portrait lens, $f/3.15$. When I test the same I find it is 6 in. focus, and the diameter of the front glass is only $1\frac{3}{4}$ in., and it is, therefore, working at $f/3.4$. In Dallmeyer's list the L.B. is described as 2 in. diameter and works at $f/3$. The lens I have bought is only engraved J. H. Dallmeyer, 4307, London. Is it a genuine Dallmeyer lens, and should I be justified in returning it as falsely described?—**P. SYKES.**

Your calculations are quite correct, and a 6 in. lens must be at least 2 in. in diameter. Your best course will be to submit the lens to Messrs. Dallmeyer, who can at once give you definite information. If they state the lens is not genuine you can then send it back and demand the return of your money.

FIXING-BATH.—I would like to try the alum-hypo fixing-bath No. 13 given on p. 5 of your volume for 1908, but as the strength of the sodium acetate solution is not given, I am at a loss regarding this constituent of the bath. What should the strength of this solution be?—**RED PINE** (Ontario, Canada).

There was an error in the formula. The latter should read:—

Chrome alum	24 grs.
Hypo	$1\frac{3}{4}$ ozs.
Sodium acetate	80 grs.
Water	7 ozs.

REVERSED PAPER PRINT.—Some days ago I had occasion to make a bromide positive print, and used some old paper—it had been lying about several years—and an ordinary negative. On developing a paper negative was produced instead of a positive. Can you inform me the reason of this?—**S. W. WILKINSON.**

We have at times heard of this phenomenon, though we have no reason for putting it down to the age of the paper. In the case

of negatives on films (on which it most commonly occurs, in our experience) the most probable cause appears to be exposure to actinic light during an early stage of development, though we doubt if that could give rise to a print which showed as a negative instead of a positive on the surface.

W. Cross.—From your description the apparatus is the ordinary bar burnisher, and if in good condition should answer its purpose.

F. F.—You can use fluted glass in place of ground. It will transmit a little more light, but ground glass, if kept clean, is equally satisfactory.

POSTCARDS.—May I beg to ask if you could tell me, through the columns of the "B.J.," where I can obtain postcards (from my own negatives) similar to the one enclosed. I often take negatives of local events and require to produce postcards in a fairly large quantity to retail at one penny each, and any photographic postcards produced by actual photography cannot be produced (as you know) at anything like one penny each. If you will carefully look at the enclosed postcard it seems a sort of lithographic ink about the same colour as a P.O.P. tone, and then varnished over, and I should be very glad if you could name me any firm that does this work. (2) A studio 24ft. long by 12ft. wide by 12ft. high, facing north (glass side), and to use both ends. Would you please state the distance required (opaque) from beginning of glass to background, both at top and side?—**NODYARG.**

(1) The print sent is a photograph glazed by being squeegeed on a glass plate. It is not a mechanical print. If you refer to the index of advertisers in the "Almanac" you will see the addresses of several who produce postcards for the trade. (2) About 5ft. top, at either end, and 4ft. at the sides will be good proportions to be opaque for that size studio lighted from the north.

SCHOOL PHOTOGRAPHY.—We are sure that many photographers will re-echo the opinion expressed by a recent correspondent of the "School Guardian" in reference to the annoyance caused by itinerant photographers. "School Manager" writes:—

"I beg to draw the attention of school managers and educationists generally to the increasing exploitation of our schools by itinerant photographers for purposes of private profit.

"In one of the schools with which I am connected no fewer than four applications for permission to enter the school-room have been received from various photographic companies within the last month.

"In each case the privilege was sought on 'educational grounds,' which, on inquiry, proved to be (1) selling photographs to children, (2) printing photographs in a journal published by the photographers.

"In addition, I am informed by a fellow-manager in the South of England that one firm is making further profit by disposing of the rights of copyright, which I understand belong to the owners of the schools.

"As the taking of photographs undoubtedly entails great interruption of school work, and as all legitimate requirements for school purposes are already adequately supplied by local photographers, it is sincerely to be hoped that, in the true interests of education, the evil indicated may be promptly suppressed by the various local authorities."

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SUMMARY.

An ingenious use is made of the telephoto principle by Dr. H. Harting who employs a very low-power telephoto lens in front of the ordinary objective as a means of focussing on various distances. The attachment amounts to the provision of a whole series of "magnifiers" by simply altering the separation between the negative and positive of the attachment, the focal lengths thus produced being equal to the distances of the object photographed. (P. 492.) Some editorial notes on this new method and on the matter of exposure in telephoto work appear on p. 490.

Messrs. Speaight are inviting photographers to their Bond Street galleries before the close of the present exhibition of "Fair Children," lately reviewed at great length in the daily and weekly Press. (P. 504.)

A German photographer has patented the use of a black mirror placed before the sitter in a dark chamber, which also contains the camera. The device is employed to allow the sitter to see himself at the time of being photographed, the camera and the photographer being both hidden from view. (P. 502.)

"Impressionism," "Free Sittings," and the "Speed-numbers of Plates" are treated, among other topics, under "Correspondence." (P. 505.)

Some hints on the colouring of photographs by Miss Elsie Debenham appear on p. 491.

THE DRESDEN EXHIBITION.—We review on p. 496 the trade section of the exhibition, in which are 181 separate stalls or galleries, the majority by German firms.

The conclusion of the description of the apparatus shown at Dresden for the explanation of elementary facts of photography and colour appears on p. 499.

Sir Cecil Hertslet draws attention, in a letter on p. 505, to the assistance which the Board of Trade is now giving to British exhibitors. In connection with the International exhibition to be held at Brussels next year a Royal Commission has further been appointed to assist English firms. (P. 505.)

A further instalment of the paper on the measurement of shutter speeds by Herr Paul Thieme makes particularly clear the very different results obtained with a focal-plane shutter when measuring speeds by methods involving the photography of an object moving in a circle. (P. 493)

It is necessary to correct a recent statement in reference to the action of reducers on the sulphide-toned prints. Both iodine-cyanide and acid bichromate will reduce the sepia image. (P. 489.)

The prospectus of the Photographic Salon now published gives the names of the Organising Committee. A Selecting Committee is to be formed from members of the Linked Ring. (P. 489.)

EX CATHEDRA.

The Photographic Salon. In the prospectus of the seventeenth "Photographic Salon," the Linked Ring, for the first time in its history, announces to the public the constitution of an "organising" committee composed as follows:—

MALCOLM ARBUTHNOT,	GEORGE DAVISON,
WALTER BENINGTON,	CHARLES H. L. EMANUEL,
REGINALD CRAIGIE,	F. J. MORTIMER.

The names of the committee, in conjunction with the avowal on the entry form that "careful consideration will be given to all pictures submitted," will do much to restore confidence in the management of the Salon. Evidently the events of last year are not to be repeated, and although the Linked Ring would have done well, we think, to have effaced the memory of last year's brusque disregard of its supporters, by giving the names of the members of the actual selecting committee, it has done the next best thing in making it known that a committee will be appointed from among the members. The last day for receiving exhibits at the gallery, 5A, Pall Mall East, is August 30, from 10 to 6. Messrs. Selfridge will receive, deliver, and return exhibits, in which case packages must reach them on August 26 at latest. The prospectus of the Salon may be obtained, as usual, by application to the Hon. Exhibition Secretary, Mr. Reginald Craigie, at 5A, Pall Mall East.

* * *

Permanency of Sulphide Tones. Mr. H. W. Bennett in his lecture at the R.P.S., while touching upon this question, stated that he had tried the effect of various reagents on toned prints, but

found that in no case could he affect the print without first destroying the paper support. He also quoted a paper previously read before the society, in which, according to Mr. Bennett, "it was stated very definitely that it was found quite impossible to reduce to any appreciable extent the sulphide-toned print without first destroying the paper." We are unable to trace this paper and can only find a communication by Mr. Harry E. Smith (June, 1907) on the subject of reducing toned prints, in which no such statement appears. In any case the idea is so erroneous that we feel obliged to correct it. Mr. Smith mentioned several reducers that work very satisfactorily, while it is now well known that a number of the reagents that are used to bleach ordinary bromide prints will attack toned prints almost as readily. Bichromate and hydrochloric acid is a familiar example, and so also is an iodine solution, as pointed out by Mr. Starnes. We do not, however, see that the application of any such solutions can be any test of permanency. The great cause of trouble with silver prints is the action of sulphuretted hydrogen, and this naturally can have no effect on a print that is already

sulphided. We have not, as a matter of fact, met with any instance that suggests impermanency in sulphide-toned prints. Chemical tests are almost useless as tests of permanency because the conditions are not parallel with those under which the prints are kept. Even the fact that simple hot water will dissolve the image might be taken to suggest impermanency if the other reactions indicated anything at all. The use of mercury as a bleaching agent does not seem to suggest possibilities of fading, for the final result is no doubt as proof against the action of sulphuretted hydrogen as the sulphided silver image. The precise nature of the compound formed is, however, certainly a rather doubtful matter.

* * *

The Sixth American Salon of Pictorial Photography.

A new president of the American Federation of Photographic Societies has been appointed in the person of Mr. G. W. Stevens, director of the Toledo Museum of Art, by whom the Federation should be greatly helped in its work of organising and circulating an international exhibit of pictorial work. We learn from the secretary, Mr. C. C. Taylor, of 3223, Cambridge Avenue, Toledo, Ohio, that the forthcoming Salon will be held in the art galleries and institutes of Pittsburg, Buffalo, Chicago, Indianapolis, Detroit, New York, Boston, St. Louis, St. Paul, Milwaukee, and other cities of the United States, and it is hoped that ample representation will be obtained from England. Mr. H. Snowden Ward has consented to act as commissioner.

* * *

Parallelism of Object and Plate.

This problem seems to have aroused much interest of late, both in our columns and those of our contemporaries, and it seems to form a most effective trap for the unwary. The last suggestion we have seen made is that plate and copy must be parallel if all four corners of the plate show maximum sharpness at full aperture. Setting aside the facts, first, that depth of focus renders it difficult to determine "maximum sharpness," excepting with very large apertures, and, second, that it is difficult to use the essential focussing magnifier near the corners of the plate, it is obvious that this condition of equal sharpness can easily be obtained when object and plate are at quite a decided angle with one another. If the axis of the lens is not exactly at right angles with the object, and the test does not in any way ensure its being so, then sharp focus in all four corners can still be secured by inclining the plate in an opposite direction to the object. This well-known fact has evidently been overlooked by the writer who has suggested the method referred to. Up to the present only two or three of the methods that have been proposed have proved to be accurate and scientifically sound, and these are all more or less unfamiliar and unusual, though the problem is a very common one. It has been tackled and solved in practice somehow or other by numberless workers, but apparently it is the all-powerful "rule of thumb" that has been their guide.

* * *

Diaphragm and Focal-Plane Shutters.

A writer in a contemporary suggests that an $f/8$ lens on account of the depth of field it gives will best serve the purposes of the average amateur, and then asks—Why set this lens in a diaphragm shutter which reduces its already low intensity to that of an effective $f/11$? Why not fit a focal-plane shutter which will enable us to use the full intensity of the lens? This writer is evidently impressed with the old fallacy that a focal-plane shutter has an efficiency of 100 per cent., while he is also underrating the possibilities of diaphragm shutters. It is suggested

that the ideal camera for the ordinary amateur is one with a shutter accurately timed up to 1-100th second, and, as things are at present, we believe that a modern diaphragm shutter will fulfil this writer's ideal as well as any focal-plane shutter. He asks for a cheap focal-plane shutter, but we should be inclined to think that one costing much less than a "Compound" or "Koilos" shutter, to mention two only of the diaphragm shutters available, would be a thing to be avoided. A focal-plane shutter that is not thoroughly well made and adjusted may be a most troublesome and inconvenient piece of apparatus. We have had some experience of cheap shutters of this pattern and have also discovered the difficulties of adjusting them. A good shutter is a most essential adjunct to the camera, and if the focal-plane variety is preferred then a good shutter can never be a very cheap one. On the other hand, it is possible to make excellent diaphragm shutters at a very low cost, and for moderate speeds these patterns are as serviceable and reliable as can be wished. In fact, if a large enough shutter is selected we consider the diaphragm likely to be preferable to the focal-plane, for moderate exposures at any rate. The usual fault is that a desire for undue compactness leads makers to fit the lens in the smallest size shutter that will take it, whereas the proper course is to use the biggest shutter that the camera will take, and disregard the smallness of the lens. Very high efficiency can be obtained in this way even with the short exposures.

SOME TELEPHOTO MATTERS OF CURRENT INTEREST.

CAPTAIN OWEN WHEELER's paper on "The Practical Side of Telephotography" which he read at the R.P.S. recently gave rise to a most interesting discussion, especially with regard to the subject of exposure. Theoretically, it can be shown that exposure should always vary with the square of the magnification, or that it should be equal to the exposure required by the positive lens alone on the same subject multiplied by the square of the magnification. The accuracy of this rule has often been questioned, but with, we think, very little reason. Those who spoke at the meeting, including the lecturer, supported the rule, but with certain qualifications, and it is just on this matter of qualification that ideas seem to differ. Our own view is that the rule is correct without any qualification, if it is interpreted literally, and that the troubles commonly met with arise from a misapplication of the rule. In other words, the worker often fails to ascertain correctly the exposure required by the positive lens used alone. He almost invariably over-estimates it, and the error being multiplied becomes a very considerable one with the telephoto exposure.

The telephoto lens, of course, only covers a very small angle, and only includes a very small portion of the most distant part of the much more comprehensive view included by the positive lens used alone. In ordinary conditions, exposure with the positive lens is not regulated for insignificant distant objects, but for the view as a whole. A small distant building is ignored, because if we regulated exposure by it the rest of the picture would be badly under-exposed; yet this small distant building is probably the only thing we intend to include in the telephoto view, and it should therefore be the only thing considered when estimating exposure. From this it is evident that in estimating exposure in telephotography we must throughout consider only those portions of the subject that will ultimately appear in the telephotograph. This is just where the mistake is usually made. The exposure for the positive lens is estimated just as if an exposure is to be made upon

the whole view included by that lens, instead of upon the very small portion of it that is destined to appear in the telephotograph.

There is another source of error in regard to exposure that was not referred to at the meeting. The rule quoted assumes that the diameter of the effective aperture of the lens system is the same with the telephoto combination as with the positive lens alone. That is to say, if the positive lens has an aperture of one inch, as in the case, for example, of a six-inch lens working at $f/6$, then the telephoto combination, whatever magnification it gives, is also working with a one-inch aperture. Another rule is based upon this assumption; this is, that the f number of the telephoto combination is equal to that of the positive lens multiplied by the magnification. As a matter of fact, the assumption is liable to break down when large aperture positives are used, for it sometimes happens that the negative lens acts as a diaphragm and stops down the positive lens very considerably. Quite recently we noted this effect in the case of a new telephoto lens that passed through our hands, and it is conceivable that it may very readily occur when various negative lenses are used in combination with the one positive in the way advised by Captain Wheeler. It is not a defect in any way, but it is very necessary that the operator should know whether the stopping-down effect occurs or not, as otherwise he may be very far out in his estimates of exposure.

It is quite possible that unnecessarily rapid positive lenses are often used in telephoto combinations. If the negative lens will not transmit all the light that passes

through the positive at full aperture, it is obvious that a lens less rapid, and therefore cheaper, positive should be equally serviceable.

Another matter of interest touched upon by Captain Wheeler was the use of the camera at a fixed extension and the production of various degrees of magnification by changing the negative combination, fine focus being, of course, obtained by altering the separation of positive and negative combinations. This is a course in favour of which there appear to be strong arguments, for a fixed extension may be a matter of considerable advantage from the point of view of rigidity. The "Adon" lens is an example of a telephoto combination especially intended for use with cameras of fixed extension, but in its case the degree of magnification is very severely limited, and it is perhaps most often used by itself in the same way as an ordinary telephoto lens. The mention of the "Adon," however, reminds us that its principle is made use of for a quite different purpose in the new focussing adjunct described by Dr. H. Harting in an article a translation of which we give on another page. Dr. Harting suggests the use of what is virtually a very low-power "Adon" solely for the purpose of securing sharp focus on near objects with fixed-focus cameras. His idea is really that of a "magnifier" constructed on the telephoto principle, and therefore of adjustable focus. Its magnifying power being very small, it will, of course, be ineffective as a telephoto lens, much as it resembles one, while on the other hand the "Adon" has too much magnifying power to be generally useful for simple focussing purposes.

A FEW HINTS ON THE COLOURING OF PHOTOGRAPHS.

By colouring I do not mean merely tinting, which is just a wash over the picture with different colours. To obtain a bright, fleshy result you must work up and strengthen the shadows and half-tones.

I would like my readers to examine a person's face in a good light; and many who have not done so before will be surprised to find the varied tints in the face. To be a good colourist you must observe where these different tints occur.

I recommend sepia plat as the best to work on; for smaller heads and miniatures, ivory, carbon, or bromide, the colour must be sepia or brown: never use a black foundation. There are a few things to be remembered. Do not try to cover a large space with a small brush. For 12 x 10 use No. 6 to 8 brush for washing, and No. 2, 3, or 4 for finishing and putting in cheek colour, lips and eyes. Never put the brushes to your mouth, and remember to hold them as loosely as possible; it is so easy to get into the habit of clutching the handles. Keep blotting-paper by you, and use it if you have too much colour in the brush. You must also have some perfectly clean water.

Avoid the use of Chinese white and gum, except when the picture is at fault and needs more sparkle. If the print is too dark, you may use a little gum in your colour for the shadows.

To wash (which is to be done first) colour should be mixed in the best medium as regards strength, and used freely. With a large brush, wash the colour from left to right, then back again to left, dragging the colour along, each time coming lower. Of course, your print must be slanted so that the colour naturally drains downwards; this applies to the background in particular; in the same way wash the face, then the hair and drapery. When this is quite dry the background will want another wash. The face should look a little too dark at this stage; now put some shadows in the hair, do the eyes, put some colour on the

shadows in the drapery, and a few touches of purple, red, and sometimes yellow may be added into the background. Very carefully wash the pink in cheeks, and do the lips. The shadows in the face must now be washed over with shadow colour.

It is necessary to start finishing after all this has been done, but do not stipple; fill all the little spaces with a fine brush, and slight touches in a cross-hatching style, which is done by holding the brush slightly sideways, not using much colour, and keeping your brush fairly dry. Join up all shadows and half-tones, leaving the lights; this has the effect of drawing it all up together and making it appear lighter.

Mark the pupil and the line over the eye *slightly* with any dark colour, almost black; the eyebrows must also be coloured according to the hair, but never alter the shape, and keep them soft.

The following colour suggestions will be found useful:—

Complexions.

Dark.—Venetian red and Roman ochre with a little rose madder.

Fair.—Scarlet vermilion or light red with pink madder and Indian yellow or yellow ochre.

Shadow Colour (for deeper tones).—Indian yellow or Venetian red or rose madder, each colour to be used separately according to complexion.

The neck must be greyer in tone than the face, and slightly pink on the collar-bones.

Arms and hands must be of a pinkish hue, also elbows.

Hair.

Always try to have a piece of hair to use as a guide: do not pick out the hairs separately, but put the colour in masses.

For Brown Hair.—Lights, purple hue; shadows, sepia.

For Grey Hair.—Mix a little cobalt or French blue with sepia.

For Golden or Flaxen Hair.—Roman ochre and sepia. A little scarlet may be added.

For Auburn Hair.—Lights, little neutral tint and lake; burnt umber for shadows.

For Chestnut Hair.—Lights and very dark shadows, slightly

purple; general colour, burnt umber and lake. Sepia may be added.

For Red Hair.—Venetian red and lake, or burnt sienna, not very red.

For Black Hair.—Indigo, lake, and gamboge, mixed, makes nice black; or use lampblack modified with lake or indigo according to shade desired.

ELSIE DEBENHAM.

FOCUSSING BY MEANS OF A LOW-POWER TELEPHOTO ATTACHMENT.

[In an article published in the current issue of "Photographische Rundschau," Dr. H. Harting draws attention to the advantageous use which can be made of an attachment to the lens whereby objects at different distances may be focussed without the provision of any moving part in the camera, saving only some convenient device by which a very small degree of separation may be given to a low-power telephoto attachment placed in front of the ordinary lens. He points out the advantage of this method in the case of small fixed-focus cameras. The following translation gives a description of the optical conditions which require to be fulfilled in making use of this system in practice.—Eds. "B.J."]

In the case of most hand-cameras sharp focus is secured by moving the lens in relation to the ground glass. Either the lens is a fixture on the front of the camera and the latter is moved by rack and pinion or other means, or the lens-front is kept at a constant distance from the plate and the lens itself is movable within the necessary range. In by far the greater number of cases this latter system takes the form of the well-known focussing-mount. There is, however, a further method of securing sharp focus at different distances, namely, that in which the course of the rays is somewhat altered. This system of focussing is adopted in the Cooke focussing lens. In this system of three lenses the first is mounted so that it can be moved to very small extent, and the focus thus thrown back behind that of the lens in its normal state, the middle and back lenses remaining in their places. This method of focussing has not come very greatly into use, probably because the definition may be very slightly impaired when the optical system is thus disarranged. There are, however, many cases

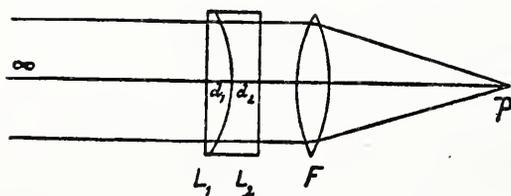


Fig. 1.

in which the ordinary focussing-mount cannot be used; for example, a diaphragm shutter is practically incompatible with a lens mount of this description, whilst, on the other hand, in the case of very small cameras, a movable lens-board has drawbacks from the point of view of rigidity, whilst still again the cost of either form of movement cannot be adopted in cameras sold at the lowest prices. On these various accounts there is something to be said for the supplementary lens as a means of focussing. These have already been used in the form of single lenses of focal length equal to the distance of the object which it is desired to bring into sharp focus. They are usually issued in sets, the particular lens being chosen according to the distance of the object. For example, a lens of two metres' focal length mounted on the front of the ordinary objective, which is placed in focus for objects at infinity, will bring objects at two metres' distance into sharp focus on the plate. But a much preferable plan is to have one optical attachment which will allow of sharp focussing at whatever distance

the object is from the camera, and will further dispense with a collection of separate lenses. Such an attachment is here described.

In Fig. 1 it will be seen that there is interposed in the path of the rays falling upon a lens F a plate having parallel sides, but composed of the two lenses L_1 and L_2 , L_1 being plano-convex and L_2 a plano-concave. Both lenses being formed from the same glass, they will, when in contact, have the effect only of a flat plate of glass of parallel sides. Therefore the focus will be set back only one-third of the total thickness of the plate, that is, one-third of $d_1 + d_2$, and this set-back the focus will be less the further the object is from the camera. When the object lies at the optical infinity for the particular lens, the rays falling upon the plate pass through it in straight lines, without refraction, and there is no alteration in the position of the focus.

If, however, the two lenses L_1 and L_2 are given a slight separation d , the effect of the two is no longer that of a flat parallel-sided plate. Calling the focal length of the two lenses

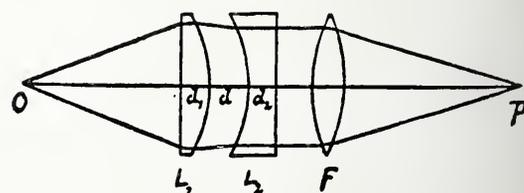


Fig. 2.

f_1 and f_2 the equivalent focal length of the combination will be given by the formula:—

$$(1) \quad \frac{1}{f} = \frac{1}{f_1} + \frac{1}{f_2} - \frac{d}{f_1 f_2}$$

It will be sufficiently accurate for the present purpose to take the lenses L_1 and L_2 as infinitely thin, and to take d their separation. Assuming f_1 and f_2 to be equal, we obtain the equation:—

$$(2) \quad \frac{1}{f} = \frac{d}{f_1^2} \quad \text{and} \quad fd = f_1^2$$

The combination of the lenses L_1 and L_2 thus corresponds with that of a telephoto combination of which the position has the same focal length as the negative; that is to say, the ratio of positive to negative is 1. It will thus be seen that by altering the separation we can obtain any value for the focal length F of the system of the two lenses.

Let O be a point which is to be sharply focussed, the separa-

on d between the lenses L_1 and L_2 thus requires to be chosen so that the focal length of the combination is equal to the distance of the point O . O lying in the front focal point of the system L_1 and L_2 , the rays which emerge from L_2 are parallel, and are brought to a focus in the usual way at P , the focal extension of the camera remaining unaltered. For example, if O is one metre from the lens, the focal length F must have the value of one metre, which is secured by choosing the requisite separation, d . The smaller the separation the greater the action of the front lens L_1 , and therefore the smaller its curvature may be. With d , 20 millimetres, and the object at one metre distance, we have:—

$$f_1 = \sqrt{20,000} \text{ mm.} = 141 \text{ mm.}$$

The corresponding radius r is obtained from the equation:—

$$r = (n - 1) f_1$$

When n is the refractive index. If the very transparent borosilicate glass No. 0.144 of the Schott Works, with the refractive index No. 1.51, is used:—

$$r = 0.51 \cdot 141 \text{ mm.} = 72 \text{ mm.}$$

Distortion is in no case so great that the efficiency of the lens suffers by the addition of this supplementary attachment so long as the lens is not used at too great an aperture and of medium focal length. For the same reason the thickness of the two lenses is kept small, so as to prevent the absorption of light by the glass rising to an appreciable quantity. Still, as a system of lenses has been introduced containing four surfaces exposed to the air, there is necessarily a loss of light to the amount of 20 per cent., but under ordinary favourable

conditions of lighting this difference cannot be considered of great importance.

A departure may be made from the plano-parallel formation above represented by giving the outer surfaces of the telephoto combination a shallow curvature, thereby allowing of small residues of aberration being avoided. The same thing may be done by using glasses differing slightly from each other in refractive and dispersive power, whilst a further modification which can be made is to have one or both of the lenses made from the yellow glass manufactured by Schott during the last few years; the attachment then serves the purpose also of a compensating or contrast filter. The whole attachment may be fitted in a mount of the focussing type, care being taken that the mount is of such dimensions that it does not act as a stop and lead to vignetting of the image. It is readily seen that cameras, such as those made for stereoscopic photography, for a plate of 107 x 45 mm., may be fitted with a pair of these focussing lenses, so that even when lenses of large aperture are employed focussing may be done for the foreground or distance. For fitting to reflex cameras also it may be preferable in the case of a large lens to mount the latter in a fixed position, with its weight balanced on the camera front, and to provide focussing by means of the above-described attachment. The advantage of the suggested device lies in the fact that the same combination of lenses may be used for any objective, of whatever focal length, so long as the respective diameters are suited to each other. Also, in the case of lenses which already are fitted in a focussing mount, the use of the attachment allows of objects still closer to the camera being brought into sharp focus.

DR. H. HARTING.

ON THE MEASUREMENTS OF THE SPEEDS OF INSTANTANEOUS SHUTTERS.

II.

[In the following translation from "Photographische Mitteilungen" of the second portion of the paper by Herr Paul Thieme, which we continue from our issue of May 21, p. 397, it will be seen that the author has made a series of calculations showing the different results obtainable with different shutters on different systems of measurement.—Eds. "B.J."]

THE methods of measuring the speed of photographic shutters may be divided into three classes.

I.—Methods in which a moving body is photographed.

II.—Methods in which sources of light are photographed at brief intervals.

III.—Methods in which successive exposures made with a shutter are compared with the effect of one single exposure of longer duration.

As the measurement of the time of exposure by the different methods depends to a notable extent on the type of shutter, it should be clearly recognised to start with that there is a vital difference between the lens or diaphragm shutter and the focal-plane or blind shutter working immediately in front of the plate. Whilst the lens shutter exposes the whole of the plate practically at the same moment to the action of the light, in the case of the focal-plane shutter the different parts of the plate are successively exposed. In the first case, therefore, the time during which the shutter is open may be taken as the time of exposure, whilst in the case of the focal-plane shutter the time of exposure is that during which only a certain small section of the plate is exposed. We are speaking now of exposure as a means of producing a developable and sharp image, and it is these times which in the case of the focal-plane shutter are those given usually in tables of its speed. The shutter, however, remains open for a much longer time, that is to say for a time necessary for the slit to traverse the whole width of the plate. It is therefore necessary in the case of focal-plane

shutters to keep clearly in mind the distinction between what may be called the "time of exposure" and the "total duration of exposure," since this in the case of small slits may be very considerable. For example, in the case of a shutter having width of slit of 2mm., the actual time of exposure may be 1-1,000 of a second, but the total duration of exposure in the case of a plate 7 by 5 inches placed vertically will be 1-10 of a second. The blind of the shutter will traverse a distance of 2 mm. (the width of the slit) in 1-1,000 of a second, but in order to traverse the seven inches of plate (180 mm.) ninety times this time is necessary, that is to say approximately 1-10 of a second. It is this property of the focal-plane shutter which, in the case of very rapidly moving objects the images of which are moving on the plate in the same direction as the slit of the shutter, leads to too long an exposure, and therefore to an unsharp image. An example of this is a ball thrown up into the air, when the image is moving on the plate in a direction opposed to that of the slit. In the case of a falling ball, the effect is in the direction of shortening of the exposure, so long as the width of slit is small in proportion to the size of the image. Lastly, when the movement of the slit crosses the line of movement of the image on the plate, as in the case of a motor car, the effect is to produce a distorted image.*

Reverting now to the methods employed for measuring shutter speed, already referred to under I., namely, that in which a moving object is photographed, there are several variations of

* In each instance the slit is assumed to move vertically.

this principle which require to be considered. In each case the basis of the method is, of course, to obtain a prolongation of the image of the object as a result of the time the shutter remains open, the elongated or otherwise enlarged image being measured, and the speed of the shutter calculated therefrom.

(a) The moving object is a body allowed to fall freely. The photographic apparatus may be directed towards the wall of a house, and, with the aid of an assistant stationed at an upper window, a white or polished metal ball is allowed to fall and the shutter released at the correct moment. The ball will then appear on the negative as a dark band, the length of which, after the breadth has been subtracted, is the measure for the time of exposure. It is necessary to know the scale on which the image is formed in relation to the original, which is easily calculated from the focal length of the lens and its distance from the line of fall. The velocity of the ball at the moment of the exposure has also to be calculated from the height through which it has fallen by the well-known formula

$$c = \sqrt{2gh}$$

where h is the height from which it has fallen and g the acceleration due to gravity. It is necessary to ascertain what influence the movement of the blind of a focal-plane shutter has on the length of the image of the falling ball, but still more important is it to know what are the shortest periods of exposure which may be accurately measured by this method. If we assume the somewhat favourable case in which the exposure has been made at the moment when the ball had fallen 5 metres, its speed will then be 10 metres per second—that is to say, in 1-100th of a second it will have moved 10 cm. If the ratio of image to object is 1:100 the image will be 1 mm. This value is so small that a measurement, to be anything like exact, will require a microscopic measuring eye-piece. It will thus be seen that the method is quite useless for very short exposures.

(b) The moving body is a pendulum. A white or metallic ball is allowed to swing by a thread in front of a dark background. From the length and amplitude of the pendulum its speed at any point of its course may be calculated, although the calculation is one involving a good deal of trouble, and the process is therefore not to be used by those without some mathematical knowledge and patience. Herr Hans Schmidt has recommended an extremely simple method of getting over this calculation by photographing at the same time a scale representing the sine of the angle of the pendulum. Examining this method for its usefulness for short exposures, it may be assumed that a pendulum beating seconds (that is, of one metre length, and occupying half a second for a single swing) will have at its lowest point a speed of about .8 metres a second, that is to say, in 1-100 of a second it will move 8 mm. If we are photographing on the scale of 1:100 we thus obtain in an exposure of 1-100 of a second a shift of the image only .8 mm., which is no better than that of the falling body method described under (a).

(c) The moving body is a rotating rod. In this method, due to Eder, a rod mounted on an axis is provided with a small reflecting ball, which, on the rod being rotated from one end, gives an image on the plate which is part of the circle described by the extremity of the rod, and therefore allows of the exposure being measured when the number of revolutions of the rod per second is known. By this method much shorter exposures may be measured than by the foregoing, provided that the rod can be rotated at a series of fairly high speeds. In the case of medium speeds an ordinary bicycle may be employed and the number of rotations counted with sufficient accuracy. This latter method so clearly brings out the difference between the lens shutter and the focal-plane that it may be well at this point to examine this difference more closely.

In cases where the light obtains access to the plate for a considerable time we obtain an image such as that shown in

Fig. 1. The arrow indicates the direction in which the image of the ball has moved. When a shorter exposure is given there are obtained images such as those in Figs. 2, 3, and 4.

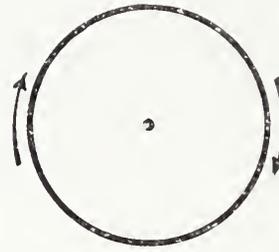


Fig. 1.

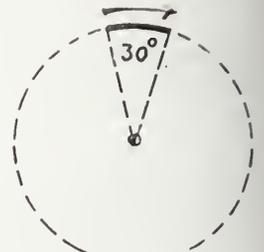


Fig. 2.

will be seen that these latter will indicate the same time of exposure in the case of a diaphragm shutter. This time will be ascertained as follows:—The rod making N revolutions

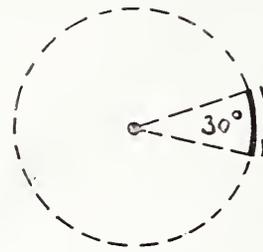


Fig. 3.

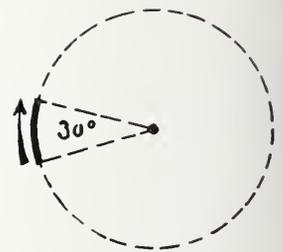


Fig. 4.

per second and B being the angle subtended by the portion of the image, the time, t , in seconds will be

$$(1) \quad t = \frac{1}{N} \cdot \frac{B}{360}$$

that is to say, when the rod makes 10 revolutions per second and the angular measurement of the arc of image formed is 30° , then

$$t = \frac{1}{10} \times \frac{30}{360} = \frac{1}{120} \text{ of a second.}$$

In the case of the focal-plane shutter, however, the slit of which may travel in relation to the revolving rod in the three different ways shown in Figs. 5, 6, and 7, it will be seen that the above formula only holds good in the case of Fig. 5, in

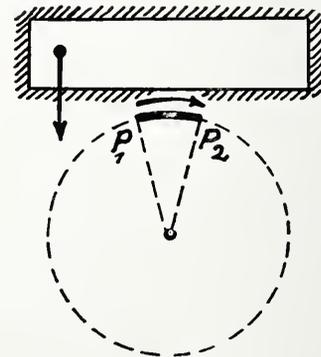


Fig. 5.

which points P_1 and P_2 of the arc B (representing the movement of the slit) can be regarded as one point. In Fig. 6 the slit has moved in the same direction as the point of light, and as a result there is a greater length of arc than that corresponding to the time of exposure calculated from the above formula; or, in other words, the time of exposure is less than would be given from the arc B according to formula 1. The exposure begins at the instant in which point P_1 is reached (compare Fig. 8); the slit then has the position shown. Exposure ends at

the moment when the point P is covered, at which stage the slit has the position shown in the dotted lines (Fig. 8). In order to expose a zone of the plate corresponding to the arc

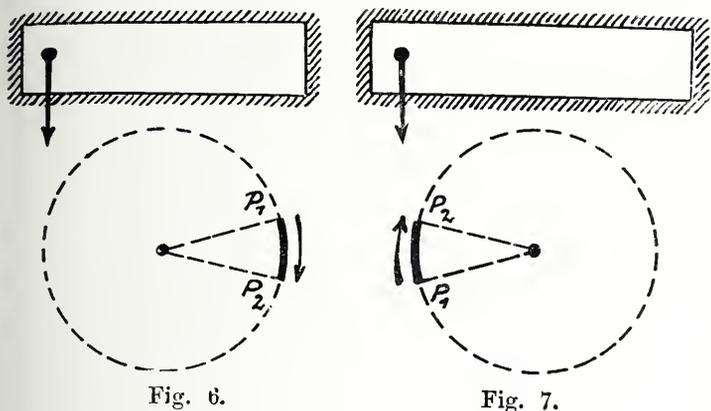


Fig. 6.

Fig. 7.

P_1, P_2 , the slit requires to move through the projection h of the arc $P_1 P_2$ in the direction of movement of the shutter and also the width of the slit b , for which purpose it requires the

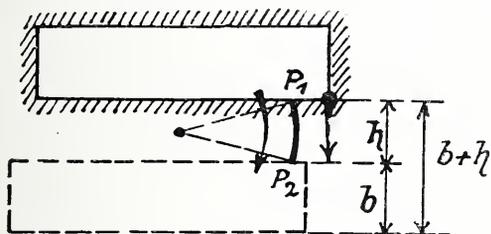


Fig. 8. (Corresponding with Fig. 6.)

time t . We thus obtain from the formula for the uniform movement only the speed c of the blind—namely,

$$(2) \quad c = \frac{h + b}{t}$$

of which h is measured on the plate, b on the slit of the shutter, and t obtained from formula 1. The speed of the shutter blind is, however, by no means identical with the time of exposure. The latter is the time T which the blind requires in order to run the width of the slit b —that is to say

$$T = \frac{b}{c}$$

or, taking the value of c from formula No. 2, we get

$$(3) \quad T = \frac{b \cdot t}{b + h}$$

Similarly, in the case shown in Fig. 9 we obtain

$$(4) \quad T = \frac{b \cdot t^*}{b - h}$$

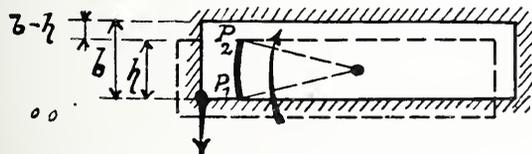


Fig. 9. (Corresponding with Fig. 7.)

The formula must, of course, apply also to Fig. 5 if it is of universal application. In this latter case h is equal to zero, therefore

$$T = \frac{b \cdot t}{b \pm h}; \text{ i.e., } T = t.$$

In this particular case formula 1 might be used, but as it is a matter of chance in which part and in what position the rotat-

* The width of the slit b is shown greater than the height h , as, in case of Fig. 7, h must be smaller than b , but these ratios cannot be ascertained to any closer degree of accuracy.

ing ball will be with regard to the moving slit of the shutter, it is best to adopt formulæ Nos. 3 and 4. The following numerical example will show the way in which the formulæ are used:—Suppose that the arc B subtends an angle of 30, then for a lens shutter which gives a result such as that shown in Fig. 5.

$$t = \frac{1}{10} \times \frac{30}{360} = \frac{1}{180} \text{ of a second.}$$

In the case of an image such as that in Fig. 6, the distance h must be measured (amounting, say, to 20 mm.) and also the width b of the slit, equal, say, to 40 mm. Taking now formula 3 we have

$$T = \frac{40 : \frac{1}{180}}{40 + 20} = \frac{\frac{1}{3}}{20} = \frac{1}{180} \text{ sec.}$$

In the case of Fig. 7 we obtain from formula 4

$$T = \frac{40 : \frac{1}{180}}{40 - 20} = \frac{\frac{1}{3}}{20} = \frac{1}{60} \text{ sec.}$$

To summarise these different results:—

Lens or focal-plane shutter, with the image in the position shown in Fig. 5, 1-120 sec.

Focal-plane shutter, with slit and image movements in the same direction (Fig. 6), 1-180 sec.

Focal-plane shutter, with slit and image movements in opposite directions (Fig. 7), 1-60 sec.

It is thus seen that Eder's method is much less suitable for focal-plane shutters than for lens shutters, although it is one of the best methods here mentioned.

(d) Dial methods of shutter measurement. These dials are nothing more than a variation of Eder's method. The moving pointer is photographed along with the scale over which it moves, so that there is no necessity for measurement on the plate. Everything said above in regard to the use of Eder's method applies also in this case in connection with focal-plane shutters, and the four methods which we have just described include the chief of those coming under section I.

Of the methods classed under II. must be mentioned that of the author already described ("B.J.," May 21, 1909) and that of B. Wiski, described in "Photographische Mitteilungen," 1908, page 335. This latter is of the greatest simplicity, but has the disadvantage of being unsuitable for very short exposures. It serves only up to about 1-25 of a second. An arc lamp on an alternating current is used as an intermittent light source, the arc being struck and extinguished about 100 times per second with great accuracy. The intermittency of the light is not seen by the eye, but if a highly reflecting object is moving in such a light the intermittent character of the latter is plainly shown by the fact that the object becomes at times invisible. On photographing such a light with a moving camera a series of points are obtained, each of which represents less than 1-100 of a second, the precise value corresponding to each point, however, whether 1-200 or 1-150 of a second unfortunately cannot be determined, and therefore the method is not accurate enough if only a few points are recorded.

A further method is as follows:—In front of a constant source of light a screen containing a number of holes is rotated exactly in the method already described by the author, so that an intermittent series of light impressions is obtained. These record themselves on a film stretched on a roller which rotates, and at the same time is given a certain shift along its axis, so that the images of the points of light are formed as a sinuous curve on the film. Exposures of any length may be measured in this way, but the method requires some complicated mechanism; at any rate more complicated than that of the apparatus devised by the author. An apparatus of this kind is used by the firm of Goerz.

Of the methods classed under III. in which the shutter is released a number of times so as to give an effect comparable with a single long and known exposure, that of Weber may be mentioned. The camera is directed towards a bright surface

illuminated by a constant light, and a plate exposed for a time which must be sufficiently long to be capable of accurate measurement—that is to say, must be at least 2 seconds when using a stop-watch working to 1-5 of a second. A second plate is then exposed, strip by strip, pulling out the shutter of the dark slide 1, 2, 3, cm., etc., and at every stage exposing by means of the shutter a certain number of times. For example, if the supposed speed of the shutter is 1-50 of a second, 100 operations with it should be required in order to ascertain to what extent the shutter departs from its marking. The dark-slide is withdrawn, say 1 cm. and 50 operations of the shutter given, at 2 cm. opening of the dark-slide 60 operations are given, and so on, so that the plate has the following series of shutter operations impressed upon it—50, 60, 70, 80, 90, 100, 110, 120, 130. The plate exposed in this way is developed with that which has received the 2 seconds' exposure and a comparison of the density obtained made, from which it may be determined which series of shutter operations corresponded most closely with that of the whole plate. Supposing that this was

the case with the strip which had received 80 shutter operations, the speed of the shutter is obviously 1-40 of a second.

This method of all those described is the one calling for the least apparatus, but there are drawbacks to it which must not be overlooked. It is only useful for shutters up to 1-50 of a second, and it occupies the more time the shorter the exposure required to be measured. Further, a comparison of the densities requires a practised eye. In putting the method into practice care must be taken that the light reaching the plate at each operation of the shutter shall be in excess of that just sufficient to give a developable image. The reason for this is that a series of the very minimum exposures, even to a considerable number, will not result in density comparable with that produced by the sum of these times acting continuously. On the other hand, if each single exposure is too great the bands will be in densities so great that proper comparison cannot be made between them. The brightness of the surface photographed and the stop in the lens must be used in adjusting these conditions.

PAUL THIEME.

THE DRESDEN EXHIBITION.

V.

A PALACE specially built for the purpose accommodates the 181 separate stalls or galleries taken by the houses in the photographic trade in Germany and other countries. The great number of the rooms, many of which are devoted to the exhibits of a single firm only, might have proved bewildering in making a tour of the building had not the organisers so arranged matters that the visitor is compelled to pass from one apartment to another in a certain order. Passing in at the main entrance, one may proceed straight forward up to the circular gallery or rotunda occupied by the Kodak Co., and thence to the right along the galleries occupying the inner portion of the palace to emerge again at the entrance. The remaining portions of the exhibits are reached by turning sharp to the right or left on entering, and thus traversing the galleries which lie on the outside of the building. The distances which thus separate the different rooms may be gathered from the fact that in one or two instances firms which have two separate rooms in different parts of the palace have found it necessary to have them connected by telephone. It will be impossible to refer individually to this very large number of exhibits. The majority of them represent German manufacture in the way of apparatus, plates, and papers. Excepting the eminent optical houses with reputations for photographic lenses which are world-wide, there is very little of interest in the shape of apparatus. In many instances the actual cameras, chiefly the less expensive metal instruments, are actually upon the English market. So far as concerns the more expensive patterns of hand and stand cameras and of studio apparatus, it cannot be said that any of the German makers have come up to the standard of work-

manship of those in this country, nor do they seem to have shown themselves equally active in improving the design and movements of this essential portion of the photographer's equipment. In the better class apparatus for the amateur photographer the most notable product of the German factories is the folding focal-plane camera, which, since its origination by the Goerz factory, has found many imitators, and may be said to be made in a greater number of varieties by the German houses than by those of other countries.

It is in the display that is made of the manufacture of photographic printing papers that the chief interest of the trade section at Dresden lies so far as the English visitor is concerned. Dresden itself contains a large number of factories of collodion and other papers, and the numerous galleries devoted to the showing of the very finest work, not by the makers themselves, but by well-known professional photographers, is a tribute to the high standard which has been reached in this branch of manufacture. Firms exhibiting their manufactures in the way of plates are comparatively few compared with those in the paper trade, but those which do exhibit—notably the firms of Schleussner and Richard Jahr—offer an impressive demonstration of the qualities of their products. This general summary of what is to be seen in the trade palace at Dresden should be sufficient to show that in undertaking a detailed review of every exhibitor's stall we should be rendering no actual service to our readers, and it will be sufficient if we select for mention those exhibits which do offer particular points of interest, or which show the part being taken by firms well known in this country.

THE TRADE SECTION.

No. 1 in the catalogue of the trade section is the reading and writing room most tastefully fitted up by our contemporary "Die Photographische Industrie," the leading organ of the trade in Germany, and ably conducted by Herr K. W. Wolf-Czapek. The room is most comfortably furnished, and conveniently provided with facilities for writing, and with a small library of photographic books. It also provides copies of most of the current photographic periodicals, and, by its very central position in the exhibition, provides a constant emphasis of the association of the press and the trade.

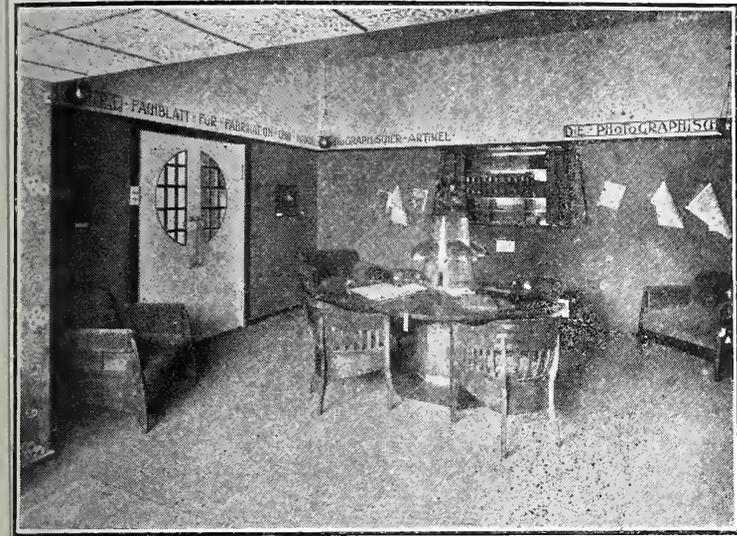
At stall No. 6 Meister Lucius and Brüning exhibit a series of the well-known Hoechst products, namely, dyes for sensitising dry plates and for the making of filters and safe-lights.

A number of pinatype prints and transparencies in colour are shown here, with about an equal proportion in monochrome, which are perhaps more interesting than the multi-colour ones, from the practical standpoint, as they show the very pleasing transparencies to be made by this process.

The exhibit of the Leonar Works of Arndt and Löwengard (No. 12) may be taken as typical of many another by German houses. Its chief products are gaslight, bromide, and collodion papers, in all which three media a number of excellent prints—brown, black, and red-chalk in colour—are exhibited. At the stall of Goltz and Breutmann (No. 16) makers of reflex and other cameras, we found an introduction of notable interest, namely, a folding reflex camera quite distinct in pattern from

ny other on the market. The principle adopted by the makers is to retain the box body of the camera, but to build it in two parts, one folding into the other, so that the bulk of the apparatus, when made ready for carrying, is nearly half that of the ordinary reflex. The adjustment is very nicely contrived so that the closing of the camera, including the placing of the mirror in the correct position, is all done by turning the head like that used for the focussing pinion.

The exhibit of the Kodak Co. is contained in the large circular hall or rotunda placed at the very centre of the trade building. The whole scheme of decoration is excellent in



The writing-room of "Photographische Industrie."

every way. A figured fabric is used as the wall-covering, and the different sections of the exhibit enclosed within beading of white picked out with gold. A floor-covering of Japanese matting harmonises well with this scheme of decoration, and the whole impression of the exhibit, despite the great amount of material collected in it, is light and refreshing. Around the top of the room, forming a sort of frieze, are a series of enlarged photographs, seen in the illustration, representing the headquarters of the Kodak Co. in the various capitals and countries of the world. As regards the exhibits themselves, it is not necessary to say more than that they include the

number of metal cameras made by Otto Spitzer (No. 21) there is also shown an ingenious stand for the camera which may be attached to a fence, a trunk of a tree, or other object, and thus made to take the place of the more bulky tripod.

No more impressive display of their manufactures is to be found in the exhibition than that of the Dresden firm of Ernemann, which occupies two large galleries, the first (No. 26) being decorated in a somewhat lurid scheme of ochre and blue, a large wall painting in which the latter colour predominates occupying the end of the room. The firm shows its many excellent manufactures in the way of folding cameras of various types, reflex cameras, and cinematograph instruments. It naturally gives a good deal of prominence to its latest production, a small cinematograph camera made entirely of metal, and serving not only as a camera, but also as the printing and projecting apparatus. The whole bulk of the instrument is scarcely more than that of a quarter-plate box hand-camera, and not much more in weight, and its working parts are evidently of a kind to withstand rough usage, even from those little accustomed to handling such apparatus. The instrument takes 100 pictures per metre—that is to say, twice the number of the standard cinematograph film, and gives an excellent 6ft. projection of the results. Apart from its use as a pastime, considerable advantage has been taken of it by teachers and educational bodies as a means of interesting and instructing children in many subjects. In their second gallery (No. 49) Messrs. Ernemann occupy the whole of one side of the room with a collection of the working parts and pieces of material—wood, metal, and leather—used in making one of their cameras. Here they show also cameras for process work, including one adapted for use both vertically and horizontally.

The old-established Brunswick firm of opticians, Voigtländer and Sohn, adopt at their stand (No. 34) a somewhat reserved and dignified tone, which accords well with their traditions in the optical trade. In addition to showing the many manufactures in the way of lenses and prisms, they carry the visitor back to the early history of their firm by showing catalogues of the year 1856 and later. A number of excellent prints and transparencies of portrait and landscape subjects are shown in demonstration of the capabilities of the modern Voigtländer lenses.

The Busch Optical Works of Rathenow show all the stages in the manufacture of a lens from the raw, rough-cut, and ground glass through the stages of polishing to the final cen-



The Kodak Rotunda.

numerous specialties of the company in apparatus and materials. At the demonstration table, also seen in the photograph, the manipulation of the company's papers and of its daylight system of developing plates and films are demonstrated.

The firm of Emil Wunsche exhibits the many substantial folding hand-cameras known to users in this country. Another notable piece of apparatus is an immense ladder tripod and camera specially designed for criminal photography: the camera may thus be used at an elevation of 12 or 14ft., being pointed vertically downwards upon the scene of any accident or murder. The legs of the tripod, including that built as a ladder, are made to fold into three for carrying. Among the

tred instrument, and they illustrate by some excellent diagrams the features of the "Bis-Telar" lens compared with one of ordinary type as regards its smaller size and shorter back focus. The exhibit itself includes the many well-known lenses and cameras of this firm. Messrs. C. P. Goerz present an exhibit which is very much on the lines of that usually arranged by them in this country, including a large number of enlargements showing the great resolving power of the Goerz anastigmats, and including a number of portrait subjects.

The Zeiss exhibit (No. 50) is representative of the many optical activities of the Jena factories. It includes a number of enlargements from quarter-plate negatives taken with the

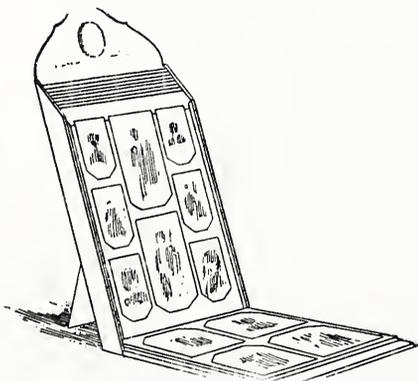
“Palmos” cameras from the Zeppelin airship, and Autochromes made with the “Ducar” filter, obviating any alteration from reversal of the ground glass when using the Autochrome plate. “Verant” viewing instruments are also shown, and one feature of the exhibit is the way in which the construction of the Zeiss lenses is shown by means of section models showing the curves and separation of the glasses. A smaller theatre in which demonstrations are given with the Zeiss “Epidiascope” projection lantern forms part of the exhibit.

Dallmeyer lenses occupy stand No. 39, and include the portrait, stigmatic, and telephoto objectives which are sold in



Germany by this leading firm's agents, Messrs. Carl Simonsen and Co.

At stall No. 83 the use of the dry adhesive binding-strips for lantern slides and passe-partout mounts is shown by the maker, Dr. Julius Neubronner. The binding strips are supplied in rolls of from 25 to 50 yards' length, or in lengths suitable for mounting the various standard sizes of transparencies and plates. A novel form of portfolio for holding and exhibiting photographs in the studio is shown by Oswald Weisser (No. 86a).



The portfolio is made with an open kinged front, and contains a series of mounts each taking seven or eight photographs, which mounts are similarly hinged to the bottom of the case. The latter stands of itself on a table, and the series of mounts can be turned down one after the other when showing prints to a visitor, both sides of each mount being available for the purpose.

Messrs. Raines and Co. have done their excellent work justice, and at the same time have given visitors to the Dresden Exhi-

bition some idea of the work of professional photographers by exhibiting a collection of prints and enlargements from negatives placed at their disposal by a number of leading professional photographers. Among these are H. Walter Barnett (London), Speaight, Ltd. (London), Drummond, Young, and Watson, and John Watson (Edinburgh), William Gill (Colchester), Harold Baker (Birmingham), F. A. Swaine (London), Brigham (Scarborough), Lena Connell (London), Oscar Hardee (Chislehurst), Elwin Neame (London), and Noreen Kirby (Liverpool). The portraiture is shown in the various media of bromide, platinotype, and carbon, and in execution of these processes, as well as in the style of mounting and framing, is quite representative of Messrs. Raines' standard of quality. Messrs. Speaight's work, portraits of H.R.H. Prince Wilhelm of Prussia from the sitting given to Mr. Richard Speaight at Potsdam, should be specially interesting to German visitors.

A new method of making enamel or ceramic photographs is shown at stall No. 97 by Mrs. R. Fuhrmann, by whom is supplied the dry plates which are the only material required in the process. Photographs transferred by this method to wood, stone, porcelain, and metal are exhibited. The many chemical specialties and dry plates of the firm of J. Hauff and Co. (No. 100) are shown in the exhibit of these well-known products. At stall No. 102 Ganzino, Ditta, Namias and Co., of Milan, show a screen for the projection of cinematograph and other pictures in daylight. It consists of two series of low, thin partitions running at right-angles to each other across the surface of the screen, which is thus divided up into a number of cells each about one inch square and about the same depth. The result of this screen was not shown in actual working, but it was easy to see that, although projections would be shaded from diffused light, the angle over which they would be visible would be very limited.

The dry plate works of Richard Jahr (No. 106) contains a large number of transparencies, many of them of considerable technical interest, apart from the testimonial they provide for the excellence of the manufacture. They include transparencies from exposures taken by ordinary lamp and gaslight, examples of night photography, comparative examples of ordinary and backed plates, reproductions of colour charts with different filters, and negatives and transparencies of a series of interior subjects, together with an excellent number of warm-toned lantern slides. In addition to these exhibits—representing the “Sigurd” and other Jahr plates—examples are shown of the interference colour results by Dr. Lehmann, of Jena, the plates for which are now made by Mr. Jahr. A fine collection of Autochromes occupies the stall of Messrs. Lumière, of Lyons, who also show a number of prints upon their various well-known papers. The Leto Photo Materials Co., of London, show examples of the excellent prints made on “Seltona” and other self-toning papers.

A companion pair of exhibits are those by the firm of raw paper-makers, Felix Schoeller, Jr., and Gevaert and Co., makers of printing papers, of Antwerp. Messrs. Schoeller, as sole suppliers of raw paper to Gevaert, exhibit a large number of prints made on papers of the latter manufacture, whilst Messrs. Gevaert exhibit a similar set, with intimation that the raw stock employed is that of Schoeller. The combined effect is to provide a very convincing display of the qualities of both manufacturers' products. The Gevaert Co. devotes a quite separate room to an exhibition of prints on their papers solely from the negatives of professional photographers, and a very fine collection of professional work is here brought together. The printing processes represented include the many grades of the Gevaert collodion papers, bromide and gaslight. Some interesting prints are shown by Emil Bühler (No. 116) in the way of prints of various colours made on a direct printing-pigment paper, which gives pictures of a very fine matt surface in which the half-tones have the rendering somewhat appropriately described

as "pearly." Another very fine collection of pigment prints is that made in the so-called "heliogravure" tissue of Alois Rieger (No. 120), which very closely imitate the appearance of a photogravure.

The exhibit of the Neue Photographische Gesellschaft, the parent firm of the Rotary Photographic Co. (which even Germans abbreviate to *En Pay Gay*), is big, and essentially commercial. The company have set themselves to demonstrate the large industrial use which they and others make of their products in the way of picture postcards, show cards, and many varieties of fancy goods (such as chocolate boxes, etc.) embellished with photographic prints. The rotary printing methods employed in this form of "photography by the mile" are emphasised by the exhibition of rolls of the raw and printed paper, and by a huge pyramid said to represent a record daily production of 21,942 metres of photographic paper. In addition there are examples shown of three-colour prints by the company's pigment films, which, however, do not show that any great advance has been made in this process. The company also demonstrate their new "Askau" or dusting-on process, in which prints of any colour are obtained by exposing under a positive transparency a paper coated with a sensitive mixture of rubber and asphaltum. This form of the dusting-on process has the advantage that the sensitive film may be applied from a non-aqueous solution, and in this way employed for the decoration of all kinds of surfaces—metal, leather, etc. The facilities provided by the "Askau" process for multi-colour prints are shown by a number of large examples, but the method would seem to have possibilities also for the making of prints in several colours of moderate size.

The well-known firm of Schering (No. 124) exhibits samples of its many chemical products, such as pyrogallie acid, hydroquinone, etc., and of the "Satrap," "Aristo," and other brands of printing papers. The General Paper Co. (No. 127), of Brussels, the combination of the factories of Blanchet Frères and Kleber, and of Steinbach, display their products on a most ornate setting of cream and gold, in which is included a list of the many Continental firms of which they are the sole suppliers of raw paper for photographic purposes. These include the Lumière Co., the Eastman Kodak Co., the Platinotype Co., and Kentmere, Ltd., in addition to about fifteen German factories. The well-known Dresden factory, the Vereinigte Fabriken, manufacturers of the "Crossed Swords" and other brands of printing papers, show the qualities of their products as expressed in the work of leading professional photographers, among whom are Dührkoop, Erfurth, Grainer, Pietzner and Raupp, all users of the "Albumat" paper. The only large exhibit of a British firm of manufacturers is that of the Ilford Co. (No. 130), which contents itself with three or four enlargements of considerable size on bromide paper, the quality and freshness of which, nevertheless, make an imposing display even after one has made the tour of many galleries of prints. The Auto-

type Co. (No. 131) show a selection of portraits and landscapes on their various tissues. In the exhibit of Trapp and Münch (No. 133) there are again represented photographers such as Dührkoop, Grainer, and Rauff, whose work on matt-albumen, and other papers is as fine as anything in the way of a photographic print in the exhibition.

Among the stalls of apparatus one of special interest is that of Gustav Geiger, of Munich (No. 140), who shows models of the "Ewon" automatic arc lamp and of folding finders and adjustable tripod heads. The firm of Siegel and Butziger (No. 144) show what may be termed a triple extension dark-room, designed for use in hotels or other places in which space may be thought to be a consideration. The table and shelving of the dark-room are built in a framework which forms the back of the room, fitting in which are two other supplementary frameworks, the smaller of which is closed and provided with a door. These two extending frames may be pulled out from the back frame in order to provide "at the full extension" about three times the space. The exhibit of Ed. Liesegang, of Düsseldorf (No. 149), includes a great variety of lantern, cinematograph, and projection apparatus, among which is an arrangement for the automatic delivery of slides into the stage of the lantern, the slides being fitted into a carrier which can be actuated so as to drop them one at a time behind the condenser, the previous slide at the same time dropping into a receptacle. Hugo A. Schneider (No. 153) shows some powerful incandescent gas lamps burning petroleum under pressure and mounted for use as studio lights. The intensity of the light apparently is quite sufficient for this purpose, although the system has the drawback of producing a hissing sound while the light is in action. The Aerograph Co. (No. 155) exhibit their methods of spray colouring and retouching, their stall being fitted up for the constant demonstration of the method of using the air-brush. The firm of Koebig (No. 178), makers of machinery for photographic plate and paper making, have put down quite an installation of these machines, whilst visitors to Dresden will have the opportunity of visiting their factory in the suburb of Radebeul. Lastly, mention should be made of the portable flash-lamp apparatus of Friedrich Schroeder (No. 179), which is now made in an improved form, allowing of the light being raised some 15ft. high, as is frequently necessary in taking flashlight groups of large size. The Schroeder lamp, of which good use has been made by many professionals in Germany, and by some in this country, has been used in making a number of excellent examples of portraiture, which are also shown.

This concludes the account we can give of the trade exhibits in the exhibition, except to mention the two shops which are arranged one on either side of the main entrance. These are the establishments of Oskar Bohr and Louis Lang, both photographic dealers of Dresden. Each includes a dark-room, where plates may be changed and developed, and where ordinary photographic requisites may be obtained.

DEVICES FOR THE AUTOMATIC DEMONSTRATION OF FACTS OF LIGHT, COLOUR, AND PHOTOGRAPHY.

II.

[The following notes complete the description of the experiments arranged by Dr. Goldberg at the Dresden Exhibition for the popular demonstration of the elementary facts of light and colour. As already stated, each experiment is arranged in a cabinet in such a way that the observer is able to perform it himself.—Eds., "B.J."]

28. *Mixtures of Coloured Grains.*—Instead of distributing the colours in lines they may also take the form of grains spread in a thin film (Lumière Autochrome process). In such methods the grains collect in islands which are, however, visible to the eye.

Experiment.—A wheel, composed of two plates of glass, fixed at a distance of about half an inch apart, and closed round the edge, is about half filled with coloured beads—red, green, and

blue. The wheel is caused to rotate by means of a handle projecting from the front of the wheel, when it is found that, however much the beads may be mixed in this way, there are always present numbers of "islands," formed by a number of beads of the same colour.

29. *Additive Mixture by Coloured Illumination.*—Certain processes of colour photography (Ives, Miethe) depend on the combination

of coloured rays, which are projected together upon the screen. In principle the colour mixtures are the same as those in the previous experiments: the mixtures thus produced suffer from dilution with white exactly in the same way.

Experiment.—Above the peep-hole of the cabinet (that is fixed inside to the top of the front wall) are three incandescent lamps with globes of red, green, and violet. A mirror fixed to the back wall of the cabinet and slightly inclined allows of these being seen from the peep-hole. Below it, opposite the hole, is a white screen. On pressing the switches (outside the cabinet) of all three lamps the screen is seen to be illuminated by white light; on using any two pairs of the lamps together the effect of the mixed colours can be seen on the screen, the lamps themselves being seen at the same time in the mirror. The whitish effect of the mixed colours is to be noticed in this case also.

30. *Subtractive Colour Mixture by Colour Illumination.*—Whilst in the case of additive mixture a very whitish-yellow is produced from green and red, in the case of subtractive mixture the result is black. In order to mix the colours in the subtractive way a con-

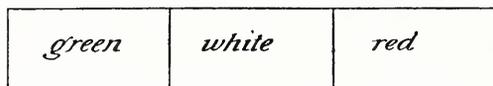


Fig. 12.

venient plan is to illuminate an inscription in colours with light of different colours. The same effect is produced by illuminating the inscription with white light and examining it through various coloured glasses.

Experiment.—To the back of the cabinet is affixed a printed inscription, in red on a green ground, to the effect:—

“THIS RED WRITING IS BLACK ON WHITE IN GREEN LIGHT; WHITE ON BLACK IN RED LIGHT.”

The three switches on the outside of the cabinet allow of a green, red, or white lamp being put in action. The effect of subtractive mixture can be observed by using either the red and green lamps or by illuminating the writing with white light and examining it through a red glass, the front aperture of the cabinet being made in the form of a slit, as in Fig. 12.

31. *Subtractive Mixture by Coloured Particles.*—Mixture by coloured grains in a film of sufficient thickness leads to subtractive mixtures, and therefore gives blackish instead of whitish tones. Mixtures of printing colours and pigments, as well as of solutions, belong to this class of mixture.

Experiment.—A glass tube, about one inch in diameter and about nine inches in length, is mounted on an axis so that the contents can be shaken up by the lever affixed to the outside of

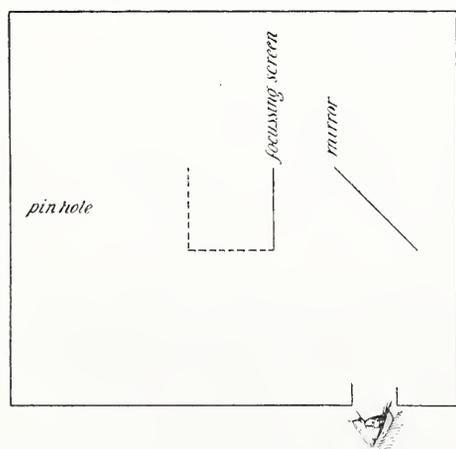


Fig. 13.

the cabinet. It contains a green solution, and above it an oily red solution, which, on being shaken up with the green, rapidly separates from it. On putting the lever into rapid action the mixture is seen, by a light placed behind it, to be a dark blackish-brown. It separates in a few seconds into its two constituent layers of red and green.

32. *Pinhole Camera.*—Light, so long as it is proceeding in one and the same substance, moves in straight lines. On this fact is based the simplest of all photographic apparatus—the pinhole camera.

It consists of a small opening in the side of a box, at some distance from which is placed the ground glass. Each point of an illuminated object—e.g., an incandescent lamp—sends a ray of light through the small opening, which ray passes to the ground-glass screen, and there illuminates a small corresponding point. In this way a complete but inverted image of the object is formed on the ground-glass screen. The pinhole camera has no focus, and therefore gives invariably sharp pictures, so long as the pinhole is small enough. If the hole is larger, the image on the ground glass becomes unsharp, since the light from a single point of the object obtains access to different parts of the ground glass.

Experiment.—The left-hand side of the cabinet is provided with a pinhole of adjustable size, a lever on the front allowing of the hole being enlarged or contracted by means of a sliding plate. A ground-glass screen is placed opposite the pinhole, and can travel to and from it within limits of about 4 inches. On the further side of the screen from the pinhole a mirror is placed at an angle of 45 degrees, the peep-hole in the front of the cabinet opposite this mirror allowing the image on the ground glass to be seen. The object is an incandescent lamp, placed outside the cabinet, or, in the case of a series, in the adjoining cabinet. (Fig. 13.) On moving the focussing screen the image is seen to alter in size only whilst retaining its definition. By moving the pinhole lever the unsharpness due to enlargement of the hole is seen, in both cases, by reflection in the mirror.

33. *Laws of Reflection from Mirrors.*—Light which meets with any object is divided into three parts—(1) that thrown back by the object (reflected), (2) that entering the object and absorbed by it, and (3) that passing through the object. As regards the direction of the light reflected, this follows the law that the ray of light is reflected at the same angle as that at which it met the surface.

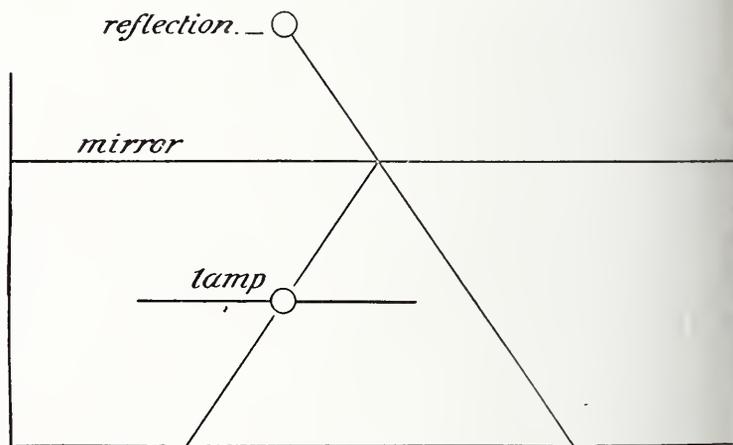


Fig. 14.

As a result of this it follows that an object reflected in a mirror appears to be behind the mirror, and at the distance equal to its actual distance from the mirror.

Experiment.—Two peep-holes are provided on the front of the cabinet. An incandescent lamp is placed a little to the right of the left-hand hole, being mounted in a screen, represented by the line in the figure. At the back is a mirror, and in looking through the right-hand peep-hole, the reflection of the lamp is seen at an apparent distance behind the mirror equal to the actual distance of the lamp from the mirror.

34. *Bending the Light in a Prism.*—When any transparent body is placed in the path of light rays, the light is bent by this object altering its direction.

Experiment.—The front of the cabinet is provided with two apertures, A and B, of a length about 5 inches apart. At the back of the cabinet, about midway between the two apertures, is a red incandescent lamp, the light from which can be seen from aperture A. On turning a lever and moving a prism into the path of the rays the light disappears, owing to refraction, and the eye must be applied to aperture B in order to see it.

35. *Bending of Light in Different Substances.*—The angle through which the light is bent on passing through a substance depends on the form of the vessel in which the substance is contained, and on the substance itself. Different substances have different powers of refraction.

Experiment.—The cabinet is made with two apertures on a level, A and B, between which (in the cabinet) is placed a three-cornered vessel, containing water and anisol (oil of aniseed), the latter floating on the water. An incandescent lamp is so placed behind this double prism that, through the portion filled with water, the light is bent to aperture A, whilst the stronger reflective power of the anisol brings it to aperture B.

36. *Diffraction of Light and the Spectrum.*—Light falling on a plate, which is provided with numerous fine lines like a grating, is partially altered in direction. Whilst in the case of the refraction of light the whole of the light transmitted changes its direction, light passing through a grating divides into three portions, one of which proceeds in the original direction, whilst the second is bent to the right, and the third to the left, through a certain angle. This angle of diffraction depends on the colour of the light.

Experiment.—The light of a red lamp is caused to pass through a fine grating of 800 lines per mm. The red lamp can then be seen simultaneously through apertures 1, 2, and 3 in the front of the cabinet. On turning a lever up to a stop a lamp is brought into position, giving both blue and red rays. In this case the image seen through opening No. 1 is violet (mixture of red and blue); in openings Nos. 2 and 3, on the other hand, the red and blue images of the carbon filament are seen separated from each other. On turning a second lever to a stop, a white lamp is brought opposite opening 1; the images in openings 2 and 3 are then seen spread out into a coloured spectrum band.

37. *Diffraction of Light in the Half-tone Screen.*—Diffraction, as seen in Experiment No. 36, takes place when light passes through any series of fine lines, as, for example, through the half-tone screen used in process work. If the light-source be observed through such a screen a system of small spectra result, which combine to form a cross, having the same direction as the lines of the screen, and therefore rotating with the rotation of the screen.

Experiment.—A half-tone screen is mounted in the cabinet, so that it can be rotated through an angle by a lever on the front. On observing the light from a distant lamp through the screen the former is seen to be diffracted from all sides, forming a cross, which can be turned to an angle by turning the screen.

38. *Interference.*—Allied with diffraction phenomena are those of interference. They occur in the case of an extremely thin transparent film—*e.g.*, beautiful interference colours are shown on soap-bubbles. Such colours frequently occur when two glass plates are pressed together, as in the printing frame. Pressure upon the two glasses causes the formation of coloured rings (Newton's rings).

Experiment.—A printing frame provided with two glasses is fixed rigidly at the back of the cabinet, a lever operated from the front allows of the glasses being pressed in contact, and showing the coloured Newton rings.

39. *Absorption of Light.*—All substances have the property of absorbing a portion of light passing through them, and in this way reducing the intensity of the light. Only a few substances are known which absorb all the colour elements of white light uniformly. Such substances have invariably a grey colour: among them is the finely powdered silver of the photographic plate.

Experiment.—In one of two apertures on the front of the cabinet a direct-vision spectroscopy allows of the spectrum of white light being seen. By turning a lever successively into positions 1, 2, 3, 4, 5, 6, 7, 8, the light is damped down with films of increasing opacity. The spectrum, as a whole, becomes feebler, but its character is not changed.

40. *Selective Absorption and Absorption Spectrum.*—Most substances absorb the different constituents of white light in very different degrees. Most of these substances are recognised from their more or less strong colour. By spreading out the light transmitted by the coloured substance, by means of a prism or grating, the absorption spectrum of the substance is seen. As an approximate rule it may be said that a colouring matter shows in its absorption spectrum a dark band—absorption band—which is the complementary of its own colour. Thus most blue bodies have an absorption band in the yellow part of the spectrum, all red bodies in the green, etc. The rule is not without exceptions—*e.g.*, most green dyes transmit a good deal of red light.

Experiment.—A series of eight different coloured dyes, mounted in gelatine films upon a disc, are examined by looking through

aperture A; aperture B is provided with a direct-vision spectroscopy, and allows of the absorption spectrum of each material being compared with its appearance in white light.

41. *Alteration of the Absorption with the Thickness of Film.*—When examining one and the same dye in different degrees of thickness it is found, as a rule, that the character of the absorption spectrum varies with the thickness of the film—that is to say, the absorption spectrum applies only to a certain thickness of film of the dye. Alteration in the concentration of the solution of a dye has the same effect as alteration in the thickness of the film.

Experiment.—Two apertures in front of the cabinet allow (1) the appearance of a dye solution, to be observed in several degrees of concentration, whilst through the other aperture the absorption spectrum of each can be observed.

42. *Dichroic Substances.*—In many cases the absorption spectrum undergoes such great alteration with different thicknesses of film that the colour tone of the film is entirely different in the two cases.

Experiment.—A wedge-shaped vessel is filled with a solution of dye, and may be moved across an aperture so as to show the different appearance at greater and greater depth of solution. In the case of a thin layer of liquid the colour is green; in a thicker layer, yellow; and in very thick, red (mixture of methyl-violet and tartrazine).

43. *Absorption Curves.*—In order to obtain a complete record of the character of the spectrum with different thicknesses of film, the various spectra may be thrown one on the other, and their features connected with a line. This line is the absorption curve of the dye.

Experiment.—The apparatus is arranged so as to show the spectrum of a dye formed so as to show the amount of absorption in different parts of the spectrum.

44. *Relation Between Absorption Spectrum and Colour of a Dye.*—Two dyes of similar absorption spectrum are necessarily of similar colour, but two dyes may have the same colour and appear absolutely alike yet have very different absorption spectra.

Experiment.—In one opening A of the cabinet are affixed two green glasses of identical appearance; the opening B contains a spectroscopy, in which it is seen that the spectra of the two glasses are altogether different.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications have been received for patents between June 7 and 12:—

FILMS.—No. 13,328. Improved manufacture of photographic films. Edwin Brandenberger, 111, Hatton Garden, London.

FLASH-LIGHT.—No. 13,331. Improvements relating to flash-light powders. August Lesmüller, 7, Southampton Buildings, London.

ILLUMINATION.—No. 13,458. Improved process for illuminating opaque images on a brilliant metallised ground for the purpose of projecting them. Charles Dupuis, 18, Southampton Buildings, London.

LAMPS.—No. 13,473. Improvements in mercury or metallic vapour lamps. Henry Andrew Kent, The Poplars, Maidstone Road, Bounds Green, London.

MOUNTING.—No. 13,504. Improved method of mounting photographs. Harry Robert Betts, 35, Cannon Street, London.

SCREENS.—No. 13,508. Improvements in light-controlling screens for photographic purposes. Joseph Walter Freckleton, 111, Hatton Garden, London.

CINEMATOGRAPHS.—No. 13,649. Improvements relating to cinematographs and like apparatus. Albert Harrison Moorhouse, 18, Southampton Buildings, London.

PHOTOGRAPHIC IMAGES.—No. 13,666. Improved method of making photographic images divided into separate elements. Rudolf Widmann, 6, Lord Street, Liverpool.

PNEUMATIC TUBES.—No. 15,686. Improved automatic device for actuating the pneumatic tube and shutter of photographic lenses.

Charles Dickens, 14, Washington Street, South Circular Road, Dublin.

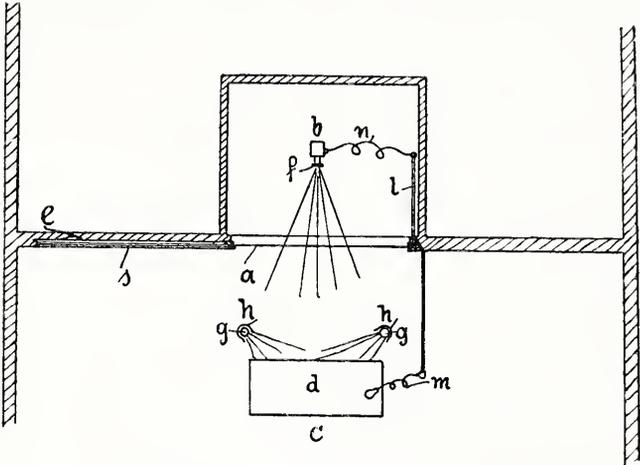
COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

STUDIO MIRROR ACCESSORY.—No. 3,763. 1909 (February 18, 1908)

This invention relates to means by which the sitter can observe himself as in a mirror at the moment of being photographed. A mirror does away with the diffidence or shyness of the sitter which occurs frequently, particularly in children, when looking at the camera. Further, the sitter can himself exactly adjust his position, as he can observe himself in full size in a mirror before



and during the exposure. An ordinary non-transparent mirror arranged beside the camera is not employed, but a so-called black mirror is formed. The studio is divided during the exposure by a glass wall into two chambers, of which that in which the camera and photographer are located is but little illuminated, whereas the chamber occupied by the sitter is illuminated brightly. In this arrangement the pane of glass acts as a mirror, by looking into which the sitter can place himself in any desired position.

The room is divided by the colourless plate-glass wall *a* into the camera-chamber *b* and the sitter's chamber *c*, the latter containing the place *d* for the person or group of persons to be photographed. The plate-glass wall is preferably movable on rails *s* along the wall *e*. When the glass wall is put in position between the camera and the sitter, the illumination in the camera-chamber *b* is diminished. When daylight is not being used, the artificial light required for the photographic exposure is adjusted, e.g., lamps *g* are lit, the lamps being provided with shades *h* which keep their rays of light from the camera-chamber.

The plate-glass wall thus acts as a black mirror and consequently allows the person being photographed to observe and correct his position and expression during the exposure without being influenced at all by the view of the camera and the movements of the photographer. In addition the embarrassment of the photographer in making the necessary manipulations is also done away with, as he receives sufficient reflected light for his work from the chamber *c*.

If a tube *l* connected with an instantaneous pneumatic shutter is placed in known manner within reach of the sitter, he can himself bring about the exposure at the correct moment by means of the tube *m*. A connecting tube *n* admits of the camera being moved in the camera-chamber. Adalbert Iser, 237, Friedrich Strasse, Berlin.

DARK-SLIDES.—No. 14,827. 1908 (July 13, 1908). The invention is a form of dark-slide or plate-holder which will not perceptibly add to the thickness of the camera. The plate is held in a chamber formed on a back plate adapted to fit into an opening which is in the removable back of the camera. The back plate is extended beyond the ends of the chamber and provided with a slot through which a removable slide or shutter composed of comparatively stiff but flexible material is inserted from the rear of the holder to close the exposed surface of the photographic plate. The

preferred form of plate-holder comprises a back plate having an intermediate frame on the front surface thereof, this frame forming the plate chamber, and a covering plate having flanges which extend round the frame and back plate to the rear side of which they are secured.

Near the slot in the back plate through which the shutter or slide is inserted a trap is provided which prevents light entering the plate chamber when the slide has been removed. Kodak, Ltd., for Robert Krödel, Rochester, U.S.A.

CINEMATOGRAPH-PHONOGRAPH.—No. 16,728. 1908 (August 8, 1908).

The record cylinder or disc of the talking machine is provided with holes or pins to allow of readily connecting to it the electric contact mechanism, which may consist of a plate having a contact strip on which alternately bears a spring upon an arm in perpetual contact with a strip, or a revolving tappet which comes into contact with a spring plate and is actuated by a mitre wheel gearing with a similar wheel on the gramophone disc. Oskar Messter, 18, Schiffbauerdamm, Berlin.

New Trade Names:

COTTAGE (DESIGN).—No. 312,145. Chemical substances used in manufactures, photography, or philosophical research, and anti-corrosives. W. V. Aldridge and Son, 7, Islington Green, London, N., merchants. April 8, 1909.

KINOGRAPHON.—No. 312,735. Apparatus consisting of a cinematograph in combination with a talking machine and synchronising contrivance. Nürnberger Metall- und Lackierwaarenfabrik vorm. Gebrüder Bing Actiengesellschaft, Blumenstrasse 16, Nürnberg, Germany, manufacturers. May 1, 1909.

Exhibitions.

NORTH MIDDLESEX PHOTOGRAPHIC SOCIETY.

This year for its annual members' exhibition the North Middlesex Society has adopted the altruistic method of transferring its exhibition *en bloc* to the lecture hall of the Islington Public Library, a course which must have given a good deal more trouble than displaying the pictures nearer home, but has afforded the opportunity of bringing some pictorial fruits of photography before the public in this crowded district of London. The photographs are arranged in nine panels around the walls of the hall, to which admission is free until July 3, whilst lectures by members of the society and others are given on one or two nights in the week. The result should be to stimulate an interest in photography as a pastime, even if not as a medium of artistic expression. The staunch members of the North Middlesex Society, whose work is to be seen each year at this members' exhibition, as well as at that of the R.P.S., are well represented on this occasion. We very much like Mr. Fraser Black's two pictures, one entitled "A Sunny Sea" and the other "Evening Ebb," and both in a scale of light tones which well renders the delicacy of the subjects. Mr. Charles Beadle, in one or two of his subjects, has essayed to use an oil or bromoil process in place of the carbon or platinum, in which his work has usually been done, and the result is to give a poor version of what is doubtless in the negatives. In the oil prints there is a patchiness and artificiality which make a print such as that of the "Dee at Ballater," infinitely preferable. Another oil print of the "Precincts at Ely," by E. H. Piddington, has the appearance of having been made with a camera which was jarred at the moment of exposure. We doubt if this had been hung at all if it had been in any other process. We might almost exclaim, "Oh, oil, what crimes are committed in thy name"! Mr. H. W. Fincham, president of the society, shows a good deal of excellent work, of which we specially like "The Crypt of St. John's, Clerkenwell." Mr. J. C. S. Mummery is represented by some of his characteristic work in the gum process, among which "A Sunny Waterside, Chesham," is perhaps the most pleasing. One very clever rendering of the natural beauty of sunshine is a photograph by E. Burton. The subject is a white lodge or summer-house overhanging a canal. We are glad to see again the "Winter Showers," by Mr. S. E. Wall; its convincing tone of a winter landscape and the good placing of, and movement in, the figure of the peasant make it an excellent piece of work. Equal to it in its fidelity of a somewhat similar aspect of nature is "January,"

by Mr. H. Stuart. Mention should also be made of the quaint figure studies of children by Mr. Louis Dick, and of one print by Mr. E. C. Ridge, entitled "Dawn," and very closely representing an exposed clump of trees in an open country by early morning light. The hanging and arrangement of the pictures in a room which is not particularly fitted for the purpose says much for the pains taken by the committee and its secretary, Mr. Charles A. Morgan.

Analecta.

Extracts from our weekly and monthly contemporaries.

Peppertype.

Mr. W. W. Wall, writing on the above process in "The Amateur Photographer and Photographic News" for June 22, says: "The formula is as follows:—

- | | |
|---|----------------------|
| A. White pepper | 20 $\frac{1}{2}$ lb. |
| Benzole | 20 ozs. |
| B. Solution of 1 in 20, gum dammar and benzole. | |
| C. Solution of indiarubber in benzole, fairly thick (bicycle cement will do). | |

For use, take A, ten ounces; B, one ounce; C, one ounce. Filter, and you are ready to coat any hard glazed surface, as glass, opal, or hard-sized white paper such as the Autotype Company supply.

"The next procedure is to expose for a few minutes in the sun under a transparency, and then dust over with any litho dry colour or powdered metals, as gold, silver, bronze, etc., and, with a final brushing with a clean soft brush, the whole thing is complete."

New Materials, &c.

"EALING" P.O.P.—A sample of this printing-out paper, sent to us by Mr. T. R. Harris, 2, Clovelly Road, Ealing, London, W., has proved in our hands to give excellent results of rich deep tone when treated in the ordinary gold and sulphocyanide bath. The tone does not alter in the fixing bath, and the paper is evidently one of high quality. Free samples may be obtained by readers of the "B.J." on application, and a cash discount off the standard price of 15s. per quire is offered to bona-fide professional photographers.

CATALOGUES AND TRADE NOTICES.

"THE GOERZ LENS AND ITS USE."—The new list of the C. P. Goerz Optical Works, Ltd., just issued under this title, is a 24-page booklet, only three pages of which are given up to a price list; the other twenty-one contain advice on the choice of a lens for hand-camera, architectural, and other photography, and, though written in reference to the various Goerz objectives, is none the less a reliable guide in the matters pertaining to the selection of focal length, aperture, separability, etc., of a lens in view of particular requirements. If testimony were needed of the high optical and mechanical qualities of the Goerz lens it is provided by the many illustrations of all descriptions of subjects. The booklet is one which is deserving of a careful perusal. It is sent free on application to Messrs. Goerz, 6, Holborn Circus, London, E.C.

STREATHAM PHOTOGRAPHER'S DEATH.—At a Westminster inquest last week on Samuel Jutsum, 50, a photographer, of Knollys Road, Streatham, who died in Charing Cross Hospital, it was stated that he deceased went home in great pain, saying he had fallen off a bus at the foot of York Road, West Norwood. Death was due to peritonitis, which, in the opinion of the doctor, was set up by some form of violence. Neither the relatives nor the police had been able to discover anything about the accident.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

SATURDAY, JUNE 26.

Kinning Park Co-operative Camera Club (Govan). Outing to East Kilbride.
 South London Photographic Society. Excursion to St. Albans.
 Birmingham Photographic Society. United Excursion for Societies in District to Stratford.
 South Suburban Photographic Society. Outing to Monk's Wood, Epping Forest.
 Hackney Photographic Society. Outing to Claygate.
 Southend-on-Sea Photographic Society. A Trip in the Thames Estuary.
 Borough Polytechnic Photographic Society. Outing to Bookham.
 Handsworth Photographic Society. Excursion to Stratford-on-Avon (Midland Photographic Federation, Local Societies).

TUESDAY, JUNE 29.

Hackney Photographic Society. Negative and Print Display.

THURSDAY, JULY 1.

United Stereoscopic Society. Paper: "Natural History Photography."

SOUTHAMPTON CAMERA CLUB.—Dr. W. P. Purvis gave a very interesting lecture last Monday on Radiography before a large audience. The lecturer stated that Professor Röntgen discovered, by accident, during some experiments with a Crooke's vacuum tube that a photographic plate enclosed in a dark box exposed to its rays received an image of metal objects, the box itself appearing transparent. A novel field of photography was thus opened up and photographs were now obtained which show plainly the bones in the body, even to details of their texture, while bullets, needles, or other foreign bodies of metal, are instantly located. By the aid of a screen coated with platino-cyanide salts or other fluorescent substances, it was possible to see the bones or other interior parts of the body. By the courtesy of Dr. Norman Aldridge, who had kindly lent a portion of the apparatus, the lecturer ably demonstrated the use of the Crookes tube, and also a fluorescent screen. Numerous radiographic negatives were shown which illustrated the practical utility of the Röntgen rays in use. Various questions were answered by the lecturer, and a hearty vote of thanks, proposed by Mr. F. G. Ryder and seconded by Mr. S. G. Kimber, was accorded the lecturer, and also the society extended their appreciation to Dr. Aldridge for his kindness which greatly contributed to the interest of the lecture.

Commercial & Legal Intelligence.

CANVASSER SENTENCED.—At Somerset Assize at Wells, last week, George Benjamin Bates, canvasser, was indicted for converting to his own use certain sums of money, amounting to £2 5s., received by him on account of his employer, Ernest English Cox, at Taunton, between May 1 and 25. Mr. Goodman prosecuted, and Mr. Mathias (for Mr. Inskip) defended. It was alleged that the prisoner retained moneys received by him for photographs on behalf of his employer. The jury found prisoner guilty, and sentence of six calendar months' imprisonment, with hard labour, was passed.

A CITY BANKRUPTCY.—The first meeting of creditors in the case of Alfred James Lewis, photographer, trading as W. Wright, at 85, Bishopsgate Street, E.C., was held at the London Bankruptcy Court on June 17. Debtor's statement of affairs showed unsecured liabilities amounting to £1,140, and the fully secured creditors claimed £1,622, holding securities worth £2,070, leaving a balance of £447 for the estate. Beyond this the only assets disclosed were the trade furniture, which was valued at about £20. The bankrupt, who is twenty-five years of age, states that he commenced business as a photographer at 85, Bishopsgate Street, about 1900. He bought the business from Mr. Wright for £800, and took over certain liabilities. The purchase price was to be paid by instalments over a period of two years. Debtor had no capital when he commenced, but he carried on the business successfully. About three years ago he took a large house with the idea of letting lodgings. This business proved a failure. Debtor executed mortgages on his business premises, which he held on an eighty-seven years' lease at a rent of £90 per annum. The first mortgage was for £1,500, the second for £50, and the third for £1,000. Debtor said he thought the busi-

ness might with advantage be carried on for the benefit of the creditors. The O. R.: "Not unless you pay the rates, and the interest on the mortgages." In further examination the debtor said he estimated his gross profits to be about £350 a year, and his personal expenses had been £200 per annum, which he estimated to be his net profit. He considered that the business had been profitable up to the last twelve months, since when trade had been very bad, and to this and to the interest on the mortgages he attributed his present position. The Official Receiver said he thought that taking into consideration rates and taxes and the charges on the mortgages, debtor had over-estimated his net profits. There were only three creditors present, and the matter was left in the hands of the Official Receiver.

HASTINGS PHOTOGRAPHER'S AFFAIRS.—At Hastings, on June 15, the public examination took place of Alfred Chapman Blades, photographer, 50, Queen's Road, Hastings. The liabilities were put down at £149 12s. 9d., and the assets at £24 14s. 8d. Debtor said he commenced business in December, 1908, with a capital of £20, he being twenty-one years of age at the time. He agreed to buy the business in Queen's Road for £80, and paid half of this down with money borrowed from his father, the arrangement being that the balance should be cleared in quarterly instalments. It was represented that the takings were £7 per week, but he found the takings were only about £3 a week, out of which he had to pay expenses. An action had been commenced against the vendor for misrepresentation. The unsecured liabilities included a claim by the father for £92 for money lent and £28 odd balance owing to the vendor of the business. The examination was concluded.

LEGAL NOTICES.—Charles Hamilton Walker, carrying on business under the style of the High Street Photographic Company, with a partner, at 120A, High Street, Margate, has been adjudicated bankrupt. The Receiving Order was made on June 10 on debtor's own petition.

A meeting of creditors and shareholders in the British Cinema Company, Ltd., registered office, 47, Old Kent Road, S.E., is to be held at the Companies Winding-up Department, 33, Carey Street, on July 1 at 11.30 and 12 a.m.

Notice is gazetted of the voluntary winding up of the Improved Bioscope Co, Ltd. Mr. Harry Wilson, 23, Devereux Court, Strand, has been appointed liquidator.

NEW COMPANIES.

COTSWOLD PUBLISHING COMPANY, LTD.—Capital, £1,000, in £1 shares. Objects: To acquire the business of the Cotswold Publishing Company at Britannia Mills, Wotton-under-Edge, Glos.; to adopt an agreement between C. R. W. Bagwell and T. W. Barry, and to carry on the business of photographers, photo-mechanical printers, gold blockers, etc. Private company. Table "A" mainly applies. Registered office, Britannia Mills, Wotton-under-Edge, Gloucester.

SARONY AND COMPANY, LTD., have been registered as a private company with a capital of £2,000, in £1 shares, to take over the business carried on at Scarborough and Harrogate by a company of the same name, and to act as photographers, painters, artists, designers, picture dealers, etc. The first directors are Mr. A. O. Fisher, Mr. G. G. Perfect, Mr. S. W. Fisher, and Mr. S. P. Turnbull.

PESTALOZZI STEREOGRAPH AND DIAPOSITIVE COMPANY, LTD.—Registered June 7. Capital, £100, in £1 shares. Objects: To carry on the business of dealers in stereoscopic views, stereoscopes and lantern slides, photographers, makers of and dealers in photographic and optical apparatus and instruments, etc. Registered without articles of association. The first directors are: D. Paisley and A. S. Forsythe.

THE HEALTH RESORTS DEVELOPMENT ASSOCIATION has published booklets for the Town Councils of Chepstow, Deal, Llandrindod Wells, Malvern, Sidmouth, which, in view of the approaching holiday season, should interest our readers and will be sent free if a post-card request is sent to the respective Town Clerks. The guide to Sidmouth is particularly well illustrated, chiefly from photographs by Mr. G. T. Harris, of the Western Studio, Sidmouth, by whom also the text of this guide has been written.

News and Notes.

AN INVITATION TO PHOTOGRAPHERS.—As we go to press we are enabled to make the announcement that Messrs. Speaight, who for the past few weeks have been holding at their galleries in New Bond Street an exhibition of portraits of "Fair Children," have fixed the evening of July 21 on which to invite members of the photographic craft to pay them a visit. The gallery will be specially set apart on that evening from 6 to 8 p.m. for the purpose, and any photographer or photographer's assistant will be made welcome on presentation of his own card or that of his firm, it being Messrs. Speaight's hope that the exhibition of Royal Children, which has attracted a great deal of notice in the press, may interest their fellow photographers. A further announcement in reference to this visit must be postponed until next week.

THE DEATH is announced of Mr. Francis Kotch, who has carried on business as a photographic dealer under the name of Kotch and Friedlander, 10, Coleman Street, London, E.C., since 1888. The business will be wound up.

THE NORTHERN PHOTOGRAPHIC EXHIBITION, held in the Mosley Street Art Gallery, resulted in a profit of £100, and as a mark of their appreciation of his services as exhibition secretary the members of the Manchester Amateur Photographic Society have presented a grandfather's clock to Mr. S. L. Coulthurst. In acknowledging the gift at the society's meeting, Mr. Coulthurst expressed the opinion that the exhibition raised photography higher in the estimation of many who had been inclined to scoff at camera work as an art.

B. J. EDWARDS AND Co., Castlebar Works, Ealing.—This business has been purchased by the Leto Photo Materials Co. (1905), Ltd., by whom the manufacture of the Edwards' plates, films, and other specialties will be continued. All communications should, however, be addressed to the head office of the Leto Co., Roman Wall House, 1 Crutched Friars, E.C.

MR. G. ALBERT SMITH has been awarded the silver medal of the Royal Society of Arts for his paper on "Cinematography in Natural Colours" read at an ordinary meeting of the society last year.

ENSIGN FILM COMPETITION.—Captain M. McNeill, D.S.O., of Dungrinach, Oban, is the winner of the "Ensign" Roll Film Competition for June. Houghtons Ltd. offer a three-guinea camera every month for the best negative on "Ensign" film. The entries close on the 3rd of the month. Entrance is free, and a competition form is enclosed with every spool of "Ensign" film.

INTERNATIONAL CONGRESS OF APPLIED PHOTOGRAPHY.—The following is the complete prospectus of the Congress to be held at Dresden from July 11 to 15, 1909. The apparent scientific character of the Congress, as evidenced by the subjects on which papers have already been promised, will not prevent the proceedings being of a popular nature, and attractive as also instructive to a wide circle of amateurs and others engaged in industrial undertakings. The list of papers includes the following:—Professor Dr. E. Doležal (Vienna), "Photogrammetry"; P. H. Eijkman (Scheveningen), "Recent Applications of the Röntgen-stereoscopy"; Dr. K. Kieser (Düsseldorf), "Sensitometry of Photographic Printing Papers"; Professor Dr. Konen (Münster), "Spectrography"; Dr. A. Kopf (of the Königsstuhl-Observatory, Heidelberg), "Photography in Astronomy"; A. and L. Lumière (Dr. Seyewetz), "Autochrome Plates" (lantern lecture); Dr. C. E. K. Mees (London), "Report on the Present Condition of Sensitometry"; Professor Dr. A. Miethe (Charlottenburg), "The Preparation of Schumann Plates"; Dr. Panconcelli Calzia (Marburg), "Application of Photography to Experimental Phonetics (Physiology of the Voice and Speech)"; Professor R. A. Reiss (Lausanne), "Photography in the Administration of Justice"; Dr. W. Scheffer (Berlin), "Mosaic-screen Plates in Colour Photography" (lantern lecture); Professor C. G. Schillings (Weiherhof), "Contributions to Photography of Animals Living in a State of Nature." Among those attending the Congress will be representatives of the Royal Saxon Government, of the City of Dresden, of the three High Schools at Dresden and other State institutions. The hon. presidents are Messrs. W. de W. Abney, Alfonse Bertillon, L. A.

Ducos du Hauron, A. Freiherr v. Hübl, F. E. Ives, Robert Koch, Hermann Krone, G. Lippmann, A. and L. Lumière, G. N. Lockyer, Ernst Mach, A. Michelson, R. Namias, G. Pizzighelli, P. Rudolph, H. Roscoë, C. Röntgen, M. Wolf, R. W. Wood, J. Waterhouse, and others. Intimations of intention to attend should be addressed to the Hon. Secretary of the Congress, Herr Dr. H. Weisz, 27, Winkelmannstrasse, Dresden-A., of whom all information on the Congress may be obtained.

Correspondence.

- We do not undertake responsibility for the opinions expressed by our correspondents.
- Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

BRUSSELS INTERNATIONAL EXHIBITION, 1910.

To the Editors.

Gentlemen,—I venture to request that you will be good enough to permit me to draw the attention of your readers, through your columns, to the importance of the International Exhibition to be held at Brussels in 1910. As you are no doubt aware, a new departure has been made by his Majesty's Government in inaugurating a permanent Department—the Exhibitions Department of the Board of Trade—to promote British interests in connection with foreign exhibitions, which Department is, for the first time, organising a representative British Section at Brussels. In addition, his Majesty has appointed a Royal Commission to assist the Exhibitions Branch in its efforts to further British trade interests at the Brussels and certain other forthcoming exhibitions.

It may interest you to know that his Majesty's Government have acquired a suitable site for the British Section, and are offering special facilities to exhibitors of British manufactures, such as the general management of the section, the provision of show-cases free of charge, the taking of delivery of goods, the storing of packing cases, the provision of unskilled labour to assist exhibitors in packing and unpacking, and many other important advantages, particulars of which can be obtained on application to The Director, Exhibitions Branch, Board of Trade, Queen Anne's Chambers, London, S.W.

It is particularly desired that the exhibit of photographic appliances and accessories should in no way fall below the level of the corresponding exhibits of other countries, and with that end in view I call the attention of your readers to the advantages offered to firms and individuals exhibiting at the Brussels Exhibition.—I am, Sir, yours faithfully,

CECIL HERTSLET,
H.B.M. Consul-General for Belgium.
Member of the Royal Commission for
the Brussels Exhibition.

IMPRESSIONISM AGAIN.

To the Editors.

Gentlemen,—In reading the current "Journal of the R.P.S." I have been struck by the persistence with which references to impressionism crop up in matters both scientific and artistic. Everyone ventures his own definition, and whilst none can be called wrong, none, on the other hand, seems to me to give the very simple and obvious meaning of the term. Moreover, everybody seems to want to go one better than the last explainer, even as I myself am imagining that I can go one better than all they. A lecturer states his definition, and one of his audience rises to acquiesce and define all over again in his own particular way. Many of the definitions advanced show a mixing up of symptoms with diagnosis. Impressionism may be the antithesis of Preraphaelitism; it may be devoid of detail; it may deal in indeterminateness of form; it may be "fuzzy"; but these things do not constitute its impressionism, though many definers would appear to think that they do. They are but indirect results, arbitrary and accidental, of methods in which impressionism may (or may not) find expression. They are symptoms

merely, and symptoms, moreover, common to many other isms, and also very readily manifested by incapacity, ignorance, hurry, laziness, feeble-mindedness, "bounce," "side," and "swank." There is nothing diseased about honest impressionism, however, and it is not fair to state these symptoms and to describe them in the idea that one is describing impressionism. If one merely states that impressionism is the expression in art of the impression of a scene upon the mind, what is the need to say more? And is it safe to say more? The process may be thus tested: Take an impressionable artist—not a mechanical one—and, having first confined him until former impressions have become smoothed out in a chamber from which no outside prospect is visible, let him be blindfolded and then led out to a natural scene. Uncover his eyes and give him two minutes to gaze at the landscape, rebandage him and lead him back to his studio, where he may reproduce the impressions the scene has made upon him. The result will be pure impressionism. He may take five minutes or he may take the rest of a long life over it. That matters not the least, and disposes of the idea that rapidity is a *sine qua non*. There will be little detail in it, but that will be because there was no time in two minutes to come from the general to the particular. Yet if there was in the view a point of detail important enough to enter into a generalisation, it would assuredly be given—such, for instance, as an incident asserting itself upon the skyline of a near field, or something in the air strongly relieved against its surroundings. Further, there may be much indeterminateness of form, or there may be hard outlines; that will be merely according to whether the artist stops short where his memory stoops short of forms in the actual scene, or whether he completes them from his knowledge of the nature of such forms, which he may do by hard outlines. That does not affect the point, and disposes of "fuzziness" as a description or as a symptom of impressionism. The great thing is that if our artist-martyr were worth his salt as an impressionist, we should see in his work the things which made the most rapid and most forcible appeal to his senses. According to his predilections his work would chiefly record the glow, the harmony, or the transition of colour; the effect of the chiaroscuro or the disposition of the light and dark parts, their contrasts and gradation; or, again, the "patterning" of the parts of the scene under the influence of the other conditions. If he were given a full range of materials his result would probably include his impressions of all these conditions, because it is impossible to divorce them entirely without a special effort of the mind. Impressionism is the kind of painting that answers in the main to these conditions; it is not necessarily want of detail, nor loss of form, nor can it be correctly described an anti-Preraphaelitism.

It is highly irritating to hear people talk before a picture that is slovenly, or washed-out or fuzzy, or chaotic, and describe it as impressionistic. Whether the term be used in derision or in extenuation, it is equally abused as a rule, particularly where photographs are concerned. It must be infinitely more difficult to be really true to one's impressions in making a photographic picture than it is when using artists' materials. That breaking off and the intervening time occupied whilst photography steps in *must* permit the spirit of the thing to evaporate, and the impression to become dulled. One is tempted to suspect, therefore, that the so-called impressions of photographic art are in reality nothing of the kind, unless they be impressions of other "impressions" and the employment of a trick or knack in picture-making that is born in the picture-gallery and is no child of Mother Nature.—Yours truly,

June 18, 1909.

F. C. TILNEY.

TRADE, PROFESSION, AND PHOTOGRAPHERS' COMPETITIVE METHODS.

To the Editors.

Gentlemen.—The letters between your two correspondents, Mr. Redmond and "Playfair," have unfortunately developed into a personal combat, instead of promoting the cause of the photographer's assistant, which was undoubtedly the aim of the original writer. The perusal of these letters and the title under which they have appeared has suggested to me an opportune time for sounding a note of warning to those photographers who regard themselves as professional men and who are desirous of upholding the dignity of their profession. It is the alarming increase of the complimentary sitting

to which I refer, and is a matter which equally concerns the assistant of to-day, as this is a problem which may have to be faced by the master of to-morrow.

By the unprofessional methods of some of our leading establishments, who produce the best of work, and who number among their clients some of the most distinguished members of our English society, photography is rapidly losing that dignity as a profession which it once possessed. And if these methods are allowed to spread it does not seem difficult to forecast the ultimate end of portrait photography as a profession.

To obtain something for nothing is a weakness of humanity, which equally pervades the highest class of society as the lowest. And in this way, by invitations sent broadcast all over the country, many are tempted away from those houses which had hitherto their entire patronage for years.

Those men who are producing work of the highest artistic excellence cannot but have felt how much more difficult it becomes year by year to satisfy the demands of their clients, whose knowledge of the possibilities of photography is greater, whose artistic perception is keener, and who become more and more exacting as time goes on, and who in themselves are more difficult to photograph. This fact alone should show how utterly impossible it would be at a future time to carry on a business by invitation only.

Unfortunately, I can see no remedy against those who have already embarked upon this contemptible system of trading. To bind themselves together to oppose this kind of thing to the utmost is what photographers must do, and that done soon, or the evil will be past repair.—I am, gentlemen, yours faithfully,

June 21, 1909.

Roco.

THE SPEED NUMBERS OF PLATES.

To the Editors.

Gentlemen,—No one will disagree with Mr. Biermann in his desire to get more uniformity between different makers' H. and D. numbers. The want of uniformity is a well-known fact, and has been pointed out repeatedly. It will perhaps continue as long as it is considered a merit to advertise speed numbers higher than any one else, and is partly due to want of uniformity in standard light, and partly, I think, to a great difference in the reading of different type photometers. It is not, I think, due to any defect in the H. and D. system.

But surely Mr. Biermann does not put forward the trials of which he gives details, as being conclusive evidence regarding the relative speeds of the three brands? Even granted that an observation of the lowest developable tone will indicate the speed of a plate (and this is not yet conceded by all experts), he selects the one developer—hydroquinone—which is most likely to lead to error. In fact, there is quite a probability that his tests may be tests of the development speed of the plate, and not of its exposure speed at all. As a slow (exposure) plate is usually very rapid in development, the two speeds are absolutely different. The H. and D. method is quite independent of the rapidity with which a plate develops. Again, he uses an abnormal light for testing, one which differs enormously as regards spectrum quality both from daylight and from the standard lights used in H. and D. testing.

ALFRED WATKINS.

Hereford, June 19, 1909.

To the Editors.

Gentlemen,—The letter of Mr. E. A. Biermann in your last issue is opportune, and plate-users, both amateur and professional, must wish him success in his endeavours to bring about more reliable speed statements than manufacturers at present indulge in. For some time past my attention has been given to the same matter, and I have on more than one occasion contemplated protesting in your pages against the absurdities of plate-speeds as given by some of the plate makers; but I am myself a very limited user of commercial plates, so the matter does not seriously affect me. This, however, has not prevented my acquiring, in a spirit of curiosity, some knowledge of the vagaries at present existing in the speed statements of plates now in the market. My attention was first directed to the subject when using two kinds of plates from the same source, ordinary and orthochromatic, both speeded 250 H. and D. In the innocence of my heart I rather expected that these would require about the

same exposure (the conditions, of course, being identical), but I was forced to realise that the orthochromatic required at least 50 per cent. additional exposure. I then obtained two additional brands of plates, both speeded 250 H. and D. One required much more exposure than the first maker's 250, and the other much less than either. What, then, does 250 H. and D. mean in these manufacturers' hands beyond being a loose statement that has no true reference to the actual speed, which could be equally well as described as "extra-rapid"? Take the case of a tourist who has become accustomed to the exposures required by some plate speeded at 250 H. and D. He comes to the end of his supply of plates when away from home, and the local dealer can only offer him one brand of plate, and that different from his customary plate. If 250 H. and D. was the same with both manufacturers his exposures would not be seriously affected by the change, but if the one plate is fifty per cent. lower than he has been accustomed to, although marked 250 H. and D., he is all at sea, and, unfortunately, without knowing it.

Another instance showing the absurdity of the matter may be given. Wishing to test a batch of plates prepared by myself against a good commercial plate, I procured a brand speeded at 250 H. and D. The exposure for this speed, worked out for subject and light by a certain exposure calculator, was, with $f/22.6$, one-third of a second; in actual practice one and a half second proved correct. If manufacturers intend "to stand by their own rendering (*sic*) of the system," as Mr. Biermann's reply received from the R.P.S. states, at least they should have the fairness to state on the labels that the speed number is meant more as an embellishment than as an actual statement, and need not be taken seriously.

It would seem that an opportunity for doing photographers a signal service is open to the R.P.S. if they would take the matter in hand and formulate some speed standard that would make impossible the present state of chaos. Probably rescue will come from German shores!—I am, gentlemen, yours faithfully,

Sidmouth, S. Devon.

G. T. HARRIS.

INTENSIFICATION MARKINGS.

To the Editors.

Gentlemen,—I am obliged by your correspondents' replies on this head, though they do not quite clear up my difficulty. My marks are not all visible until after the ammonia, and then, as I said, are irremovable. I find that by much rubbing with methylated spirit they can be much reduced. Perhaps Mr. Barnett's method may answer better, but without some definite formula should be afraid to try it, as iodide of potassium will easily stain a negative. I do not like the idea of rubbing at all; however careful you may be, when you least expect it, a little grit may ruin a negative, and prevention would be better than cure. Perhaps my mercury bath is too strong or the ammonia too weak, so shall be thankful for details that will produce no streaks if possible.

PROF.

FREE SITTINGS.

To the Editors.

Gentlemen,—Scanning the advertisements of the present day, the observant mind can recognise the pulse of the world, or, in other words, read the "Signs of the Times." For instance, in "Houses to let or for sale," one of the advantages advertised is: "Well away from motor dust"; and in another advertisement (in which we are most concerned), that of a photographic business for sale, the following advantage is made much of: "No free sittings or coupon trade." Comment is needless.—Yours faithfully,

W. BARRY.

7 and 8, Park Street, Anlaby Road, Hull.

June 22, 1909.

REMOVING HARDENED PUTTY:—An American contemporary, in reply to a correspondent asking how to get rid of putty which has set hard on glass, advises as follows: Slake 3lb. of quicklime with water and add 1lb. of American pearlash, making the mixture about consistency of thick paint. Apply this to the putty and let remain twenty-four hours, when the putty should be sufficiently softened to be easily removed. This mixture will soften old and hard paint in the same way. Use an old brush, as it will spoil a new one.

Answers to Correspondents.

All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.

For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

ould, 19, Station Road, Aldershot. Photograph of F. Lansdowne, Baden Powell Scout.

M. E. McArthur, Hawke's Studio, 8, George Street, Plymouth. Two Photographs of H.R.H. Prince of Wales. Photograph of T.R.H. Prince and Princess of Wales, taken June 11, 1909, at Princetown, Devon.

HALF-TONES DIRECT.—In the "British Journal Almanac" for 1897 I read an article by Mr. A. Mann on "Half-tone Direct from Life and Nature" by a simplified process. Can you please tell me whether such screen as he described can be obtained, and, if so, from whom? We are anxious to produce some half-tone pictures on our missionary paper, hence the inquiry.—PHOTO-ENGRAVER (Cape Town).

Half-tone negatives can be made direct through the ruled screens, but the method is never used on account of the length of exposure and the difficulty of taking about a process camera. If you want half-tone blocks, why cannot you make them in the ordinary way, have them made by one or other of the firms mentioned on p. 1,331 of the "Almanac," 1909? So far as we know, the special screen you refer to is not on the market—at any rate, the method is not used at all in photo-engraving.

FERO-TYPE DRY PLATES.—Would you tell me how to make ferrotype plates and of any book that gives such directions? Could collodion wet-plate process be modified in some way to answer?—FERO-TYPE.

The wet-collodion process is the most suitable. The "Mawson" collodion is used for the purpose, and directions given in Mr. Arthur Payne's manual "The Wet Collodion Process."

EMPLE (Nowshera Cavalry Cantonment, N.W.F.P.)—The process as not described as one fully worked out for practice, and, so far as we know, is not in regular use. The manipulations involved in making the print-plates are those of the ozobrome process, but from our own experience is that it is well first to make one or two print-plates in the usual way from transparencies before trying the other method. We should think that, situated as you are, you could find the three-colour carbon method the easiest to work—7s., with the pigment films of the Rotary Company.

MUSICAL-BOX.—About twelve months ago I saw an advertisement of a musical-box for attracting the attention of juvenile sitters. It was a small musical-box with a revolving wheel (to which bells were attached) on top. As I have lost the address I shall consider it a favour if you will kindly let me know where I can procure one.—EMPLE.

We cannot trace the particular advertisement. Many studio cameras are fitted with a somewhat similar device, and Fallowolds, we see, list a musical doll, and could no doubt obtain the necessary you require.

ON.—We should say there is no such place to be found.

COLOURED GELATINES.—We would esteem it a personal favour if you will kindly inform us as to the name and address of any firm that manufactures gelatine assorted colours, as used in stage lamps.—BAXENDALE BROS.

These coloured gelatines are obtainable from Gilbert Dyas, The

Mimascope Company, 9, Mary Street, Dublin, but they cannot be exposed to great heat without danger of shrivelling up. If there is much heat coloured glasses as supplied by Hetley, Soho Square, would be better.

ELECTRIC LIGHT.—So far as our recollection goes, the No. 1 lamp is a little shorter (can do with less height in the studio), but otherwise there is nothing to choose between the two. You will certainly require two, and we should advise you to get both of the same make.

Loco.—It is out of our province to make tests of mounting materials. The boards should be sent to an analytical chemist to be examined for impurities (hypo, etc.) capable of injuring the prints, or a practical test made as follows:—Lay a piece of paraffin paper or thin celluloid over half the mount, and on this again an albumen print (finished and perfectly washed, but unmounted). Back up with a piece of pure filter-paper, and several thicknesses of blotting paper, put the whole in a printing frame between glasses (to keep in the moisture) and place in a warm place for two or three weeks. If the half of the print in contact with the mount deteriorates before the other, the mount may fairly be taken as defective.

JOHN H. BARRAS.—1. There is no special book on this subject; the chief contributions have appeared in articles of late years in our own and other pages. We may refer you to those on three-colour carbon in the "B.J." for Sept. 29, 1905, Feb. 9, June 15, July 20, 1906, and June 21, 1907, as well as in the issues of the "Colour Photography" supplement published each month. 2. It is the most direct method, and has produced the finest results of any. 3. Such are supplied by Sanger-Shepherd and Co.; see their list in the "Almanac," page 1079.

SPOTTY PRINT.—Will you say what is the cause of yellow spots on enclosed print? It had the usual manipulations and the paper is of largely used manufacture, and free from any markings before soaking or toning.—P.O.P.

The spots are due to careless manipulation. Small air bells have probably been allowed to adhere to the surface of the paper when the prints were first put into the fixing bath, and have caused the small yellow spots.

D. J. DAVIS.—1. No. 1 we think is the best pictorially. It gets rid of the incongruous iron railings and introduces a good foreground, which sets the abbey better in its surroundings. 2. Five inches is not much of a wide angle on postcard size. You would do better with the f/16 wide-angle series of the same maker. No. 2. of four inches focus.

BIRDS, BEASTS, AND EMINENT PERSONS.—My aim is to make a photographic album of Egyptian views, plants, birds, beasts, animals, costumes, fishes, eminent persons, etc., etc., and I would like to add to it some European and American pictures of the above-mentioned. Please to inform me where can I buy photographs of European and American views, eminent persons, etc., etc.—TADROUS HANNA (Assiout, Egypt).

For trees and plants try Henry Irving, The Rowans, Herley Surrey. For animals, F. Martin Duncan, 59, Bradley Gardens, Ealing, London; R. B. Lodge, Enfield, Middlesex; W. L. F. Wastell, South Woodford, Essex. For portraits, Elliott and Fry, 55, Baker Street, London, W.

CONTRAST IN NEGATIVES.—1. Will an ordinary slow plate give more contrast than a rapid one, providing the exposure is the same (in proportion to the speed of plate) and the development carried out with a similar solution? I have always thought you would get greater contrast on a slow plate until the other day, when, speaking to a friend who is very well up in photography, he said there was not much difference; if anything, it was the other way about.—DOUBTFUL (Surrey).

With many very fast plates just as great contrasts will be obtained as in slow emulsions under the conditions you instance. But if the greatest degree of contrast is wanted with, at the same time, great clearness in the shadows (e.g., bare lines in the negative of a line drawing), slow plates will give a result which cannot be obtained with the very rapid emulsions.

PROFESSIONAL.—With regard to Nos. 1 to 3, it is difficult for us to express any opinion. The results seem to represent the subjects very effectively, but in the absence of other specimens made on

ordinary plates we cannot say whether the advantages of "ortho" methods are proved or not. No. 1 would, however, certainly have been a difficult subject to secure on ordinary plates. Nos. 2 and 3 seem to us to show rather well the effectiveness of intensification upon over exposed plates, but we do not see how they suggest the ideas put forward. In Nos. 4 and 5 the last seems to be rather better exposed than the other, while in No. 4, detail in the grass is lost by movement; otherwise there is not much difference between the two. Comparisons between plates called "ortho" and "ordinary" convey little information unless we know the actual degree of colour-sensitiveness of each plate. Some "ordinary" plates have a certain amount of sensitiveness to colour, which makes them approach real orthochromatic plates in effectiveness. Beyond this a number of varying exposures are required to determine what is the actually best result obtainable with each plate.

"PHOTO-MINIATURE," AND OTHERS.—In our next.

DOUBTFUL.—So far as we know, damages for infringements of copyright have not hitherto been recoverable in the County Court. We think that if you took the matter up through a solicitor the "receipt" of the copyright registration which you should already have will be sufficient. It is the "certificate" for which a charge of 5s. is made by Stationers' Hall. Possibly you are confusing the two.

H. C. CLARKSON.—If the usual press agencies, for illustrated matter cannot place the photographs, we should advise you to try Sanders and Co., 71, Shaftesbury Avenue, W.

SILVERTYPE.—Messrs. Butcher and Sons, Farringdom Avenue, are the makers.

M. LYNCH.—We believe one is made by Bilcliff's Camera Works, Manchester, S.W.

COPYRIGHT.—1. From two negatives which I recently took, Messrs. So and So have made a combination enlargement for me; they have been paid for their work. The copyright of this enlargement I now wish to register. Can you tell me whether or not it is necessary to mention on the Stationers' Hall form the name of the enlargers, as part "authors of the work?" Or would it be better to register the more important of the two original negatives? 2. I have learnt that a French journal on February 25 last published a photograph of mine without my permission. The copyright of it is not registered. The size of the reproduction is about 5 x 3 inches. Would you advise me to write to them demanding a remuneration? How much? 12.50 francs? 3. A friend has asked me to develop for him a few plates, which he prizes, but has unfortunately exposed for minutes instead of seconds, i.e., they are sixty times over-exposed. The plates are Royal Standard S.E.R. brand. Can you tell me whether there is any chance of saving them, and if so, how to proceed?—H. H. B.

1. It will be sufficient to register the more important of the two photographs. Any infringement will be bound to include this portion, and that will be sufficient for your purpose. There is no need to register the makers of the combination group as the author. 2. We should certainly write, although copyright law is rather loosely administered in France, and we should advise you not to spend money on the chance of getting payment; 10s. 6d. would be reasonable. 3. You could do best with highly restrained pyro-ammonia, say, pyro, 4 grs.; bromide, 8 grs.; ammonia, 2 to 3 minims per ounce.

STOPPING-OUT SUN.—Since the fine weather has set in, I am much troubled with the sun shining on the roof of the studio. Can you tell me of any way of dulling the glass so as to give it the appearance of ground glass. I know that painting it over will answer the purpose; I did it that way once, but the paint turned yellow, and it was such a job to clean it off. Can you suggest anything better?—R. C. W.

Yes. Mix common whiting with thin starch paste and stipple the glass over with that. It can easily be cleaned off with a sponge and water when the sun ceases to cause trouble.

FACTORY ACT.—Will you be good enough to enlighten us on the following? Our business is a very cheap one, and we have to get our work done as cheaply as possible to make it pay at all. We employ, all told, seven girls, but they are all over sixteen. We did not know that photography came under the factory law, and doubt

if it does. A few days back an inspector called and demanded go over the whole place, which we allowed him to do to save our bother. He then told us that the girls must not be worked such long hours, that they must have a half-day holiday each week, and longer time for meals. He also said that the workrooms must be cleaned and the walls whitewashed, and a lot of other "twaddle." If we have to do all he says it will mean some outlay, and we shall have to take on two more girls to get through the work, which will reduce our profits. Does photography come within the Factory Act?—COMPO.

Yes, certainly it does, and you will have to conform with it. It is to meet such cases as yours that the Act was passed, in order to prevent young persons being "sweated," as apparently they have been in your place. You will have to do what the inspector has told you, or you will find yourselves in trouble.

PATENT QUERY.—In your notices of Applications for Patent recently, I see one mentioned for a purpose that I have made an invention for and think of patenting. Can you tell me when it is likely that you will publish the complete specification, so that I can learn wherein the two differ before I take out my patent?—INVENTOR.

We cannot say, as possibly the specification may not be published at all. If a patent is not completed, the provisional specification is not published, and there is no means of learning anything about the invention unless the inventor likes to tell you.

STUDIO BLINDS.—I have had my studio blinds—the white ones from the roof—washed, but they will not run well on the rollers as they did before. They pucker up and crease as they are rolled up, and hang baggy when they are drawn down. I have had them well mangled and also ironed. Can you suggest any way of improving them?—J. FORD.

We are sorry we cannot. This is a very general experience when blinds are washed. It is, as a rule, more economical to place dirty blinds with new ones, and utilise the old ones for dusters and such-like purposes.

BUILDING LAWS.—I propose putting up a studio in the garden and am told I must submit plans to the Urban Council. I have done that, but its surveyor has condemned them as not conforming to the Council's laws. He wants such alterations that it will quite double the cost of the building, and that I cannot afford. What I should like to ask you: is there any way of appealing against the Council's dictum?—ANNOYED.

District Councils are empowered to make their own by-laws, and you may depend upon it that they are well within their rights when they refused to pass the plans. The only suggestion we can make is to alter them so that they conform with them.

FADING PICTURE.—I have a photograph of a deceased friend, that is rapidly fading and the negative is destroyed. If I were to stop it off the mount and well wash it would that prevent it fading further?—T. DAVIDS.

No, it would not. In such cases the treatment you propose is of no avail; indeed, it has sometimes been found that it hastens fading rather than otherwise. Your best way, as the negative is not available, will be to copy the print before the fading goes further.

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SUMMARY.

The Convention. Next Monday, it is hoped and believed, will discover photographers gathering at Canterbury in record numbers for a full week of excursions and papers. (P. 516.)

We regret to record the sudden death last week of Mr. G. W. Morgan of Aberdeen. (P. 521.)

The profitable use to be made by the professional photographer of a reflex camera is emphasised by one or two examples mentioned in an article on page 511.

Mr. Foster Brigham contributes a description of the usefulness of the card-filing system in obtaining business. (P. 513.)

Albumen paper being still the stand-by of photographers where the climatic conditions are severe and sources of supply distant, some notes are given on page 512 on the working of this process.

The awakening of the Board of Trade to a recognition of the valuable aid it can render to British firms is taking practical shape in the way of an "exhibitions department," the work of which is commencing chiefly in reference to next year's international exhibition at Brussels. (P. 515.)

We call attention to the use which can be made (with precautions) of heat in drying negatives. (P. 510.)

Mr. Speaight's invitation to photographers is referred to on page 509.

An anti-halation substratum consisting of a substance which is removed by the developer has recently been patented. (P. 509.)

Adjustments of enlarging cameras, exposure indicators, and other apparatus figure under "Patent News." (P. 518.)

"Photo-mechanical Notes" is this week occupied by the questions set at the last "City and Guilds" examination. (P. 517.)

Home-made contrivances for holding orthochromatic screens are the subject of some brief notes on page 510.

"COLOUR PHOTOGRAPHY" SUPPLEMENT.

A German contributor, Dr. F. Limmer, describes the difficulties encountered in working out a process for making a screen-plate by transference of dye contained in coloured particles of gelatine. (P. 49.)

M. F. Monpillard describes the modified working found advisable when using flashlight for the making of Autochrome pictures. (P. 51.)

A French worker, M. J. Thovet, has recommended an extra sensitising of the Autochrome plate for the purpose of giving shorter shutter exposures than can be done in the ordinary way. (P. 52.)

The newly issued instructions for the use of the "Thames" screen-plate are given on page 55.

A patent has recently been taken out in Germany for dyes which are said to bleach-out with great rapidity in light. (P. 56.)

Dr. Miethe has published a book on Egypt, very fully illustrated in colour from exposures made by the author. (P. 56.)

A recent lengthy paper on the aberrations caused by colour-filters has led the author, M. Sacco, to the conclusion that in the conditions of ordinary work the permissible angle between the two sides of a presumed plane-parallel filter should not exceed one minute. (P. 53.)

EX CATHEDRA.

The Brussels Exhibition. The letter from Sir Cecil Hertslet, which appeared in our last issue, receives further emphasis from a communication from the new Exhibitions Department of the Board of Trade, some extracts from which we print on another page. Photographic firms will be glad to be reminded that the Government are at length stirring themselves in the way of affording assistance in the representation of British firms at various large exhibitions abroad, a valuable means of furthering trade in our home products which has been to a great extent neglected. In the case of Brussels in particular the presence of Sir Cecil Hertslet on the Commission which will have under its care the interests of English firms should be a further inducement to those in the photographic business to consider the advisability of being represented next year at Brussels in a prominent way.

Mr. Speaight's Invitation. The brief mention made last week of the special invitation of Mr. F. W. Speaight will, we hope, not escape the attention of our readers. Mr. Speaight, with his brother, Mr. Richard Speaight, has in the course of a very few years built up a business which is now established in a place without an equal in London, and probably in the world. It is an open secret that the brothers Speaight divide their activities in their occupation very sharply, the younger being responsible for the photographic work and the elder bringing to the duties of management great originality and the determination to take a firm stand for photography as a profession. The persistence and resourcefulness of Mr. F. W. Speaight are already as familiar to his brother photographers as to the general public, in the matter of certain London improvements, and just now the managerial head of Speaight, Ltd., like the dual monarchs of Barataria, has the satisfying feeling that his duty has been done in causing the public to visit a collection of his brother's photographs on the same terms as those on which that same public visits exhibitions by Royal Academicians in Bond Street, namely, by payment of one shilling. Probably if you pressed the question Mr. Speaight would admit that the public ought to feel they were being admitted cheaply to a photographic exhibition at two shillings, and perhaps that explains why this enterprising action succeeded. On the score merely of the clever stage-management which the exhibition represents, it is to be hoped that Messrs. Speaight's invitation to photographers, of whatever degree, to visit them on July 21, from six to eight p.m., will be largely responded to.

Anti-halo Plates. The employment of a non-actinic film between the sensitive emulsion and its glass support has been many times recommended as a means of producing a plate free from halation caused by

reflection from the back of the glass, the chief difficulty having been to find a body which was both without action on the sensitive emulsion and obstructive of actinic rays—in fact, of non-actinic rays also, if the “backing” is to be used for orthochromatic emulsions. According to a recent German patent, a compound which has been found suitable in this double respect is ferrocyanide of molybdenum. It is formed by coating the glass plates with a solution containing in 100 ccs. of water 3 gms. of gelatine, 1.5 gms. of potass ferrocyanide, and 1 gm. of ammonium molybdate. When this coating has set, it is treated for five minutes in 2 per cent. hydrochloric acid, and placed to dry. The patentees, Messrs. J. Hauff and Co., of Feuerbach, evidently intend the backing to be removed by the alkali of the developer, so that if it is found that the process can be carried out satisfactorily in the factory, the user of these anti-halation plates will not be called upon to perform an additional operation.

* * *

The Quick Drying of Plates.

Though many devices to assist in quick drying are proposed at various times, the one in most use seldom finds mention in print, and that is, simple drying by heat. Of course, this is the method that first appeals to the beginner, but it is also the first rejected by him, because he overdoes the process and spoils his negatives. Nevertheless, it is a remarkably effective method, and one that many experienced photographers resort to constantly with never a failure. One worker that we are acquainted with dries all his plates, whether negatives or lantern-slides, by placing them on edge, leaning against a board, four feet in front of a gas fire. They will dry in this position in something like an hour, but the method we have adopted for some time is quicker. Our room is heated by a gas stove that has a flat iron top. On this top a sheet of asbestos is laid, and on the asbestos some ordinary wire plate-racks are always kept. Each plate as it comes from the washing-tank is wiped dry on the glass side with a cloth, while the surface water is removed from the film side with a wad of damp cotton wool. The plate is then dropped into one of the racks, and in about half an hour it is bone dry and ready for finishing or for printing. The racks never get hot, but are always warm to the touch. Without the asbestos they get too hot, and there is then danger of the gelatine melting along the bottom edge of the plate. A similar method can be adopted if hot-water pipes or radiators are available.

* * *

Drying by Cold Air.

In the absence of heat a strong draught of air can be utilised. This is a slower method, but still very effectual. A ventilating-shaft is an excellent place to put a rack of plates that are wanted in a short time, while the whirler is a well-known expedient for drying single plates. A whirler, however, requires driving, and an excellent substitute for this apparatus can be found in one of the old-fashioned clockwork kitchen jacks, with which a number of plates can be kept moving for a considerable time, and without any attention whatever. The plates can be laid flat on a horizontal table suspended from the jack, or one of the circular racks on the market can very well be utilised to hold them. If the jack is weighted with a good heavy horizontal fly-wheel the motion is fairly rapid, and drying should be rapid also.

* * *

Mounting Orthochromatic Screens.

Many people are deterred from the use of orthochromatic screens by reason of the expense they involve, for when the screens are obtained they have to be fitted to the lens, and the total cost of, say, three screens properly mounted and fitted so that they can be screwed into the lens-hood, is

somewhat heavy. The cheapest way of obtaining the screens is to buy them in the simple form of stained gelatine, and do the rest of the work oneself. The gelatine has to be mounted between two pieces of thin glass—patent plate for preference—though suitable glass can often be selected from lantern-slide cover-glasses of good quality—and the refinement of cementing can be dispensed with. There is no difficulty in the mounting, for the glasses can be cut to shape with a sixpenny wheel cutter, and then be bound with thin lantern-slide binding strip. The real trouble begins when the problem of fitting the screen to the lens has to be tackled, for this must be done so effectually that no light can reach the lens excepting through the screen. Anyone possessing a lathe can adopt the following method, which we have now used for a long time: From a piece of mahogany board a ring is turned that will just fit the lens hood when velvet lined. To the face of this ring a small wooden frame that will hold the screen is then attached, and upon fixing the screen in position the work is done. The screen can be held in by turn buttons, or fixed more permanently with binding-strips. The whole thing can easily be completed in half an hour, and it is as effective as can be desired, for a very little practice at the lathe enables one to produce a ring that will fit “like a glove” when lined with velvet.

* * *

Still Simpler Mountings.

Those who do not possess a lathe must vary the method slightly. In any case, the screen must be mounted in a small frame of wood or millboard; this is quite easily done. A ring can then be cut from a large cork or bung to fit the lens hood, and when this is glued to the back of the frame a quite effective mount is obtained. Another method is to make a paper ring. The hood is first covered with a strip of clean paper, secured by joining the ends with gum or paste. A long strip of brown paper is then cut, soaked thoroughly with paste, and wound round and round the hood until a sufficiently thick ring is built up. It is allowed to dry on the hood, removed, and glued to the frame as before. The appearance may not be so neat as the compact metal frames that can be bought, but the result will be quite as effective; more so than in the case of some metal fittings, which are not light-tight. We use none but wood fittings made entirely in the lathe, and with circular fronts over which a large lens-cap can be fitted. This has proved an admirable arrangement in practice, and it is quite a small matter to make a new fitting for any odd size screen that may have to be tested, a metal fitting for which is often not obtainable without trouble and delay.

* * *

The Spirit Photography Commission.

The result of the Spirit Photography Commission organised by the “Daily Mail” is just what might have been expected. Nothing but a series of obviously faked photographs was submitted to the photographic experts, while the spiritualistic experts evaded the difficulty of explaining the absence of any experimental proof by contending that the other members should first go through a preliminary training in spiritualism or theosophy. The spiritualists have thus once more failed to prove a single one of their claims, and have resorted to a very transparent excuse for explaining their failure. The final reports drawn up by the two sections of the Commission read more like ancient history than actual reports of a modern investigation, and it is surely time that such futile inquiries ceased to be held. There will always be people capable of believing the wildest tales with regard to spiritualism, and no commission of any kind will ever convert them to the legitimacy of experimental investigation.

**Outfits
or
beginners.**

Recently we have come across several young amateurs who have either given up, or proclaim their intention of giving up, photography. On asking the reason of this momentous decision we found that in each case it was the same. The boy had never had anything but a very small camera of cheap and toylike character, and was simply disgusted with the poor results obtained. We are much disposed to think that there are too many cameras of this type available, and that their introduction was never very wise from the business point of view. A result that is both small and poor will satisfy no one, and the beginner soon loses interest if his results are too small to show and too poor to bear enlargement. For the very small camera fitted with good lenses there is a distinct use and demand, but when cheapness is the all essential point poor quality of definition is not easily tolerated in a picture that is much under quarter-plate size. Direct prints from quarter-plates will easily satisfy the young amateur, but direct prints from negatives of about the size of postage stamps do not please him for more than a very short time, and when he finds they will not bear enlargement he is very quickly discouraged. If the young amateur is to be encouraged—and he is a very important person in the photographic world—he should be provided at the start with apparatus capable of doing work that is sufficiently good to lead him on further. If his progress is checked by the inefficient nature of his apparatus, the blame does not lie so much with those who bought it for him as with those who provided it and permitted it to be sold. It is a matter of common knowledge that some very efficient little cameras are obtainable for a matter of only a few shillings, while other much less efficient ones are sometimes also obtainable for higher prices. When a dealer is asked to recommend a cheap outfit for a small beginner he will show his wisdom most fully if he makes efficiency his first consideration and disregards other matters.

THE REFLEX CAMERA IN PROFESSIONAL PHOTOGRAPHY.

WE do not hear the loud and bitter controversy about the respective merits of hand and stand cameras that at one time annually made its appearance in the photographic press. The reflector type of camera is in a great measure responsible for this, since it combines the certainty of focussing and included view of the stand camera with all the best features of the hand instrument. Moreover, the ease of focussing makes a half-plate hand camera an instrument of precision, whereas optical considerations make the ordinary box-form view-finder type very uncertain. This uncertainty, combined with size, has made the reflector camera practically a necessary addition to a professional outfit. Many who argue that such a camera can be only of occasional use will doubtless manage without incurring the great expense, but doubtless at the loss of some business and advertisement. Others, more conservative, will swear by the whole-plate camera and tripod, as being more certain. We know, however, that a great many professionals have been wideawake enough to expend the necessary capital on one of the beautiful reflector cameras. In a town of a population varying from 30,000 in the winter to 50,000 in summer, there are at least four professionals who use them, one, too, whose work is of the twelve for sixpence order.

To those who hesitate to incur the expense, the account of one or two actual incidents may turn the scale. There was, as a big local event, with Royalty present, to lay a foundation stone or something of the sort. The Press stand—and, by the way, photographers can always get Press tickets by applying a few days in advance to the town hall—was a

small space on top of a rockery, with no flat surface. Before arrival, at least an hour before the ceremony, this space was already occupied by the conservative contingent with one half-plate, one whole-plate, one 12 x 10, and one 15 x 12 camera—quite an up-to-date show-room. Our reflex photographer mentioned casually that the reflex was the only possible instrument for these jobs, but the stand camera men all claimed their own instruments were more certain. They were not so sure about it afterwards, when it was found that the Royal party were not passing the coign of vantage, as expected, but taking another path. This did not trouble the reflex and other hand-camera men, as they rushed round to the other position, but the gentlemen who had been carefully focussing, adjusting, and un-adjusting stops for an hour previously were somewhat upset. Even the luckiest, who had a good position, only made one exposure, whilst our reflex worker made eight of different subjects.

With regard to profit, one professional of our acquaintance, with a new reflex, almost paid for it in rights to reproduce in the London papers and on postcards, and has also made much money and advertisement by photographing local golfers on the links.

One local man makes a feature of exhibits at cattle shows, and nothing can beat a reflex camera for making a number of exposures quickly, and without the rest of the subject moving. With a long bag three or four dozen exposures can easily be made without fatigue in the afternoon. Another line of work that even the highest class studio will find remunerative—in fact, only such studios will get such business—is the photographing of equestrians, either stationary or moving. A correspondent writes us that he formerly used a whole-plate stand camera, with focal-plane shutter, for this work; but found that the necessity of focussing before inserting plate made it practically useless. The same may be said of the use of such a camera at school sports, another profitable line. Perhaps no better argument for the reflex camera can be adduced than the recital of the troubles of the same correspondent at a time when he had not one:—

The incident was a commission to photograph the meeting of the Admiral of the Channel Fleet and the Mayor of —, with the usual presentation on the flagship of the address of welcome. Knowing the steadiness of a man-of-war, it was decided to take something important—to wit, an assistant, one whole-plate camera, one large case with two lenses, focal-plane shutter, four double backs, focussing cloth, and, lastly, the tripod. The two photographers embarked with the help of a Press ticket on the official tug, and proceeded to the fleet, lying two miles off-shore. The weather was rough, and the boat pitched and tossed like an empty bottle. At first it appeared too rough to bring the tug alongside the leviathan, but after a somewhat stormy consultation with someone, who was presumably the navigating lieutenant, and after a great deal of navy talk, a narrow plank gangway was got across. Since it sloped at an angle of 60 degrees, and the mayor was somewhat inclined to stoutness, he rather wisely decided not to risk his life in the municipal service. The whole-plate camera and etceteras appeared as if they were to be rather useless. Luckily, however, the mountain decided to come to Mahomet, and presently descended from the heights above to the dirty and insignificant tug in the shape of a large individual, resplendent in much gold lace and other trimmings. The poor photographers had not bargained for this, and had kept the traps in the case out of the wet. They were got out in good time, and after fixing lens, shutter, and opening camera, an attempt was made to place the camera on its tripod, but the wet, pitching deck made it impossible to get to work, and the day's opportunities were gone. In such an instance as this, which might be multi-

plied indefinitely, the ever-ready reflector camera would have meant the whole of the difference between success and failure.

PRACTICAL NOTES ON ALBUMEN PAPER PRINTING.—I.

It may seem to some a waste of time to write anything on the subject of printing on albumen paper, seeing that so little of it is now used by photographers—at least in this country. Gelatine and collodion P.O.P. have largely supplanted it—almost entirely amongst amateurs—but many professionals adhere to it, and possibly more would use it if they, or their assistants, were really more familiar with its working. In the opinion of most persons there is a certain charm about a good albumen print that one does not see in gelatine, whilst the results are at least as permanent as those on the emulsion papers. Albumen paper in the sensitive state is a material which will not keep for a great length of time, particularly in hot, moist climates. As it is largely for the benefit of our readers thus situated that these notes are penned, it is first necessary to point out that the most advisable procedure is to obtain the albumen paper in the unsensitised condition, that is, albumenised only, and to sensitise this as required. At the present time little, if any, paper is albumenised in this country. The albumenising trade has passed on to the Continent, mostly to Dresden, but the paper can be had from the larger photographers here. Some samples are quite inodorous, while others have a very fetid smell, which becomes very offensive while the paper is being sensitised. That is due to the use of the albumen in a decomposed state. When employed in that condition it is easier to apply, while it gives a more glossy coating than if it were used fresh. It might be surmised that such paper would not yield such permanent prints as would those made with the inodorous coating; but it has been found by the test of time that, in this respect, one is as good as the other.

Coming now to the silver or sensitising bath, its strength, theoretically, should depend upon the amount of chloride with which the albumen is salted. As this latter is not stated, one will do well to use the strength recommended by the makers of the paper. As a rule, the stronger the silver bath is the greater the vigour in the prints. But this holds good only up to a certain point, for it has been found in practice that no advantage is gained in this direction by increasing the silver beyond seven to eight times the weight of the chloride in the albumen, supposing that to be of ammonium, or its equivalent in other chlorides. From fifty to sixty grains to the ounce is a good average with most papers if deep rich purples are desired. Here is a suitable formula for general work, and it is well to make up a good quantity at a time:—

Nitrate of silver.....	10 oz.
Distilled water	80 oz.
Nitric acid	10 minims.

This quantity will about fill a Winchester quart bottle. After filtration, some is poured into a dish to a depth of half an inch or more, and the paper floated on it. There are different ways of doing this. A good method is to take the paper by two opposite (diagonal) corners, i.e., form it into a bow, then lay one of the other corners on the surface of the solution and gently lower the rest of the sheet, taking care that no solution gets on the back. As soon as the whole sheet is on the liquid it is a good plan to raise the corner first applied to see if any air bubbles have become imprisoned, and, if so, to remove them with a small piece of blotting paper. If, when the paper is floated, it is seen that it has a tendency to curl away from the solution, gently breathing on the back for a few seconds will cause it to become flat again. When the paper is exceptionally

dry, it is a good plan to place it, exposed, in a damp place for an hour or so before floating. This will reduce both its tendency to curl and that of the prints to blister in the fixing bath. With regard to the time of floating, that, to an extent, must be governed by the temperature. In hot weather, with most papers, a minute and a half will suffice with a bath of the above strength; in very cold weather, from two and a half to three minutes will be none too much.

After the paper has floated the necessary time, it is taken by the fingers by two corners, gently and slowly taken off with a somewhat dragging motion, and pinned up on a line to dry. The best pins for the purpose are black or mourning ones: if the ordinary ones are used, the bare metal causes a reduction of the silver, which runs down the paper, and renders those portions useless. American wooden clips are often used for suspending paper, and are very good for the purpose. When the paper is suspended, a scrap of blotting paper should be put on the lowest corner to absorb the drips. The reason for removing the paper in the way just described is that very little solution is taken away with it—only a few drops; whereas when taken off quickly, there is a lot to drain off and much waste of bath results. After the paper ceases to drip, it may be quickly dried before a fire.

Paper sensitised as above should be used the day of preparation or that following, as it will not keep more than a day or two. If, however, the paper be kept between pure blotting paper that has been moistened with solution of carbonate of soda, and then dried, it will keep for many days. If, in place of the nitric acid, citric acid be used in the proportion of about a fourth of the weight of the nitrate of silver, the paper will keep white for many weeks, but it will print very red, and it will be difficult to tone beyond a red-brown colour without meanness. If the paper is required for keeping, the best way is employing the citric acid as a preservative is to float the paper first on the silver bath as above, and when the superfluous solution has thoroughly drained off to float the bath of the moist paper on a solution of citric, about thirty grains to the ounce, for a minute or so; finally suspending to dry. Some samples of albumen when taken from the solution will appear to have a greasy and repellent surface, and the superfluous solution collects in drops or tears, which would show as spots in the prints. In such cases the paper must be blotted off between sheets of pure blotting paper, when it is removed from the bath. The blotting paper may be used over and over again, or until it ceases to be absorbent, and can then be added to the residues.

After six or eight sheets have been floated, the bath should be stirred up with a glass plate in order to keep its strength uniform. The paper, it may be explained, is floated in the bath proportionately of more silver than it does want, consequently the bath gets weaker by use, and on the face first, hence the stirring up is necessary to obtain formally sensitised sheets. And since the bath by use becomes weaker in silver, it becomes necessary to test it from time to time. Small hydrometers, called "argentometers," are sold for the purpose by the dealers. In the use of a bath they indicate its strength in silver accurately. After the solution has been in use for a time they do not act, as the bath then contains a considerable quantity of nitrate salts introduced by the decomposition of the silver in the albumen, which adds to its specific gravity. These little instruments are convenient in use, and serve all practical purposes if an allowance be made (in the case of an old bath) that it is weaker in silver than the argentometer indicates. After a little time the sensitising solution will become discoloured. Methods of de-colouring and further details in working the albumen process, will be dealt with in a future article.

THE CARD-FILING SYSTEM IN OBTAINING BUSINESS.

The paper on the card filing system for photographers in "B.J." of November 27, 1908, the utility of the card list of clients' names for advertising purposes was mentioned. It is advisable to keep in touch with sitters by the use of letters, booklets, or other appropriate matter with the suitability of portraits for miniatures, enlargements, reproduction in a new style, or embodying a suggestion for a fresh sitting, their names should form only the beginning of a far larger and more inclusive list of the names and addresses of those residents who, from their public position, it is desirable to secure as customers. A selected mailing list will not only simplify the despatch of circulars and give much better returns than a list selected haphazard from the directory, but one is prevented from using stamps and stationery by duplication of addresses or the inclusion of known undesirables. The card system of entering one name only on each card, and indexing, and perhaps crossing the whole, is far superior to any other method. Only names actually circularised are retained, it is simple to remove names from cards, and the list can be divided amongst a number of workers without fear of duplication or error, additions can constantly be made without disarranging alphabetical or other order. The ease of classification is the chief case, as in all other uses of the card index, the greatest advantage is in favour, and the chief reason for its superiority over other systems. This classification enables one to easily remove cards or names of people as they become clients, to enter details under the name to which they refer, and, above all, it is the only way to keep an efficient check on one's advertising.

Cards may be ruled in various fashions, or may, for convenience, be left blank. The surname should occupy the most conspicuous position at the top of the card, the address should come next, and ample space be provided for entering the name of the person of posting distinguishing mark of advertisement, and room for any necessary remarks at the foot. Illustration No. 1 shows a useful type of card of the standard size 5 in. by 3 in. The name "Vertigan" is prefixed by "Mrs." in the envelope. In the rare* cases when Miss or Mr. are used these are denoted on the card. The address may be written in any way, so long as it is easily understood by the addresser. The identifying marks shown as entered on the card need only be entered on the enclosing case, if the contents receive the same advertisement. It sometimes happens that only part of the list receives matter, and that matter is sent at different times. In this case the cards should be marked. A copy of each of the advertisements is filed, and legibly marked with its number as entered on the card.

The identifying marks should be kept as simple as possible. In the case of a return, as shown in the illustration, the card is removed from case and a record of all the matter sent carefully kept upon it. "X 1. 11-9," for instance, means that the card was Christmas leaflet No. 1, forwarded on November 9. "B. 2" signifies booklet No. 2, March 18; whilst "L. 6" is personal letter No. 6, that brought an inquiry on the mailing list.

Whenever one receives a return from any name, whether by mail, personal visit of inspection, or inquiry, the card is removed from the general case and placed by itself for further

attention in case of inquiries, or kept apart if a sitting results, for then the name will be on one's more valuable clients' lists. In the former case, should the inquiry not crystallise in a day or two, a letter, written to meet each special case, is forwarded, and certainly ought to secure the appointment if there is any truth in the statement that "it's dogged as does it."

<i>Vertigan</i>	<i>18. Princess. Rypl.</i>
	<i>PK</i>
<i>21</i>	<i>11-9</i>
<i>B 2</i>	<i>3-18</i>
<i>L 6</i>	<i>14-16</i>
	<i>Requested Price List</i>
	<i>14-21</i>
	<i>Appointment 14-23</i>

The cards from which one has a return in some form or another should prove of great value in improving one's advertising education. One can tell from them the type of circular that pays best, and frequently prove that expense is no criterion of the pulling power of an advertisement. The respective returns from the first, second, third, or more distributions to the same house can also be seen. This may appear costly, but all advertising experts are agreed that three different circulars to a thousand people will do far more than one circular to three thousand.

At the same time, we must warn the reader not to expect too much direct return; in very many instances one cannot trace the influence of one's advertising at all except at the end of the year, when an increase in receipts, probably attributed to something else, will be noticed. In any case, there will be little response to the first effort, slightly more to the second (if forwarded within a reasonable time of the first), whilst the third should begin to send one's money back.

The actual collecting of the names upon which to expend one's stationery and printing will be a comparatively simple matter if you have resided for some time in a small town. The best residential parts and, to a certain extent, the most desirable names will be familiar to you. A newcomer would be well advised to seek the advice of some friendly resident. A city list is a far more difficult matter, more especially if financial reasons make a small list a necessity. Selection of the most likely names then becomes a matter of difficulty. A few of the very best names should be taken from the directory. In giving this advice we presume that your work is good enough to please such people, and your premises are smart enough not to repel them. If your work is not of this class it is essential that only those names to whom your work is likely to appeal should be chosen, for it is equally a waste of money attempting to get the patronage of a better class than one's work merits as it is to advertise expensive work to a poor class.

Names may be selected from subscribers to concerts, guests at balls, hospital patrons, bazaar-stall holders, and church helpers generally, and, in fact, from any and every published list of names that agrees with one's clientèle. The keen man will carry a few loose cards in his pocket-book, and jot down on the spot any name that appeals to him in the local Press or gathered in conversation. If the cards are properly indexed a very few moments enable one to discover duplicates, if such

*It is generally conceded to be the best policy to direct one's pressing attention to the male sex. To advertise such articles as photographs to the male sex is certainly a more difficult effort, the persuasions of the ladies of the household being more effective than those of your matter. One rarely finds a "Miss" entered in the directory as a householder, and hence they may profitably be omitted, excepting the most comprehensive lists.—W. F. B.

exist. In this way the list will steadily grow, and, if care is taken to remove any undesirable as soon as known, the trouble involved will be rewarded by the possession of a valuable business asset, which must, however, be kept thoroughly up to date if its full value is to be retained. For one thing, the list must be carefully checked for removals each time a new directory appears, and any returned advertisement must be kept and the erroneous address removed from the filing case.

Some photographers possess not one but as many as four lists. One a list of the best local families not being clients, to whom matter dealing with the best work and highest prices is forwarded; the second a list of middle-class people, who receive matter dealing with quality and moderate price; thirdly, at a pleasure resort, a list of apartments may be kept; and, fourthly, county families. The matter forwarded to No. 3 is very carefully selected, and special offers are made to introduce one's work to this class. It being frequently impossible to reach the visitor direct, those residents who come in closest

contact with them should be carefully nursed in the belief of the superiority of one's work so that your name naturally comes to their minds when asked for advice on the merits of respective establishments.

It would obviously be foolish to forward non-residents the same class of matter as residents, so that if efforts are made to increase the circle of one's influence such names should be kept apart. At-home portraiture, domestic architecture, animal photography, the copying of pictures or antiques of any description, or any work that does not come under the heading of studio work, may be profitably dealt with.

If one keeps separate lists in this fashion, although not necessary, it is advisable to use cards of different colours for the different lists—say, white for town, blue, county, and perhaps pink for other divisions. It will be noticed that the size advised is smaller than that for the cards used in the reception-room, so that there is no fear of mistaking the one for the other.

W. FOSTER BRIGHAM

THE DRESDEN EXHIBITION.

VI.

A LARGE section of the Dresden Exhibition, upon which we have hitherto touched very briefly, is that which corresponds with the record and survey work carried on in this country. An immense amount of space, more than the character of the exhibit warrants, is given up to these photographs. The subdivision again is into towns and provinces, but in few cases are there signs to be seen that the photographs have been made with anything like a definite purpose. In most cases they appear to be simply photographic views brought together for the purpose of representing the features of a city or district, and in many instances the photography might have been considerably better in a technical way. About the best section is that representing the Free Town of Hamburg, but in none of the twenty-one rooms which contain these survey photographs could we see quite the same distinct aim to record departing features, vanishing landmarks, or customs falling into desuetude, which is evident in most of the record work done in this country.

A number of countries foreign to Germany are likewise included in this section, about the most interesting photographs being those from Russia, where again M.S.A. Lobowikoff exhibits a number of his clever photographs of peasant types. England is represented by a large collection of photographs by Sir Benjamin Stone of customs and ceremonies surviving from former days. A separate catalogue explaining these photographs is obtainable in the exhibition. In the section relating to the Far East a good deal of the well-known work by Mr. H. G. Ponting is shown, but the only other English work in this section is that sent by the High Commissioner for Australia. These photographs, though not of particular photographic interest, are of value in showing the still unexplored districts in our Australian colonies. The exhibit by the United States may be instanced as an example of the kind of photograph which most properly belongs to a section of this kind, since it includes a large number of very excellent portraits of Indian and other types, lent by the Smithsonian Institution, Washington. These photographs, as well as those of Indian dwellings, possess great ethnological value, a quality which is missing from a great deal of the photographic work shown by other countries.

Schools of Photography.

Placed between the amateur and professional sections are the exhibits of a number of institutions in Germany where photo-

graphy and its allied branches are taught. The place of honour among these is given to the Munich School of Photography and Photo-mechanical Processes, directed by Professor Dr. Emmerich. A great deal of portraiture by students is shown, all of which, it must be said, has a certain amount of sameness, and is mostly done in a low tone. Apparently more regard might be paid to the very various requirements of commercial portraiture. The "process" work makes a much more interesting collection, and includes reproductions of works of art in monochrome, and colour by the intaglio, relief, and lithographic methods both in monochrome and colours.

Still finer examples of students' work is shown by the very large exhibit from the Imperial Academy of Graphic Arts, Leipzig, whilst there are other similar exhibits by some half-dozen other schools where photography is taught.

The Austrian Exhibit.

An annexe to the main buildings of the exhibition has been built by the Austrian Government, and the whole of the exhibits, both in amateur and professional photography, as well as in reproduction processes, has been brought together in a series of seven beautifully appointed galleries, which in the way of furnishing and decoration represent the high-water mark in the exhibition. A committee of artists and architects have been responsible for the arrangements, which have been carried out with the most minute care in every detail. One example of the pains taken to preserve a harmonious but nevertheless varied scheme of decoration may be mentioned. In one gallery a floor covering of a dove-grey colour was used, whilst the adjoining room had been covered in the same material. When both were down it was thought that the larger apartment would have done with a floor-covering with some design on it, in order to differentiate it from that which joined it through the entrance into the next room, and therefore a stencil pattern was done in black over the whole floor, forming a carpet which gave the apartment a sufficiently distinctive appearance. Formal and symmetrical, like most of the Austrian schemes of decoration the arrangement of the galleries into alcoves and the furnishing with cabinets and small articles of china and pottery are very gracefully done, but the whole result is that the Austrian exhibit possesses more interest from a national point of view than from the photographic standpoint. One of the mo

striking exhibits is that of the Society (existing under Government support) for the Encouragement of Travel in Austria, and particularly on the eastern coast of the Adriatic. A special photographic department also has been established in the Austrian State railways under the direction of Dr. F. Benesch, a photographer whose work may be described as topography very artistically done. The exhibition contains a whole series of photographs made by Dr. Benesch, of the Austrian Tyrol, and in many other parts of the Austrian Empire which are as yet almost unknown to the English tourist. These exhibits, which deal also with the opportunities for winter sport in Austria, form a notable proportion of the contents of the Austrian house, and also of the specially illustrated catalogue issued by the Austrian section.

In the domain of amateur photography a large exhibit is sent by the Vienna Photo-Klub, chief among the exhibitors in which are Karl Prokop, Franz Holluber, and C. Hermann Kosel. The exhibit also includes a great selection of the remarkable work of Paul Pichier. In addition, a collection of the works of amateur photographers in Austria is brought together, and includes a great deal of the clever, but not very convincing, multi-colour gum work of Dr. Bachmann. The general aim of the Austrian pictorial photographer seems to be at big bold effects of lighting with heavy contrasts in tones, and it is rare to find the same delight shown in the more delicate nuances of nature such as English workers (perhaps not now so much, unfortunately) have successfully rendered. And apparently, too, the obsession of multi-coloured gum is present with a good many, such as J. E.

von Donhauser, Josef Mayer, and Dr. Ledenig, who, in our judgment, makes the best, because the least, use of this method. One very fine seascape should be mentioned, that (No. 1,232-82) by F. Larisch-Moenich. A very clever piece of work is that by Dr. E. Meyer (No. 1,241-115), representing a number of couples dancing on skates under electric arcs. Some most pleasing landscape work, big and broad, yet open and pleasant, is by Karl Melichar (No. 1,243-122). Similar work, which makes a special appeal on account of its delicacy and open air character, is that of Dr. R. Reininger (No. 1,251-137).

Naturally, in an Austrian exhibit, the work of the Imperial School of Graphic Arts, presided over by Dr. Eder, takes an important place, and the many examples of students' work in photo-mechanical and photographic processes are used to make an imposing exhibit. The professional photography is rather scattered, but among it must be mentioned the technically fine work of Ludwig Grillich, the work also of Pieztner, and the beautifully soft portraits of beautiful women by Hermann Kosel. The photographic trade in Austria is also represented by exhibits of apparatus and materials by firms such as Lechner, Reichert, and others. To the work in "process" we must refer in some later notes on the photo-mechanical exhibits, which will conclude these reviews of the Dresden Exhibition, but it may be said that the reproductions in monochrome and colour by half-tone, photo-lithography, and photogravure processes, shown by Angerer and Göschl, Husnik, and Häusler, as well as by a number of other Viennese firms, demonstrate the perfection to which these houses have brought the process craft.

GREAT BRITAIN AND INTERNATIONAL EXHIBITIONS.

UNUSUAL importance attaches to the British section of the International Exhibition to be held next year in Brussels, from May to October. Manufacturers have to consider, in regard to it, a totally new situation. Their very reasonable discontent with the character of international exhibitions in general, with the management of former British sections, and with the results of exhibiting, has brought this about. For the first time, what may properly be called a representative national exhibit is to be attempted, and this is being organised on novel lines.

Official Aid to British Exhibitors.

Exhibitors are no longer to be dependent on a voluntary committee; or left to install their goods as best they can; or exposed to the risk of being obscurely placed; or required to defray the cost of a general scheme of decoration; or engaged in a speculation, the cost of which they cannot ascertain beforehand. The section is in charge of a new department of the Board of Trade acting in personal touch with them, and taking responsibility for these matters.

French and German exhibitors have long been assisted in systematic ways. Our own were at a disadvantage everywhere, and the result has been harmful to British prestige. But the new organisation undertakes to do more than is done for the exhibitors of any other country. In these circumstances Mr. U. F. Wintour, the British Commissioner-General, is approaching all the staple trades of the country with a view to secure at once that arrangements shall be made for an exhibit showing the scope and real importance of British manufactures.

Position of the Section.

Perhaps the most prominent position in all the exhibition has been secured for the general section. Visitors must pass through the British galleries to reach those of Germany, the United States, France, Italy, and other nations. In the Machinery Hall the portion allotted to Great Britain occupies the centre, and the total space, 203,410 square feet, compares favourably with what has been granted by the Belgian Commissioners to our rivals.

How the New Order was Created.

The Royal Commission, which is presided over by the Prince of Wales, has its offices in Queen Anne's Chambers, Westminster. It is constituted wholly of well-known business men, and, the occasion being unique, His Royal Highness is giving active help to the Commissioners.

A departmental inquiry, concluded two years ago, was the means of opening this fresh chapter in the history of international exhibitions. It was presided over by Sir Alfred Bateman. Taking the opinion of a large number of important manufacturers, the committee found a strong and growing prejudice against exhibitions on the old lines, and came to the conclusion that it was largely justified. But as it would evidently be ruinous for Great Britain to abstain alone from a form of advertisement which is now established, they recommended effective means of meeting the grievances of British exhibitors.

The Exhibitions Department of the Board of Trade, which has been placed under the direction of Mr. Wintour, is the chief outcome. Instead of every exhibition being treated as a new problem of organisation—a problem more or less hastily and badly solved—this Department exists as a permanent machinery for the care of British interests in such matters.

Exhibiting Simplified.

To enumerate the facilities now first offered to exhibitors is to realise that a principal aim of the Exhibitions Department has been to simplify the business of exhibiting. These facilities are such that an exhibitor may know beforehand, to a penny, what his venture will cost him.

Except in the case of machinery, the only charge made within the exhibition itself is a low charge for space, and tenders will be obtained from Belgian contractors for the installation of machinery. This charge for space covers the provision of show-cases, the cost of the general decorative scheme, the handling of exhibitors' goods, the publication of a catalogue in French and English, and some other benefits to be noted presently. "Handling" means that officials of

the Commission will take delivery of packages at the exhibition entrance; unload and place them on the space allotted; take away, store, and return the packing cases; re-load at the close of the exhibition. Further, the Commissioners will provide, free of cost, as far as possible, an adequate supply of unskilled labour to assist exhibitors with the installation of their goods. Machinery will involve, of course, the additional cost of foundations and shafting—that of main switches, safety fuses, and motors for electricity, stop valves for steam, and valves and motors for water, and that of the power used for driving. Crane power is supplied free of charge.

A Uniform Scheme of Decoration.

There is a very striking novelty in the internal architectural design of this British section. The character of the design is not such as one associates with exhibitions in general. It has dignity and elegance. In harmony with the section's importance, it will give the British exhibit a conspicuous value for the most casual eye. The provision of show-cases in a uniform style is part of the conception. It will not deprive exhibits of individual character. Exhibitors are not even required to use these cases, or any cases. If they desire to provide their own, there will be every disposition to meet them in the matter, so long as their cases are not destructive to the national scheme. But the provided cases may be had in all sizes and for all positions, and they are dust-proof and extremely handsome, being made of seasoned mahogany, selected under careful inspection. Samples may be seen at the offices of the Royal Commission, 30, Broadway, Westminster.

Cost of Exhibiting.

The tariff of charges for space is as follows:—

	Per sq. foot.
	s. d.
Including the use of an isolated show-case, or part of a case, having more than one frontage	6 0
Including the use of a wall-case	4 0
Including the use of a platform and ornamental façade without glass	4 0
Including the use of a platform only	2 6
On wall or screen	2 6
In the Machinery Hall, including the use of platform and hand railing where required	2 6

For motive power the charges are unusually low. The Royal Commission will defray half the charges made for it by the Belgian Administration, on all machinery driven to illustrate processes of manufacture. Thus exhibitors will pay:—

For steam (133 lb. pressure)	$\frac{1}{2}$ centime per kilogramme
For gas	1s. 3d. per 1,000 feet.
Electricity (2 x 220 volts continuous)	1 $\frac{1}{2}$ d. per kilowatt hour.

Water will be supplied free for pumps or condensers. The charge for purer water in the Machinery Hall will be 1s. 10 $\frac{1}{2}$ d. per 1,000 gallons (50 lb. pressure), and in the Industrial Hall 1s. 8d. per 1,000 gallons for domestic, and 10d. for industrial purposes.

Not only will there be crane power, but the laying of foundations by Belgian contractors will be superintended by a competent engineer employed by the Royal Commission. With the above particulars the railway and shipping freights, and the contractors' tender, an exhibitor of machinery can make his calculations with a degree of confidence not hitherto possible.

Other Facilities

The special catalogue for the British section, published in English and French, will give a free insertion of twelve lines; the general catalogue a free insertion of four shorter lines.

All necessary steps will be taken by the Belgian Government for the protection in Belgium of inventions, industrial designs, and trade marks.

Another provision made by the Royal Commission is that of a suite of rooms for exhibitors' agents. This is a new thing in exhibition practice. There will be a reference library and a staff of high-class interpreters attached to the establishment, and it will be furnished with all the necessary equipment for transaction of business, correspondence, and so forth.

Reduced Transport.

The Belgian State Railways, charging full rates on the outward journey, will return exhibits to their termini free of charge. The

British railway companies will make a reduction of 50 per cent. on returned exhibits not sold, and travelling by the same route to the station from which they were sent out. Twelve shipping companies have also agreed to this 50 per cent. reduction. It will be understood that all preparations begun so far in advance by the Exhibitions Department are part of the reform which has been described, and that a prompt response to the campaign now being carried on throughout the country is advisable in the interests of exhibitors, as well as of the general scheme.

The Royal Commission is very influentially constituted of business men. Its chairman is the Earl of Lytton, and its vice-chairman Sir Swire Smith. Special committees have been formed for the various staple trades and for groups of allied trades.

THE EVE OF THE CONVENTION.

THE proverbial good luck of the Convention in the matter of weather may be relied upon for next week at Canterbury, quite apart from meteorological forecasts to the effect that the present cyclone is passing off to the Continent, and July is to usher in the summer in real earnest. But as those know who have been in the confidence of Mr. F. A. Bridge, rain or fine, the success of a



Photograph by

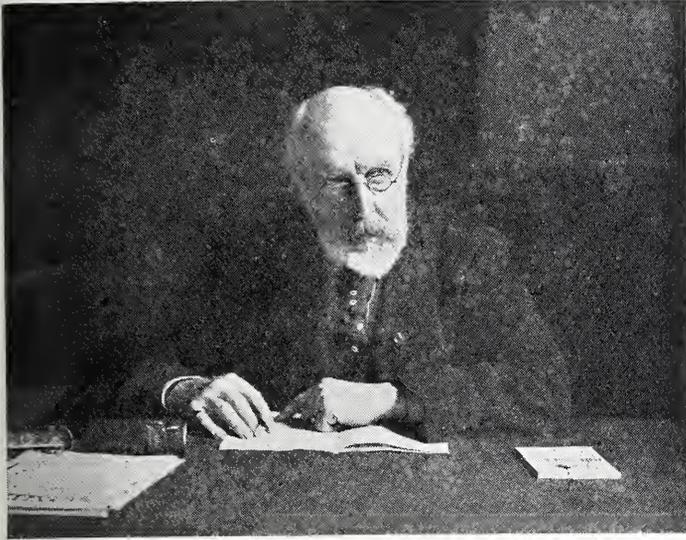
The President.

[Elliott and Fry.]

Convention is assured beforehand. Photographically the programme possesses great latitude, it provides opportunities for photography in circumstances when outdoor work would be uncomfortable, and at Canterbury and the surrounding Kentish towns conditions particularly favour such alternative arrangements. But away with forebodings. In the bright vocabulary of the Convention there is no such word as—wet. July 10 will probably see Conventioners disbanding from Kent after a week of summer spent in the garden-county.

The Convention handbook is so commendably informative—emphatic even—that it is impossible to add further details to

those mentioned. But as there may be those who—to their loss—have never yet joined a Convention party, we may point out that the proceedings open in an informal way on Monday next at St. George's Hall, Canterbury, and end on Saturday, in which six days the choicest parts of the Kentish coast, country-side, and his-



Photograph by]

The Honorary Secretary.

[A. Corbett.

torical places will be visited, and the visitor, moreover, provided for his evening recreation and instruction with a series of papers and lectures.

Photo-Mechanical Notes.

The City and Guilds Examinations in Photo-Mechanical Processes.

At the last examinations held by the City and Guilds of London Institute, the following papers were set in photo-mechanical processes. The number following each question is that of the number of marks given for it

ORDINARY GRADE.

WRITTEN EXAMINATION.

1. What do you understand by the term "half-tone"? In what respects does a print from an etched half-tone plate differ from (a) a print from an etched line plate, (b) an ordinary photographic silver print? (30)
2. Give an elementary explanation of the mode of formation of the "dot" in a cross-line screen negative. (50)
3. You are required to ascertain by direct experiment and in a simple manner whether a photographic objective produces an image free from distortion. State how you would carry out such an experiment. (30)
4. For what purpose is a reversing mirror used? Describe a simple process for the silvering of the surface of a sheet of glass intended for use as a mirror. What conditions must the mirror fulfil in order to be effective? (30)
5. Describe any recent modification in the construction of ruled cross-line screens. (15)
6. What is a yellow "screen"? How is such a screen made, and what is its use in photograph negative making? (30)
7. How would you make a solution of silver nitrate suitable for the preparation of wet collodion films? What difficulties are you liable to meet with in the use of the "bath," and how can they be avoided? How would you ascertain the total amount of silver nitrate present in the bath at any interval after use? (50)
8. What is collodion emulsion and how is it used in negative making? Under what circumstances can this substance be employed with advantage? (30)
9. What defects are liable to be produced in negatives made from drawings by the chemical processes of reduction and intensification? (30)
10. How would you prepare a film negative from a wet collodion

plate suitable for direct photo-lithography? If the stone to be used be of considerable size and it is not practicable to use a printing frame, how would you proceed? (50)

11. What are the principal physical differences between gelatine and gelatose? What form of gelatose is generally employed in the making of resists? By what means may these two substances be rendered sensitive to light? (50)

12. Describe the operations in the mounting of a line zinc plate having large open spaces. (25)

13. Give a brief account of any process with which you may be acquainted for direct photo-zincography of subjects in graduated tones. (30)

HONOURS GRADE.

WRITTEN EXAMINATION.

1. What are the most serious drawbacks to be found in cameras and their accessories (excluding the optical equipment) as ordinarily constructed, for the making of negatives for photo-mechanical processes? Describe any recent improvements in design with which you may be acquainted. (50)

2. Explain the simple principles which underlie the effective illumination of a room which is to be used for the manipulation of sensitive surfaces for negative making. Apply these principles to the design of a lamp suitable for lighting a room in which wet collodion plates are to be prepared. Your answer must be illustrated by a sketch. (50)

3. What is meant by a "physical" and a "chemical" restrainer respectively in a developing solution for wet collodion plates? Give examples. (30)

4. What do you understand by the term "fixation," and why is the operation necessary? The so-termed "fixing" bath for wet collodion plates is usually a solution of potassium cyanide in water. Explain the changes which take place during the fixing process. Why is this solution not used for the fixation of gelatine plates? (30)

5. Describe how you would use the metzograph screen in negative making. For what particular purposes is this method of translation useful? (50)

6. Explain how you would produce *direct* from a drawing in colour a cross-line screen negative suitable for making a type-high printing block. (30)

7. Give a brief account of your experiences in the use of different classes of "original" for the making of screen half-tone negatives. State any conclusions you may have formed as to the suitability of the various kinds. (25)

8. In the process of producing a half-tone relief block a copper plate bearing a resist is submitted to the action of a solution of ferric chloride. What differences may be produced in a series of similar plates in the etching process by varying the concentration of the iron chloride solution, its temperature, and the mode of its use? (50)

9. What are the drawbacks to the use of zinc in the ordinary enamel-line process for the production of type-high blocks? What processes are available for the making of resists which avoid these disadvantages? (25)

10. Explain the construction of the Albert etching machine, and describe how it is used. (25)

11. Give an outline account of any photographic intaglio process which may be used for the production of copies of maps. (25)

12. Discuss the principles underlying the use of "overlays" in the printing of illustrations. Describe some of the more important photographic methods of making overlays suitable for use in the printing of type-high half-tone plates, and mention some of the difficulties which are met with. (50)

13. Can you foresee any extension which may possibly take place in the use of the three-colour process owing to different modes of printing from that usually adopted? Support your views by any facts which are matters of public knowledge. (50)

In the practical examination in honours, the subjects selected can include three-colour process, photogravure, colotype, or negative-making.

CHANGE OF ADDRESS.—J. F. Upjohn, photographer, Acton, W., has moved from 201, High Street, to temporary premises at 128, Churchfield Road, Acton, W.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents have been received between June 14 and June 19:—

PRINTING.—No. 13,972. Improved rapid printing and enlarging machine for printing photographs by artificial light. Hubert Frank Byerley, 4, Havelock Road, Southsea, Hants.

FILM.—No. 14,039. Improved cinematograph film and its process of manufacture. Reginald William James, 1, Queen Victoria Street, London, for the Compagnie Générale de Phonographes, Cinematographes, et Appareils de Précision, France.

DAYLIGHT-LOADING.—No. 14,081. Improvements in day-light loading roll films. John Owden O'Brien, 6, Bank Street, Manchester, for John Edward Thornton, United States.

GLAZING PHOTOGRAPHS.—No. 14,095. Improvements in or connected with apparatus for burnishing or glazing unmounted photographs and burnishing mounted photographs. Gordon MacDonald, Lloyds Bank Buildings, Canute Road, Southampton.

FILM PACKS.—No. 14,243. Improvements in film packs for use in three colour photography. Frederick Eugene Ives, 31, Bedford Street, Strand, London.

GLASS MEASURES.—No. 14,331. Improvements in measuring glass for dark-room purposes. Isidor Joseph, 322, High Holborn, London.

FILMS.—No. 14,343. Improvements in the manufacture of cinematograph films. Charles Dupuis, 18, Southampton Buildings, London.

COLOUR PHOTOGRAPHY.—No. 14,406. Process for obtaining photographs in colours. Reginald William James, 1, Queen Victoria Street, London, for Compagnie Générale de Phonographes, Cinematographes, et Appareils de Précision, France.

CINEMATOGRAPHS.—No. 14,407. Process for recuperating the material for the support of cinematograph films and waste portions of the same. Henry Danzer, 1, Queen Victoria Street, London.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

ENVELOPE PLATE-HOLDERS.—No. 11,779, 1908 (May 30, 1908). The invention relates to improvements in envelopes used to carry sensitive plates or films, before and after their exposure in a photographic camera, such as are described in Wishart's Patents, Nos. 10,097 of 1904, 15,958 of 1905, and 4,992 of 1906, to which envelopes the improvements are particularly applicable. The inner sheath of the envelope is provided at its open end with a strip or band, which extends entirely across the space between the side flanges, and forms a mouth for the plate to enter. This band is preferably formed in a piece with the side flanges in the process of stamping the part forming the inner sheath, and when the plate is in position it is deep enough to form a narrow flange along its top edge in the same manner as the side flanges act in respect to the sides of the plate, or the strip may be a separate part fixed to the side flanges.

In place of the paper tongue, hitherto used to form a stop to prevent the plate from shaking upwards out of position, is fixed a solid stop of cardboard, either on the inner surface of the back of sheath or on the inner surface of the band, as in patent No. 4,992 of 1906. In the latter case the band is cut at each side where it joins the side flanges, to form a flap, to allow of that part on which the stop is fixed to be turned outwards when inserting a plate, otherwise there would be a danger of the stop scratching the sensitive surface as the plate entered. After the plate is in position the flap is returned to its original position and the stop will just clear the top edge of plate and prevent its upward movement; the outer cover, being placed on, keeps the flap and its stop securely in place. In removing the plate after exposure the

reverse of the above process allows the plate to slide out of the sheath when the latter is inverted.

A further improvement is in respect to the inner blind which has hitherto been a loose part and has required a separate operation to place in position. This blind is permanently fixed to the outer cover so that, when adjusting the latter over the inner sheath, the blind slides on the outer surface of side flanges, instead of underneath as was formerly the case. The safety extension of blind projects below the opening of the outer cover and engages under the lower flange of inner sheath to ensure against light leakage at the joint.

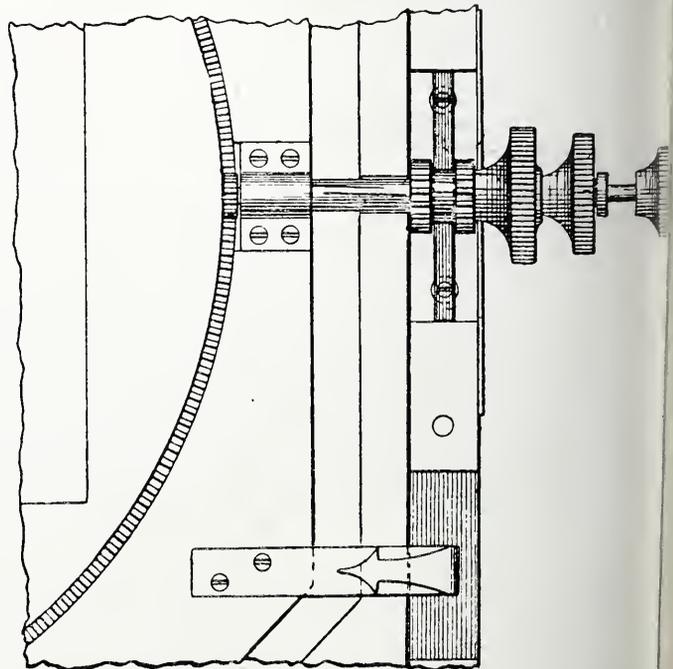
The inner blind acts as an intermediate protecting cover to the sensitive plate, and when represented by a loose or independent leaf it has proved somewhat troublesome to place in position, whereas by the plan of fixing this part to the inner surface of the outer cover it is always in position and at the same time renders the process of loading envelopes more simple. Edgar William Houghton, 88-9, High Holborn, W.C., and Houghtons, Limited, 88 and 89, High Holborn, London, W.C.

NEGATIVE CARRIERS OF ENLARGERS.—No. 18,640, 1908. (September 5, 1908.) The invention relates to the negative which is used in the stage of an enlarger or reducing camera for the purpose of giving the negative an up or down, sideway or circular motion by rack and pinion adjustment. It is now arranged to have the pinions operating these different racks all on the one axis, as shown in the figure.

For this purpose on one side of the inner or secondary slide a bearing for the spindle of the pinion is arranged which gears with the circular rack of the circular negative holder. The spindle terminates at its outer end in a disc-like head, by turning which the spindle is rotated.

On and near the outer end of the spindle a second pinion is mounted so as to be capable of a free or rotary motion thereon, the second pinion having a large flange or milled head by which it may be rotated in one or other direction on the spindle. The last-named or free pinion gears with a fixed vertical rack on the negative carrier proper.

A limited horizontal sliding adjustment of the inner or secondary slide is also provided by forming a screw thread on the outer end of the spindle and arranging a milled nut thereon, the nut bearing at its inner side against the head of the travelling pinion. By rotating the nut in one direction the spindle is drawn outwards



thereby giving motion in an outward direction to the inner slide. The reverse movement may be effected, when the nut is rotated in the other direction, by a spring or springs, but the spring springs may be dispensed with. George Lloyd Moore, Managing Director of The Midland Camera Company, Limited, Slater Street, Birmingham.

PRINT TRIMMERS.—No. 21,266, 1908. (October 8, 1908.) The invention relates to the trimming apparatus of Patent No. 2,922, 1899. It is now arranged to mount the oblique blade on the base board in such manner that it can be folded down when not required for cutting, thereby economising space in packing and making the apparatus more portable. The oblique blade is also provided with a spring which can be adjusted in tension, one end being secured to the blade and the other to the cutting board or base frame of the apparatus. The cutting board is also mounted by means of gudgeons or pivot pins in a slotted bearing or bearings in the base frame of the apparatus so as to provide for the ready removal thereof when desired. John Merrett, Trowbridge, Wilts.

FOLDING DEVELOPMENT BOX.—No. 21,684, 1908. (October 14, 1908.) The apparatus consists of a series of hinged walls which can be fastened together to form the box, which is provided with ruby window, sleeves for the insertion of the hands, etc. Nicolas Wladimiroff, 20, Boulevard Emile Augier, Paris.

EXPOSURE INDICATORS FOR DARK-SLIDES.—No. 4,243, 1909. (February 20, 1909.) When the photographic plate *m* is inserted in the chamber of the plate-holder, one edge bears against the strip spring *g*, which is compressed under the pressure of the plate and pushes the bolt *f* outwards. The hooked end is thereby

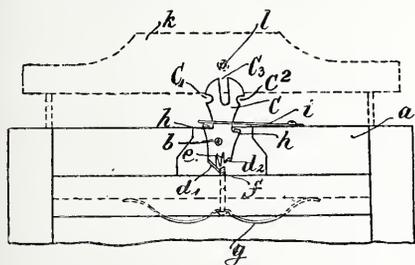


Fig. 1.

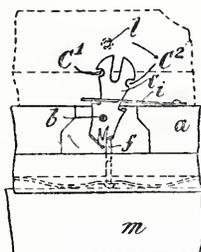


Fig. 2.

moved into contact first with the end of the tongue *e* and later with the edge *d*². The locking plate is thereby turned (Fig. 2) into such a position that when the shutter *k* of the plate-holder is closed, the pin *l* encounters the curved edge above the recess *c*¹, whereby the locking member is deflected in the direction indicated by the arrow out of the path of the bolt *f*, and the pin *l* snaps into a recess *c*¹. This condition of the locking member *c* indicates that the plate-holder is charged with an unexposed plate.

When the plate *m* is to be exposed, the locking plate is released from the pin *l*, and the shutter is drawn out, the locking member automatically adjusting itself under the action of the spring *i* into

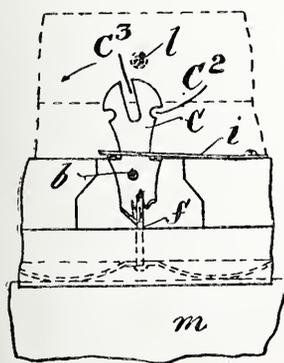


Fig. 3.

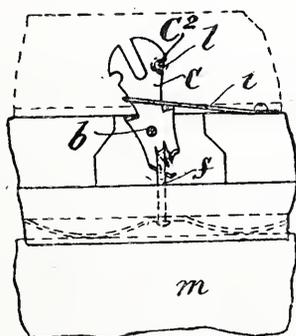


Fig. 4.

the position shown in Fig. 3, in which the slot *c*³ assumes an inclined position and the edge of the locking member located above the recess *c*² comes into the path of the pin *l* in such a way that on the shutter being pushed in after the exposure of the plate, the locking pin *l* snaps automatically into the recess *c*² (Fig. 4). When the plate-holder is emptied, the spring *g* is released, which draws back the bolt *f* and allows it to slide along the curve of the edge *d*¹, whereby the locking member *c* is erected and brought into the position shown in Fig. 1, in which the slot *c*³ lies opposite the pin *l*, so that the pin must pass into the slot *c*³ when the empty plate-holder is closed. W. P. Thompson, for Ernst Jähde, Schönborn, Nieder-Lausnitz, Germany.

DARK-SLIDES FOR TWO PLATES FACE TO FACE.—No. 11,816. 1908 (June 1, 1908). According to the invention the plates are ready packed face to face in a sheath, which sheath is carried in a special dark-slide serving to expose the plate in the camera. The sheath is formed as a shallow box, with one cover which fits round the sides into another cover, in a light-tight manner. A sensitive plate is fixed in each part with its surface outside so that when the parts are closed together the sensitive surfaces come close together and are preferably in contact. Means are provided so that the two parts can be easily separated for exposure of the plates, and afterwards closed together again.

A dark-slide for holding the sheath is also made in two parts in the plane of the plates, each part being provided with a sliding shutter over the face which joins that of the other, the back of each part preferably having an opening therein. One part is adapted to hold the complete sheath between its shutter and its back and to grip the outer part of the sheath. The other part is adapted to hold firmly the inner part of the sheath. The openings in the backs of the dark-slide enable the two parts of the sheath to be separated when the shutters are withdrawn, and to be closed again. After the parts of the sheath are separated, the shutters are closed and the backs of the two parts of the dark slide may be placed together.

With the parts reversed, the dark-slide can be used in a camera as an ordinary double dark-slide, or each part may be used separately as a dark-slide. Arthur Augustus Brooks, "Cranleigh," Park Avenue, Ashton, Cheshire.

DIAPHRAGM SHUTTERS.—No. 11,687. 1908 (May 29, 1908). The shutter comprises a casing having a ring journalled therein on ball bearings and carrying the exposure blades. A removable assembling plate is disposed between the shutter blades and the front wall of the casing (as has previously been proposed) carrying the mechanism for controlling the movement of these blades. A ring rotatable within the assembling plate carries the iris diaphragm blades whereby the size of the exposure aperture is varied, and detailed improvements are provided in the shutter-actuating mechanism enabling time, bulb, and instantaneous exposures to be made with greater accuracy and certainty than hitherto.

The shutter operating controlling mechanism which is mounted on the removable assembling plate comprises a master member, an operating trigger and bulb and time levers, each of these elements being broadly old but possessing detailed improvements, in particular a stop or projection being formed on the time lever adapted to engage the master member and prevent accidental operation of the exposure blades when the operating trigger is insufficiently compressed.

Moreover projections or stops are formed on the bulb lever also whereby the master member is locked and prevented from making comparatively instantaneous exposures when a bulb exposure only is required.

The springs controlling the movements of the master member and shutter blades are connected to the speed regulating device in such a way that when a shorter exposure is required their tension is simultaneously adjusted. The pivot points of the master member, operating trigger, and similar parts exposed to much wear are preferably formed with a bearing member at either end, in some cases operating springs being wound round such pivots and rotatable in position to the bearing members.

An indicator is conveniently provided which registers the number of exposures made. This indicator is either separately operated by hand or, as has previously been suggested, connected to the opening trigger, thus recording the number of times the latter has been depressed. Kodak, Ltd., for Paul J. Marks, Rochester, U.S.A.

CINEMATOGRAPH-PHONOGRAPH.—No. 9,419, 1909 (April 21, 1909).

The claim is for apparatus for indicating deviations from synchronism between two machines in action by means of two discs placed side by side and rotated independently on the same axis, in the same direction, each in connection with one machine, so that any difference of speed is at once indicated. It includes the arrangement of a pair of discs, the outside one of which is provided with an aperture through which different coloured signals or the equivalent upon the other can be viewed for the purpose of

obtaining synchronous action. Frederick Mayer and Arthur Edward Jones (trading as J. Bonn and Co.), 97, New Oxford Street, London.

New Crade Dames.

FAPOLA.—No. 312,575. Chemical substances used in manufactures, photography, or philosophical research, and anti-corrosives. R. T. Bruce and Co., Sitwell Street, Groves, Hull, manufacturers. April 27, 1909.

New Materials, &c.

“Invincible” Bromide Papers. Sold by F. E. Jones and Co., 22, Gray’s Inn Road, London, E.C.

A series of three varieties of bromide paper has just been issued by Messrs. Jones under the above name, the papers being glossy, velvet, and “cream semi-rough.” This gives a selection answering the majority of both professional and amateur purposes. The velvet paper possesses a most pleasing semi-glossy surface, very suitable for portraits and serving excellently for prints from which half-tone blocks are to be made. The “cream” paper has also an exquisite surface, not exactly rough, but of a faint texture which is very pleasing, the tint being a full cream which suits a warm black or brown (sulphide-toned) image. In the case of the glossy paper, a high glaze is obtained by stripping, and the paper develops without markings or lines. In all three varieties, the cleanness of working and sensitiveness are excellent, and fit the paper for both contact and enlargement work. Messrs. Jones will be pleased to send samples and particulars of prices on application.

Criterion Nonstress Bromide Paper. Made by the Birmingham Photographic Co., Ltd., Criterion Works, Stechford, Birmingham.

At the request of the Birmingham Photographic Company we have recently put to the test the new variety of their bromide paper just introduced. “Criterion” bromide we have known for long, and have been able to write in favourable terms of its general qualities. The makers, however, have doubtless done no more than re-echo the feeling of many customers in expressing their dissatisfaction with the paper as regards its toning by the sulphide method. Sepia and brown tones being now so largely produced on bromide papers and postcards, it has become as necessary for a paper to meet photographers’ requirements in this way as to develop with satisfactory cleanness and vigour. The modifications now made in the Criterion paper have led to an emulsion which is as rapid and as clear as its predecessor, and further gives as good a sepia tone as can be desired. We used the customary ferricyanide-bromide bleaching-bath and the sulphide solution, and were very pleased with the fine vigorous tones obtained on the paper. Thus modified, the Criterion paper may justly claim to possess all the properties which are regarded as desirable in a paper of this class, for, in addition to other notable features, it has the excellent property of giving no stress marks, a fact which we have recorded on a previous occasion, and is reconfirmed by our present tests of the “glossy” variety of the paper. In this toned bromide the photographer has an excellent substitute for P.O.P., whilst the matt and semi-matt papers, toned or untuned, serve admirably for the many varieties of portrait and other prints.

DEATH OF A SUCCESSFUL PHOTOGRAPHIC ARTIST.—On Sunday passed away, at Barnsley, Mr. Warner Gothard, photographic artist, founder of the firm in Eldon Street, and one of the largest businesses in the photo line in Yorkshire, aged 73. After studying as an amateur at his home in Littleport, Ely, he commenced business in Grimsby, with the glass positives, and in 1865 removed to Wakefield, where he was always to the front in every new process and improvement. He led the way in cartes de visite, the dry gelatine plate with imitation crayon drawings, the collodion dry plates (dispensing with the nitrate silver bath and iodised collodion, so injurious to the health of the operator). The deceased retired sixteen years ago to an estate he had purchased in Kent. Ten months ago he and his wife went to Barnsley, whither his family had removed. He leaves a widow, four sons (in the profession), and six daughters.

CATALOGUES AND TRADE NOTICES.

FALLOWFIELD’S PHOTOGRAPHIC ANNUAL.—We feel each year at a loss for new adjectives to apply to this annual landmark of photography. For the past twenty-five years we have personally had always at hand the yearly Fallowfield’s Annual, and we still find it an indispensable reference book and price list of all things photographic, and, as we have said of past issues, the most comprehensive encyclopædia of photographic apparatus and material a photographer can have. Like its forty-six predecessors—the Fallowfield firm points back to fifty-three years of honourable trading—the present Annual is very fully illustrated, is equally explicit in detailing the goods described in its pages, and apparently the compilers have succeeded in compressing the contents into a somewhat smaller number of pages, for which relief the present reviewer will be as grateful as anybody to them, for the physical exercise of consulting “Fallowfield’s list” in the whole course of a year must total to a considerable number of foot-pounds or other unit of force. The Annual is sent post free for 1s. 6d. (foreign stamps accepted from abroad), and those who are not able to visit large photographic establishments can take no better look over the goods of the time than in its pages.

PORTRAITS IN OIL COLOURS.—Art Photography, Ltd., Essex House, Leyton, London, E., have just issued a new list of portraits in oils from photographers’ negatives or prints at very moderate prices.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

SATURDAY, JULY 3.

United Stereoscopic Society. Outing to Hayes and District.
Hackney Photographic Society. Annual Sports.
Manchester Amateur Photographic Society. Ramble to Grindleford.

MONDAY, JULY 5.

Southampton Camera Club. Demonstration of the Arrangement and Copying of Still Life Objects. A. E. Henley.
South London Photographic Society. “Trimming and Multiple Mounting.” J. A. Lovegrove.

TUESDAY, JULY 6.

Kinning Park Co-operative Camera Club (Govan). Club Meeting.
Hackney Photographic Society. “Exposure in Landscape Work.” J. Linley.
Handsworth Photographic Society. Council Meeting.

THURSDAY, JULY 8.

Handsworth Photographic Society. Open Air Meeting at “Moorfields,” Church Lane.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.—At the annual general meeting, held on Thursday, June 24, the hon. sec. (Mr. Ernest Human) reported that the average attendance had largely increased during the year, and stated that he hoped that the increase would continue. The following gentlemen were elected to take office for the year 1909-10—viz.: Messrs. T. E. Freshwater and A. Haddon, trustees. Committee: Messrs. R. Beckett, C. L. Finlay, Chas. Greenwood, J. I. Pigg, H. C. Rapson, A. E. Smith, J. S. Teape, and the Rev. F. C. Lambert. Librarian: Mr. W. J. Ferry. Lanternist: Mr. E. T. Wright, Hon. Sec., Treasurer, and Recorder; Mr. Ernest Human, 43, Whitta Road, Manor Park, Essex. The hon. sec. will forward particulars of the association on application. Meantime, a hearty invitation is extended to anyone who would like to pay the association a visit at any of their meetings, which are held every Thursday, at 7.30, at “The Apple Tree and Mitre,” 30, Cursitor Street, Chancery Lane, E.C.

HACKNEY PHOTOGRAPHIC SOCIETY.—On June 22, Mr. Stuart Woodhouse gave a lecture and demonstration on negative retouching, and the use of megilp for improving bromide prints. In dealing with retouching in portrait work the lecturer said that the need for it should as far as possible be avoided. Suitable lighting, full exposure, and the use of orthochromatic plates with colour-screens would do much to render retouching unnecessary; but one did at times get negatives which were not perfect, and in such cases retouching could do much to improve them. He thought that a pyro-developed negative was better for retouching on than one produced by any of the developers which gave a black or blue-black image, as the pencil marks blended better with the brownish-black deposit. No more retouching should be applied than necessary, and portraits

of children should not be retouched at all. In using megilp to improve the surface of bromide prints Mr. Woodhouse said it was the outcome of many experiments with different substances. It has been suggested that megilp contained material that would be deleterious to the silver image, but so far he had found no ill-effects from using it. To brighten up the shadows of a print megilp is applied to the surface with the finger and rubbed in as evenly as possible, any uneven marking being subsequently removed by wiping with a piece of clean linen. Any amount of working-up may be done by applying pigment mixed with megilp, and it can be so spread and blended by means of the finger tip that in the finished result it will be difficult or impossible to see where pigment has been applied. The megilp treated surface will take blacklead pencil without the marks showing afterwards. Prints treated by the lecturer at the meeting proved fully all that was claimed for the method dealt with.

News and Notes.

LIVERPOOL AMATEUR PHOTOGRAPHIC ASSOCIATION.—The last of the series of summer exhibitions organised by the above society and held at their headquarters, 9, Eberle Street, opened on Monday last, and consists of a selection of pictorial work by members of the Linked Ring. The exhibition will be open daily from 10 to 7 (Saturdays 10 to 4) till July 17. Admission is free.

L.C.C. CONTRACT.—The Stores Committee of the L.C.C. has accepted the following tenders for the annual supply of lanterns and lantern accessories:—R. R. Beard, 10, Trafalgar Road, Old Kent Road, S.E., estimated value of goods to be supplied, £26; British Oxygen Co., Ltd., Elverton Street, Westminster, S.W., £117; W. Butcher and Sons, Ltd., Camera House, Farringdon Avenue, E.C., £66; A. Clarkson and Co., 63, Farringdon Road, E.C., £17; W. C. Hughes, Brewster House, Mortimer Road, N., £7; Reynolds and Branson Ltd., 14, Commercial Street, Leeds, £9.

PHOTOGRAPHS OF OMNIBUS DRIVERS.—In the House of Commons on June 24, Mr. C. Hay asked if, in the interests of the men, some other arrangement could be made instead of bringing omnibus, etc., drivers and conductors to Scotland Yard to be photographed. Mr. Gladstone replied: Only a triennial attendance at New Scotland Yard is required, and men may attend at their convenience on any day during the month preceding the expiration of their licence. This requirement does not appear to be too exacting, and it is not practicable to arrange for the men to be photographed elsewhere.

A NOTE TO SECRETARIES.—The Kodak Co. announce that they are now open to receive applications for the delivery of a new lecture, entitled "Large Prints from Small Negatives," by their Mr. W. F. Slater, before photographic societies during the coming season. The lecture will deal with the advantages of using a small camera for taking the original negative, and the ease and simplicity with which large prints may be produced from such. A practical demonstration of enlarging on Kodak bromide papers will accompany the lecture, and secretaries who wish to include this fixture on their winter programme should make early application for a suitable date to the Kodak Co., 57-61, Clerkenwell Road, London, E.C.

SEEING BY WIRE.—The "Politiken," of Copenhagen, announces that two Danes, the brothers Andersen, already known as inventors, have invented an apparatus by the use of which it is possible to see what is going on at the other end of a telephone wire. The technical details of this invention are so far kept secret, but the "Politiken" recently employed an engineer of repute to test the brothers' claim, and this expert declared the claim to be justified, and described the process as entirely new and very simple. The process differs from the Korn and other systems of phototelegraphy in that it makes no use of photography, but transmits light and colours directly. A speaker at a telephone fitted with the apparatus can be seen, and he can show anything he likes across the wires. The inventors are described as sons of a saddler of Odense, and are aged twenty-eight and thirty. They have been eight years at work on the invention.

"TRAVEL AND EXPLORATION" in its July issue maintains the high standard of interest of its preceding six issues. Perhaps the contribution of greatest photographic value is that by Clive

Holland, entitled "Through Wessex by Caravan," detailing the pleasures and vicissitudes of a ramble through Dorset, gipsy fashion. The figures of the cost for a holiday taken in this way may be particularly noted. Mr. E. H. Shackleton is the subject of a lengthy character study by Dr. Hugh Robert Mill, and other articles in the number are "Life on an East African Farm," by Lord Hindlip; "Life in a Mexican Mining Camp," by Mr. F. L. Bensusan; and the first part of an account of a journey to the Arctic shores of Canada by Miss Agnes Deans Cameron. There are sections devoted to Travel Literature, the Exploring World, Tourist Travel, Motoring in Many Lands, and Aerial Flight, while the illustrations include 16 pages of reproductions of photographs on art paper.

DEATH OF MR. G. W. MORGAN.—It is with great regret that we record the sudden death of Mr. George Wilson Morgan, Aberdeen, the well-known photographer, as the result of a fall from a corridor railway carriage south of Carstairs, last week. About one o'clock the driver of a goods train observed the body of a man lying in the six-foot way, about 400 yards south of Pettinain signal cabin. The body was immediately removed to Carstairs, where later in the day it was identified as that of Mr. Morgan.

It appears that Mr. Morgan had been travelling with another gentleman by the 7.50 p.m. express Aberdeen, which passes Carstairs about 12.27 a.m., and both of the men having fallen asleep, it is supposed that, on waking, the deceased had mistaken the carriage door for that leading to the corridor, and stepping out, had fallen from the train.

His companion on waking at Beattock, missed him, and, becoming alarmed, pulled the communication cord, and the train was brought to a standstill. A thorough search was made, but no trace of the missing man could be discovered, and the journey to Carlisle was resumed.

Upon the arrival of the train at Carlisle the companion was notified of the discovery at Carstairs, and journeying back by the next train, he duly identified the body.

Mr. Morgan was widely known for his group photographs of Royalty on Deeside and pictures of rural scenery.

CANVASSING AMENITIES.—Leonard Palmer, a canvasser, of Balham, was summoned last week for assaulting Mary Ann Desmond, of 38, Kender Street, Deptford, who in turn was summoned for assaulting Palmer. Frederick Desmond was also summoned for assaulting Palmer. Mr. J. C. Scard appeared for Mr. and Mrs. Desmond. Mrs. Desmond stated that about six weeks ago a woman called at her house and asked if she had any photographs which she would like copied, and that if so she would have them done free of charge. She gave the woman a photograph of herself, and later another woman called and brought a copy of this, but not the original. On the 10th inst. defendant came to her house and asked if she wanted the copy of the photograph framed. She replied in the negative, and asked him for the original. He told her that his people could not work for nothing, and struck her a severe blow on the eye, causing it to blacken. Mr. Jameson, a neighbour, deposed to stopping Palmer as he was riding away on his bicycle. Palmer denied that he struck Mrs. Desmond, and said she hit him, and that later the same evening Mr. Desmond came to his house and asked him why he had struck his wife. On his denying that he had done so Mr. Desmond struck him on the chest. Palmer was fined 30s. with 20s. costs or twenty-one days, and Mr. Desmond was bound over to keep the peace, the summons against his wife being dismissed.

THE LETO OUTING.—The staff of the Leto works held their third annual outing on Saturday, June 26th. The weather all through the week had been so unsettled that there was some doubt whether it would be possible for the outing to take place on the date fixed, but all doubts were dispelled when the clouds cleared away on Saturday morning, and sun and sky once more appeared. The main party started from the Works, Edgware, at 10 a.m. in brakes for Windsor, and were joined on the way at Uxbridge by the staff from the Castle Bar Works, Ealing, which have just been taken over by the Leto Co. The number was further augmented by some of the Head Office staff and friends, who proceeded to Windsor by train. All joined at Windsor a little before 2 o'clock, and after partaking of lunch the party broke up into groups, some proceeding to inspect the Castle, Eton College, and other places of interest in the famous Royal Borough, others going in for boating, while

others again found the cricket match between Winchester and Eton a great attraction. Tea was provided at 5.30, after which it was time for the return journey. Altogether a most enjoyable time was spent by all concerned.

Correspondence.

•• We do not undertake responsibility for the opinions expressed by our correspondents.

•• Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

THE SPEED NUMBERS OF PLATES.

To the Editors.

Gentlemen,—A Hurter and Driffield speed number should be one obtained by using their method in conjunction with their standards. The standard light being that of the standard candle burning under the conditions set out in their original paper, and the standard developer being one containing 8 parts of pyrogallol, 40 parts of sodium carbonate, and 40 parts of sodium sulphite in 1,000 parts of solution.

Speed numbers so obtained are strictly comparable.

But when different makers use different standards of light and different developers, the numbers so obtained are not H. and D. speed numbers, and are not comparable among themselves, as Mr. Biermann and many others have found out.

However, though the makers will not adopt a uniform system as to method, light, and developer, yet, fortunately for photographers, Mr. Watkins has done the thing for them by testing all their various plates on his system, and his numbers, as published in the successive Watkins speed lists, I find comparable among themselves, and reliable within the limits he mentions.—Yours faithfully,

48, Compayne Gardens, N.W.

W. B. FERGUSON.

To the Editors.

Gentlemen,—In reply to Mr. Watkins' criticism of my speed tests, I should like to point out that the plates under consideration were all "process" plates, and that the developer used is the one recommended by the makers, and is, in fact, the best one that can be used for the purpose for which the plates were made. So what is the use of testing with a developer that cannot be used for practical work?

With regard to the suggestion that the tests are only development speeds this was carefully guarded against by the fact that each plate was developed completely out, and then examined for half-tone dots only, not for density, and this I claim is the only true test of a "process" plate.

Now, I find on the latest Watkins speed card that these identical plates are marked as follows in the order of my tests: 16, 32, 24. The H. and D. numbers, it will be remembered, were: 15, 80, 95, so it will be seen that Mr. Watkins is totally at variance with the makers, and is much nearer to my results than the makers' figures, the exception being the H. and D. 80 plate, which is orthochromatic. This probably accounts for the high reading with the candle test, which is totally misleading when it comes to the rendering of printable half-tone dots.

With regard to the abnormal light, I take it that any light that can be used for the making of half-tone negatives would be abnormal by comparison with a candle; but why quibble at the means when we are both working for the same end?

Now, if you will allow me, I should like to make a few comparisons between the latest speed cards issued by the respective meter makers. I find eleven different makes of plates on the Wynne card, all marked $f/90$, which on the Watkins card are as follows: 4 are given as 250, 4 as 180, 1 as 130, 1 as 90, and 1 as 65. Then on the Watkins card I find 15 different plates marked 180, which on the Wynne card are marked: 4 as $f/90$, 8 as $f/78$, 1 as $f/64$, and 2 as $f/56$, and there are similar variations in all the other speeds.

I think, Gentlemen, that these figures speak for themselves, and show conclusively that there is just as much need for the standardising of the meter makers' speeds as the plate makers'. I have every faith in the H. and D. system as such, but it is the great variation in the rendering of the system that is at fault, and this is what we wish to get standardised.—Yours faithfully,

63 and 64, Ludgate Hill, Birmingham.

E. A. BIERMANN.

TRADE, PROFESSION, AND PHOTOGRAPHERS' COMPETITIVE METHODS.

To the Editors.

Gentlemen,—Your correspondent "Roco," in his denunciation of complimentary sittings, may or may not be right in designating the system as evil. Certain it is that such a diagnosis of the disease ruining the photographic profession of to-day is wide of the mark. One only needs to glance down the "Situations Wanted" and "Vacant" columns to see where the root evil lies. Clearly the cutting of prices is carried on at the cost of the underpaid and over-worked assistant.

The questions asked by "Compo" in your "Answers to Correspondents" column reveal a condition of affairs disgraceful to the profession.

Cannot an assistants' union be formed? The profession would have everything to gain by the formation of such a union. The P.P.A. in their own interests would do well to take the matter up, and you, Sirs, have unrivalled opportunities to lead in such a movement.

W. RIDDICK.

The Ark Studio, Bath Road, Melksham.

INTENSIFICATION MARKINGS.

To the Editors.

Gentlemen,—I have repeatedly got the markings mentioned by "Prof." in your last issue, when I have been interrupted during intensifying negatives. The easiest way to get them is to bleach the negative as far as it will go, and then slip it into a rather strong ammonia bath and let the negative stand while you attend to something else. Come back in a few minutes and you will probably find a very spirited plan of an imaginary estuary at low tide, with the chief channels and sandbanks crowded about that part of the negative you value most. However, if the patchy negative is now returned to the hypo bath, all the intensification will be taken out, stain marks too, and so, when the refixed negative has been duly washed the regulation time, it may again be intensified to any degree desired.

The danger seems to be in too steep a gradient in the ammonia blackening process, so it is safest to start with a very weak solution of ammonia, and keep the dish rocking until the bleached negative changes to a faint sepia all over, then it can be hurried up in a stronger solution if time is pressing.

Should "Prof." have a negative stained with fine lines that will not yield to the hypo bath, it is best to make a transparency and retouch them out, before making the second negative from it.

Lincoln.

A. F.

To the Editors.

Gentlemen,—I am greatly interested in the correspondence in the "Journal" with regard to "Intensification." I have had many years' experience in all the various branches of photography and have intensified some hundreds of negatives, but I have never come across the "markings" referred to by "Prof." My modus operandi may be helpful, and is as follows:—I am old-fashioned enough to use the good old pyro-ammonia developer in preference to the many newfangled developers, which may be all right in their way, and if I desire to increase the density of a negative I entirely free it from hypo by washing thoroughly. I then bleach the negative in a saturated solution of mercuric chloride to the required density, and then—and I think this is the great secret of successful intensification—well wash the negative in running water for quite twenty minutes, and then darken up with ammonia and water just strong enough to darken the plate in about a minute.

I think the cause of many failures is owing to insufficient washing and possibly to the use of too strong ammonia.

Trusting this may interest your readers,—Yours faithfully,

AN OLD PRO.

To the Editors.

Gentlemen,—I have been following the discussion on "Intensification Markings." May I be permitted to give my experience with regard to the above subject? Up to the present I have been unable to produce any of the markings referred to except by doing what no self-respecting photographer would do—namely, using dirty used up fixing and improper washing. My mode of operation is: After developing rinse well, fix in a clean fixing bath made of hypo 4oz. in water 20 oz., with a little metabisulphite, for not less than twenty minutes, then wash for twenty minutes to half an hour. I use a

ordinary "Rational" plate-washer. After washing I bleach in the mercury till the plate is clean white right through, then rinse for a minute or two under a tap, then blacken in the ammonia till lakened right through. After being thoroughly blacked, wash as usual. I intensify between two and three dozen negatives daily, and they all get the above treatment. I have negatives about two years old, which are as clean as the day they were made. I enclose specimen of the results obtained. This was done in July last year. I am, Gentlemen, your faithfully,
KENT.

Answers to Correspondents.

- All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
- For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

Watson, 34, Crown Street, Bury St, Edmunds. Photograph of the Colours of 5th Batt. Suffolk Regt. (Territorials).
Deacon, Dovecourt House, Main Road, Harwich. Photograph of Cat and Mouse taken from Life, entitled "Captured."
Turnbull, 30, Seymour Street, Crossmyloof, Glasgow. Two Photographs of Kilmanning Rangers Football Club; Groups of 12 and 27 respectively.
W. Collier, 339, Bolton Road, Pendlebury, near Manchester. Photograph of Dr. A. Dewes and Mr. E. Heywood in an Open Carriage.

PRIMUS LENSES.—I have just bought a "Primus" casket of lenses but cannot find any name on them. Could you inform me who the makers are as I wish to get proper combination for using them?—OAKSIDE.

Messrs. W. Butcher and Sons, Camera House, Farringdon Avenue, E.C.

PHOTOGRAPHING COLOURED OBJECTS.—It is desired in photographing some coloured objects to make some of the non-actinic colours give opacity in the negative. I find that in the usual way blue reproduces yellow on bare glass, now I desire opacity, or to print white; also green reproduces red on bare glass, now I desire opacity, or to print white. Can you inform me the special light filter and the special plate that will do this?—S. V. P.

If you want a yellow to be fully recorded on the negative, you must use a plate which is sensitive to red and to green, as yellow is made up of these two lights. Therefore, you will need a panchromatic plate, and if blue is being photographed at the same time, you will need to use a yellow filter, to absorb some of the blue light, to which the plate is specially sensitive. Otherwise you would get a complete exposure before the yellows had time to record themselves. If you want to record red, you must gain used a red-sensitive plate (Pinacyanol bathed) or a panchromatic and a red filter. If you have greens and blues to photograph at the same time as the red, then you can only use a yellow filter, which will permit the red to go through and also the greens, and if it is properly chosen it will admit sufficient of the blue to affect the plate, which has so much sensiveness to blue. That is to say, a yellow filter must be used that absorbs some of the blue but not all of it. Such a filter could be Rapid Filter K in weak strengths, or Brilliant Yellow.

EX MINIATURES.—Could you kindly tell me if in colouring small photographs as miniatures on ivory, further preparation is required after the photographic film is fixed on the ivory? I have tried miniatures of this kind, and my difficulty is that the water-colour paint does not stay properly on the film, but flakes off in places with the slightest touch. I think it possible something

may require to be done to the film, after it is on the ivory, before beginning to paint, and shall be glad if you will kindly tell me how to proceed.—PHOTO-MINIATURE.

We have not heard of this trouble before. All carbon pictures on ivory—and we presume these are what you refer to—are done by the double transfer method. The only way we can account for your difficulty is that there is a trace of the waxing compound, of the flexible support, on the surface of the carbon film. This can be easily removed by rubbing the picture over with a pledget of cotton-wool moistened with benzole before beginning the colour.

NEMO.—We are sorry that we are unable to say. Our own preference and practice is to avoid the use of such reagents.

BROMIDE PRINTS.—I should like to print some twenty or thirty heads, from separate negatives, on one sheet of bromide paper 4ft. by 25in. How could I do this without fogging any part of the paper, or getting unequal development from varied exposures?—MULTI.

You will need a special frame for the job, the full size of the bromide paper, and provided with a series of black paper masks with which you can cover all the space except that of one print. If you adjust exposures to be, say, 30 seconds at least you should have no difficulty in getting even prints. The work would be simplified by making a set of duplicate negatives sufficient for one complete row of prints across the paper.

RETOUCHING (Reply to "Kitty").—1. There is no need to criticise your prints separately. From the commercial standpoint they are excellently retouched, and with your other accomplishments we consider you fully worth the salary you mention—and more—if you can get it in these strenuous days of competition and cutting prices. Your time is good for the quality of the work, but we advise you to vary your touch more, and according to the nature of the study, and to avoid a tendency you have for a rather hard effect—make for softer blending and lighter work generally. You are also inclined to thin the nose; guard against this, and so retain the likeness more fully. 2. As you are paid a weekly salary you do not require to give more than a week's notice.

LUMBERMAN (Annprior, Canada).—1. Unfortunately, makers are all alike in persisting in giving the highest speeds. Your question, therefore, resolves itself upon other points—those of reliability and convenience in use, and we would name Nos. E and D. H is the same instrument as D. In our opinion E is worth its extra cost. 2. The multiple slit you allude to is very convenient in practical use, much more so than the doubly adjusted shutters (slit and tension), of which there are a good many examples here. The best system in our experience for a moderate range of speed is that in which the width of slit only is altered. In any case, it is important that the adjustment should be "makeable" while the shutter is set in readiness for exposure. In A, F, G, and J this cannot be done.

SKETCH.—If, as we take it, the lens is to be used on a stand-camera, we should advise one of 8 or 9 inches focal length, and at least $f/6$ aperture. Unless your work will lead you to very rapid exposures we should not advise a larger aperture than this. As regards the make, there are a great number of good lenses to be had, and we advise you to look up the price lists in the "Almanac." A list of the makers themselves will be found on page 1552 of the "Almanac."

COPYRIGHT.—I should be glad if you would let me have a reply to my question in your next issue, as the matter is urgent. Some time ago I invited, through the committee, some amateur performers to sit for photographs for a widow display advertisement. Since then a newspaper has reproduced one, and I wish to know if I can claim from them. I did not copyright the picture, as I understood it was not necessary, but it would need to be copyrighted before action could be taken. Is this so? I did not give photographs or anything to the party for sitting, but I sold copies at a reduced rate—viz., 12s. per dozen cabinets. My usual price is 18s. 6d. dozen. I did not make any stipulation at the time I did these that the reduced price was made, because I wanted to hold the copyright. Was it necessary to do so?—PYRO.

You are under a wrong impression. You cannot take action for

any infringement done before registration. All you can do is to prevent further sales; little use, we should say, if the paper is a daily or weekly one. Moreover, you should have obtained the agreement of the parties, in writing, to your retention of the copyright. In the circumstances, the best thing you can do is to lie low and say nothing. We advise you to study the Copyright Act, or the article upon it in the 1906 "Almanac."

COPYRIGHT.—I took some photos of a public procession and handed a number of copies, both postcards and half-plate, to a stationer for sale or return. A few days later a photographer called and asked my permission to make a copy of one, and as I was pressed for time, and, as a matter of courtesy I lent him the negative to do so. When he returned it he said he had taken only two copies and thanked me for the concession. Later, to my great surprise, I saw a copy of the best portion of that subject enlarged and evidently produced from an enlarged negative, the finish making it plain that the photographer had gone further than merely making the copies I allowed him to make. Further, the stationer has on his counter for sale copies evidently from the same source, without my usual mark, and which will probably be sold as my work. I have not registered the copyright, but what I desire to know is if I can, in spite of that enlargement claim the copyright for registration, or if I can at once stop the sale of copies not produced by myself, as I gave him no permission to make other than the two copies from the actual negative.—**DELUVIUS.**

As the photographer has no written permission from you to make the copies you can do as you suggest, but you cannot take any action in respect of infringement committed before registration, that is to say, in the case of copies made before registration it will be necessary to take action against the people who are now selling them.

A. W. TEAR.—Thanks for the article, on which we will comment later. The remedy you suggest offers, we are afraid, too much difficulty in the way of collection by the Government to be taken up.

DRY MOUNTING, ETC.—I have had a considerable amount of trouble in dry-mounting "carbon-surface" bromide prints. The trouble is they will not stick to the mount, which is usually art paper. I press them five or six times, but you only have to bend the mount back and off they come. I generally mount C.C., P.O.P., etc., at the same time, and find they go down splendid. The art paper, prints, and plates are thoroughly dried before starting, so dampness is not the cause of trouble, and the bromides are usually left till last. The heat of dry mounter is kept between 122-167 deg. Fahr., as directed in Dry Mounting Company's booklet. Any help you can give me on this point will be very acceptable. 2. Is sodium sulphite an acid, neutral, or alkali compound?—**A. R. B. KINGSFORD.**

1. It is usual to use a little higher temperature for a heavier coated paper, such as bromide, but your figure is about right. Try a longer dwell. 2. Sodium sulphite, though in a chemical sense a "neutral" salt, is actually alkaline (to litmus paper), and requires a certain amount of acid to neutralise it.

GLASS.—We can make no other suggestion except the use of the old glasses as opalines, now gone out of fashion, but perhaps capable of being revived in some quarters for sale. Fallowfield's supply suitable mounts.

H. C.—The address is: F. J. Fletcher and Son, 69, Durham Road, Sparkhill, Birmingham.

DIFFUSER.—1. Thin muslin. The joins will not show. 2. The diffuser usually needs to be about 4ft. square, but naturally its size depends on the distance it is found necessary to place it from the lamp.

DUSTING-ON PROCESS.—I have tried the dusting-on method for the local intensification of negatives as recommended by you in your issue of the 19th with some success. I am somewhat troubled, however, with the shadows coming up blotchy. They do not take the powder quite evenly. The only thing I can think of to account for this is that the graphite is not perhaps of sufficiently good quality. I have only been able to obtain what is supplied for lubrication purposes, and cannot obtain the electrotype graphite anywhere. I have used the dextrine-candy formula. Is this as

good as the other? Any further hints you may be able to give in connection with this most useful and interesting process will be much appreciated. I may say I take great care not to breathe on the negative while working.—**JOHN.**

Your trouble, no doubt, is due to the plumbago you are using. It should be in the finest possible state of division. A suitable kind may be had from Messrs. Penrose and Co., Farringdon Road or from Messrs. Hopkin and Williams, Cross Street, Hatto Garden. The formula you are using is a very good one, though the other is equally good. It is possible that the film was a little too moist when the plumbago was applied. You can scarcely expect to succeed with a new process with the first essay.

A. THORBURN AND OTHERS.—In our next.

VARNISHES, ETC.—1. I have been using for some time a negative varnish of celluloid and amyl acetate, as given in "B.J. Almanac" (but with more celluloid), and find that in machine-printing the negatives are easily marked with lines caused by the paper passing over them. These lines are not removed by cleaning off the varnish, as corresponding black lines remain on the film. Should be very glad to know of anything that can be added to the varnish, or of another cold varnish (not shellac) that will obviate this trouble. This varnish is very suitable otherwise. 2. Should be glad to know of a bath for removing abrasion marks on bromide paper. Cannot use one containing ferricyanide because of alum toning and hardening baths, and at present have to resort to rubbing.—**J. H.**

(1) We think you will have to resort to a shellac varnish if, as appears to be the case, the conditions call for a very hard film. You might try the varnish (cold) made up by the Vanguard Co. as "Vitrivine," which may be used in the same way as that you are now employing, and may possibly give a harder surface. If methylated spirit applied with cotton-wool will not read remove the marks, try the iodine cyanide reducer given on p. 10 of the "Almanac," diluting it with a goodly proportion of water.

MINIATURE PAINTING.—What is the best method of producing good permanent coloured miniatures, also a good process of colouring portraits, and where could I get good permanent colours for the (water-colours)? I have been using —'s colours for miniatures, and these look very nice when done, but colour soon fades when put in show-case. I have been using aristo-plat as a basis (well finished, fixed, and washed). I would therefore like to know of more permanent colours or processes both for first-class work, also suitable for colouring enlargements. Kindly state in answer where I can obtain good permanent colours.—**J. F. M.**

Undoubtedly the most permanent processes of photography are the platinotype and the carbon, and both are very suitable for colouring. The colours you have been using are coal-tar colours, many of which are more or less fugitive if exposed for long to a strong light. The most permanent water-colours are those used by artists' colourmen, and you would not find them fade in show-case if they are obtained from a good source, such as Winsor and Newton, Rowney, and similar high-class makers. The colours are used as in ordinary water-colour painting, and are the best for colouring enlargements.

METOL.—Taylor and Co., No. 1 Wharf, New Wharf Road, King's Cross, N.

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SUMMARY.

The Photographic Convention. The first part of the proceedings of the Convention, now being held at Canterbury under the presidency of Mr. H. Snowden Ward, F.R.P.S., are reported on pages 530 to 533. The president's address dealt with the oft-discussed subject of the relation of photography to art. Its dominant note was the need of a higher culture among those who claimed to employ photography as a means of artistic expression.

The group of members of the Convention taken on Wednesday afternoon last by Mr. H. B. Collis is presented as a supplement to this issue, the block (by the London Studio) having been placed in the printer's hands within a few hours of the exposure having been made.

Mr. Douglas Carnegie, in an article on page 528, describes one or two modifications of the method of making lantern slides direct in the camera by a reversal method. He employs the ordinary gelatine lantern plate and ammonium bichromate as the reversing agent. He adds some further notes on a convenient form of easel for use when copying from book illustrations.

Some notes on the manipulation of the "Ensyna" paper and of the use of the "Ensynoid" developer by Mr. J. Peat Millar appear on page 537.

Dr. R. A. Reiss has recently contributed a useful resume of the methods used by him in copying faded or partially burnt documents. (P. 533.)

A note on a principle which may be usefully borne in mind in making dust-proof receptacles for drying negatives or prints is mentioned on page 526.

Still another apparatus for the measurement of the speeds of shutters has been devised by Dr. R. Birkhäuser. The principle of the apparatus and a sketch of its construction are given on page 535.

Film cameras, tripods, and rotary printing machines appear among patents of the week. (P. 539.)

The thiocarbamide toning bath has been recommended by a German worker. (P. 525.)

Some further notes on the working of the albumen process, particularly in severe climatic circumstances, are given on page 527.

EX CATHEDRA.

Feats of Night Photography.

If we may judge from one incident which came before us on a recent evening it would appear that the enthusiasm of the night photographer may at times exceed his discretion. Passers down Piccadilly, London, will perhaps have noticed a window advertising some baths in the south of France. The chief object in the window is a piece of statuary which at night is illuminated, and then attracts a constant crowd on the pavement. Our night photographer, we observed the other evening, had taken his stand on the other side of the roadway, and was pointing the lens of a very businesslike Sanderson camera towards the statuary, intermittent glimpses of which he must have secured through the stream of vehicular traffic. We can only surmise that the fortunate man (was he a member of the S.N.P.?) had got Dr. Mees to provide him with a filter with an absorption band for motor 'buses and taxi-cabs.

* * *

The Simplest Combined Bath.

A recent short note in a German contemporary records the writer's satisfaction throughout a long period of time with a combined toning and fixing bath composed simply of hypo, water, gold chloride, and a certain proportion of thio-carbamide, or thio-urea as it is more usually named. The proportions recommended are 200 gms. of hypo, 10 gms. of thio-urea in 1,000 ccs. of water, to which the usual quantity of gold is added last of all. This permits of the prints being left in the bath for any reasonable time without detail suffering. Moreover, the bath may be used to exhaustion, and gives reddish to black tones, according to time of immersion. The writer, Dr. Carl Arnold, does not refer, however, to the necessity of retaining the prints in a faintly acid condition while the thio-urea is removed, otherwise decomposition may be caused by alkali in the water, just as in the case of hypo minute quantities of acid lead to the formation of sulphide compounds in the print. While we have not yet tried the process, it is necessary to say that from the chemical standpoint the correct use of both hypo and thio-urea in the same solution would appear to be an a priori impossibility except with the aid of some acid such as sulphurous acid, which does not decompose hypo.

* * *

The Speaight Exhibition.

Since previously announcing the invitation which Messrs. Speaight are making to photographers of every degree to visit their exhibition of "Fair Children" on July 21, we learn that some new portraits have been added, and the exhibition thus represents the most recent opportunities which Messrs. Speaight have had, or perhaps we should say have created, for making portraits of the little ones of European Royal families. However, as we have already announced,

the manner of the exhibition, quite as much as or even more than its matter, should be of interest to our professional readers, and in thus reminding them of the invitation we may perhaps correct a misapprehension which may exist in the minds of more than the one or two that have written us, namely, that admission to the exhibition on this occasion is, of course, without charge.

* * *

Measuring the Speed of Shutters.

A writer in a contemporary suggests that the speed of a shutter can very easily be ascertained by simply photographing a moving object, such as a train or cycle, as it passes the camera in a direction parallel to the plate, and he supplements the suggestion by instructions for calculating the distance through which the train has moved during the exposure, remarking that it is quite easy to ascertain the speed of the shutter if we know the speed of the train. This is, however, the crux of the problem as it appears to us, and the only suggestion that he gives with regard to ascertaining the speed of the train is that it should be timed during its passage between two points a measured distance apart. Presumably, this involves the use of a stop-watch. We can see no other way of doing it, while experience teaches that nothing but long continued practice enables one to use a stop-watch with any approach to accuracy. The method is described as requiring no special apparatus and no elaborate calculations, but this description hardly seems to fit the case. A good stop-watch is expensive, while a cheap one is quite useless for the purpose; and to ensure reasonable accuracy two watches would really be required, each being held by a person situated opposite the datum marks. Further than this, the subsequent calculations would not be particularly easy unless the rate of the train happened to be a convenient one for the speed of the shutter. All things considered, the old methods of the revolving bicycle wheel or the pendulum consisting of a bullet and a piece of string seem much less elaborate and far more likely to give satisfactory results.

* * *

Dr. Birkhauser on Shutter Speeds.

In the article which we translate on another page it will be seen that this method does not differ very greatly from that of Herr Paul Thieme, described in our issue of May 21. The apparatus is, however, rather less complex, while the method by which the speed of the revolving disc is controlled is noteworthy for its simplicity. It must be observed that this method could hardly be expected to be quite satisfactory excepting with very nicely constructed ball bearings to the disc axle. There is, it appears to us, one feature of these methods of measuring shutter speeds that is open to objection. It is essential to have a variety of speeds of revolution available, else too long an exposure produces a result in which the various dots of the record merge together and become indistinguishable. In this respect the "sine curve" methods all have a great advantage, for each unit of light effect falls on a different part of the plate, so that a large number can be recorded in one test. This is certainly an advantage when a variety of speeds have to be tested. Another point is also obvious. None of these recently advocated methods give even an indication of efficiency, and we really know very little about a shutter if efficiency is quite ignored. Sometimes a knowledge of this duration is of much greater practical importance, as we have pointed out before, but still it often happens that high efficiency is the essential thing. This is a trouble-

some factor to measure exactly, but the somewhat rough indications of it given by methods such as the one devised by Mr. Salt afford about as much information as is really necessary.

* * *

Dustproof Drying-Boxes.

Last week we referred to methods of drying negatives in a draught of cold air. One objection to any such method is, of course, the probability of the draught carrying dust on to the films, and in connection with this it is interesting to refer to a paper by Mr. T. Pridgin Teale read before the Society of Arts about seventeen years ago. In this paper he pointed out the impossibility of keeping dust out of closed boxes, when reliance was placed on well fitting joints alone. Indeed, the finer the fitting the stronger is the draught of air through the crevices, and the further is the dust carried. As every change of temperature creates a draught through all the cracks, the remedy was to provide large apertures through which the air could pass at low velocity, and to filter it through flannel during its passage. Here, it appears to us, we have a hint that may be turned to account for plate drying. The plates can be enclosed in a tin box formed of open frames filled in with flannel, while a current of air through the box can be ensured in several ways. Possibly the kitchen jack, to which we referred before, could be utilised with advantage. The box could be suspended from it and kept rotating, but a most efficient method would be the following: Make a long box with flannel sides and shape it so as to fit an ordinary window between the lower sash and the sill. The side of the box towards the room can be made to open and the plates can be carried in wood grooving fixed to top and bottom of box. Two or three hundred plates can be inserted in such a box made to fit a three-foot window, and the simple expedient of leaving the room door open will create sufficient draught to dry the plates in a very short time.

* * *

Cinematograph and Talking Machines.

Readers who study our Patents Column cannot have failed to notice the large number of patents that have recently been published relating to the synchronisation of cinematograph and phonograph, or gramophone. The difficulties have been very successfully surmounted in many cases, for we have seen a number of films with which the synchronisation leaves nothing to be desired, but we are distinctly of opinion that it would be very desirable as soon as possible to supersede the devices in which an indicator in full view of the spectators is employed. To the uninitiated the sight of a revolving indicator in the corner of the picture is puzzling, while it is irritating and disturbing to all, including those who know its object. In this respect improvement is very desirable and we may suggest also it is equally desirable to use coloured films in preference to monochrome ones. We all know the perfection to which coloured films have not been brought, while the appearance of monochrome figures that talk or sing is very incongruous and unconvincing. The results seen up to the present are, however, very encouraging, and we feel convinced that in a short time this style of entertainment will become very popular. The talking machine has already reached a high state of perfection, and so also has the cinematograph, if we judge it by the best films on view. A combination of the best results obtainable with the two machines should therefore give very satisfactory results, though the premature attempt to combine indifferent films with the talking machine is not likely to be advantageous in any respect.

PRACTICAL NOTES ON ALBUMEN PAPER PRINTING.—II.

It was mentioned at the conclusion of the previous article that after the sensitising bath has been in use for some time it becomes discoloured. With some papers it will become discoloured after a day's use; with others, more slowly. In any case if the bath has anything beyond a pale tint the paper sensitised on it will be more or less tinted, in which case great purity of the white in the prints must not be expected. Various methods of decolourising the solution have from time to time been suggested, but the simplest, and at the same time the best in practice, is to add to the discoloured solution—for the quantity given in this former article—three or four teaspoonfuls of kaolin and well shake for a minute or two. By the next morning the kaolin will have settled compactly to the bottom of the bottle and the solution will be as clear as when first made. The clear solution, or part of it, is then passed through a filter placed in another bottle. The same filter may be used over and over again if the first few ounces that pass through are given a second filtration. It is a good plan to return the bath to the stock bottle after the day's sensitising is finished and well shake it up, as it will then be found clear and bright for immediate use. The one supply of kaolin, if left in the bottle, will serve for a very long time.

If after use for sensitising the solution is left in the dish for an hour or two, and it is then required to sensitise more paper, it will be found that there is a scum on the surface, which scum will be taken up by the sheet of paper. Therefore, before being again used, the bath should be skimmed by passing the edge of a strip of blotting-paper over it, taking care that the paper is long enough to completely cover all parts as it is passed over.

It is desirable to keep a stock solution of nitrate of silver of a hundred grains to the ounce of water to replenish the bath with. This will generally be found to keep the solution up to its original strength. If it makes it stronger by the "Argentometer," as may happen by evaporation if the bath is left standing in the dish for long periods in hot weather, a little water must be added. If on the other hand the bath is found below its original strength, some crystals of nitrate of silver must be added.

Little need be said with regard to the printing, but it should be mentioned that if dark purple brown be required the printing should be carried further than if only light browns are desired. There is one other point that may be mentioned in connection with home-sensitised papers, more particularly for the benefit of those working in hot and dry climates. It is that the paper should not be printed in an abnormally dry condition; otherwise there is a difficulty in obtaining good tones, and the prints when toned are liable to become mealy in the toning operation. This state of things is likely to occur in this country in very hot weather, particularly when the printing frames and pads, as is very usually the case, are kept in the printing room where they become abnormally dry. In this case the paper will take quite a different tint in printing from that which it assumes under normal conditions, and it will also refuse to tone beyond a very light stage before it becomes grey and mealy. When this state of things is experienced the best remedy is to put the frames and the pads, exposed, in a damp place for the night, when they will generally absorb sufficient moisture to restore them to their normal state. This trouble is more likely to arise with paper of home sensitising than with the ready sensitised. The tint taken by the paper in the printing is somewhat dependent upon the particular chloride used in salting the albumen as well as on the degree of moisture the paper contains at the time of printing. For example, if two pieces of the same paper be

printed, one after complete desiccation (and of the frames and pads also), the other normal, and with frames and pads in their normal state as regards moisture, it will be found that there is a very material difference in the colour. It will also be found on toning that the former will not tone except to an unpleasant tint and will be mealy, while the latter will readily tone to almost any colour.

After printing, the free nitrate of silver must be washed out before the pictures are toned. Common water suffices for this. Two or three changes will be enough, that is if the third one has only a slight milkiness. If the paper is sensitised in the bath the formula for which was given in the previous article, and very warm red tones are desired, it is a good plan to pass the prints through a very weak solution of salt in water. This will change the colour of the prints to a yellow tint, and they will tone to a pleasing warm red brown. If the paper is sensitised on the bath with citric acid it is a good plan, after washing out the silver, to pass the prints through a solution of common washing soda, say a crystal about the size of a walnut in a quart or three pints of water, and then rinse in plain water. This neutralises any acid that may remain and greatly facilitates toning, especially to the purple stage. The treatment is also useful when using some brands of ready sensitised paper. The free silver having been got rid of, the next thing is the toning of the prints. There is a great variety of toning baths, though most operators have their pet formula to which they rightly confine themselves. We shall here give formulæ for one or two of the baths most generally used. One of the most favoured ones for general use is the acetate bath. It is well suited for warm red browns, and with rather deep printing, from vigorous negatives, rich purple browns may be obtained. The toning agent in all cases is gold, and it is convenient to keep the chloride in solution. A convenient strength is a fifteen grain tube dissolved in fifteen drachms of distilled water, one drachm then containing one grain of the chloride, at which strength it keeps better than when more diluted. The formula for the acetate bath stands thus:—

Acetate of soda	30 grs.
Water	8 to 10 ozs.
Chloride of gold	1 gr.

This bath must be made up at least twenty-four hours before it is used, otherwise it is apt to yield mealy prints. The bath may be used over and over again, if more gold be added from time to time, but the addition should always be made the day before the bath is next to be used. The bath should be kept in a dark place, as light would cause some of the gold to be deposited on the sides of the bottle. With this bath one grain of gold will tone a full sheet (22 in. x 17 in.) to a deep purple brown. Another bath which is a favourite with many is the phosphate bath:—

Phosphate of soda	20 grs.
Water	10 ozs.
Chloride of gold	1 gr.

This bath, unlike the acetate, may be used as soon as it is made, but it will not keep. It gives dark purple brown tones. A bath well suited for colder tones than either of the above is:—

Bicarbonate of soda	4 grs.
Water	8 ozs.
Chloride of gold	1 gr.

This bath like the phosphate is ready for use directly it is made, but it will not keep for many hours.

Albumen prints can be toned in a combined toning and fixing bath, indeed in the earliest days prints were universally toned by this method—though for theoretical reasons it is not to be recommended. Yet it must be

admitted that many of the pictures toned in it forty or fifty years ago, as regards tones and permanency, leave little to be desired. A very general formula for the bath was:—

Hyposulphite of soda	12 ozs.
Water	15 ozs.
Chloride of gold (in 2 ozs. water)	15 grs.
Nitrate of silver (in 2 ozs. water)	30 grs.

When the hypo is thoroughly dissolved the solution of chloride of gold is added by degrees with constant stirring and then the nitrate of silver in a similar way. The bath

should stand a day and then be filtered. In some cases, the prints, without washing, were put straight from the frame into the bath; in others the free silver was washed out. In either case the toning was a slow operation; in cold weather it would sometimes take several hours. With this combined bath there is no question that the prints are thoroughly fixed before they have acquired the necessary tone. It will be noticed that the bath is quite different from those now used for P.O.P. It contains no lead, alum, etc. It is simply water, hyposulphite of soda, gold, and silver, and the latter was often omitted.

THE PREPARATION OF LANTERN-SLIDES DIRECT IN THE CAMERA.

EXPERIENCE gained since the publication of my process for obtaining lantern-slides direct from the camera ("B.J.," October 23, 1908) has suggested several modifications in the direction of betterment which seem worthy of record.

The process as originally described (*loc. cit.*) gave reversed positives; furthermore, any fog or veiling that happened to be formed was deeper down in the gelatine film than the image, thus rendering its removal without degradation of the strength of the image difficult and precarious.

In accordance with a suggestion (made privately by Mr. Arthur Payne, and through the correspondence columns of the "B.J." by Mr. Fenske), the method of procedure has been modified so as to give non-reversed positives, which, as regards strength and pluck, compare favourably with the best that contact printing from intensified negatives can give; and furthermore, in the process as here set forth, any fog that may be formed (in cases of unsuitable primary exposure) is superficial, and so can be cleared away without difficulty or risk. The working conditions have been so definitely established and standardised that the process is now, I consider, "fool-proof."

Primary Exposure.

For the sake of constancy of illumination, and failing to command electric light, I always use an injector lime jet as the source of light. The exposure given for diagram work is ten seconds from each side of the camera body, the lens being stopped down to $f/11$. During exposure the jet is waved about just far enough behind the lens to prevent any direct light from entering it. I never vary the exposure. Whatever the scale of reproduction may chance to be (*i.e.*, whatever the camera extension employed), the same stated exposure is given. Though I presume it must be generally known, I have nevertheless never seen any specific allusion to the following simple deduction from the law of conjugate planes, taken in conjunction with the law of inverse squares, *viz.*, that if the source of illumination is at the anterior focal point of the lens and the time of exposure kept constant, the plate must always receive the same effective exposure per unit area, whatever the scale of reproduction may be. Of course, in actual working the locating of the light at the front focal point of the lens is impracticable, but in the case of a lens of short focus (5 in., say) there is no difference of practical significance in the densities of the negatives obtained, if, complying with the exigencies of the case, the source of light is moved back a short distance behind the lens and the precept of constant time for all scales of reproduction adhered to.

As in the Autochrome process, the plate ("photo-mechanical" or "process") is placed in the dark-slide so that the glass is in contact with the rebate, the diagram having previously been focussed on a reversed focussing-screen. Before placing the plate in the dark-slide the glass face of the plate should be examined for splashes of emulsion, and these, if present, must be wiped off. The object in stopping the lens down to $f/11$ is to minimise the effects of any small differences that may exist between the thickness of the plates and the focussing-screen.

Development.

The developer is compounded in accordance with the recipe:—

A.—Metol	24 grs.
Hydroquinone	90 grs.
Sodium sulphite	2 oz.
Potassium bromide	40 grs.
Water	30 oz.
B.—Sodium carbonate (crystals)	2 oz.
Water	30 oz.

For use, equal parts are taken of A and B. In very warm weather it is advisable to increase the amount of bromide. This developer is very well suited to intermittent work, as it has excellent keeping qualities.

Some surprise may be occasioned by the recommendation to include metol in the composition of a developer for a process in which extreme hardness in the negatives is the desideratum. The general practice in line-work is to use a simple hydroquinone developer; but such a developer necessitates the use of caustic soda as an accelerator, and caustic alkali is not at all suited to the process here described. The addition of a little metol permits of the use of hydroquinone with sodium carbonate as accelerator, and there is no objection to the carbonated alkali.

The exposed plate is placed, film up, in the developer, covered, and left for five minutes. At the end of development the image should be clearly visible on the film surface. The plate is now well rinsed in the dish for one minute, and then flooded with the reversing solution, in which the silver image is dissolved. When rinsing, the plate should always be temporarily removed from the dish, and the dish itself rinsed out. Otherwise solution is persistently retained by the capillary space between the plate and the dish bottom. This effect of capillary attraction is very manifest when washing (without removal from the dish) after using the permanganate reverser in Autochrome work.

The Silver Solvent Solution.

In my previous paper acidified potassium bichromate was recommended as silver solvent, but increased experience has shown the advisability of substituting ammonium bichromate for the potassium salt. Reference was made in the paper (*loc. cit.*) to a kind of opalescence, discernible by obliquely reflected light, produced in the film by the potassium bichromate bath. Such opalescence is obviated by the use of ammonium bichromate. The solution has the following composition:—

Ammonium bichromate	300 grs.
Nitric acid (concentrated)	3 drachms, fluid.
Water	40 oz.

Two or three minutes' immersion of the plate in this solution will wipe out the densest silver image. The plate, having been well swilled again for one minute after removal from the bichromate bath, is ready for

Re-Exposure and Re-Development.

Since during the re-exposure the plate must be exposed in the developer *glass side up*, provision must be made that the film itself does not come into contact with the bottom of the

developing dish. This is secured by sticking (by means of coaguline) narrow strips of glass on the bottom of the tray (preferably a black one) at either end, so as to act as small shelves for the plate. The previously used developer is poured into the dish; one end of the plate, itself held in a slanting position, is immersed, and then the other end of the plate gradually lowered, till it is completely immersed. This method of inserting the plate must be followed, for air-bubbles in contact with the film would be fatal. If the plate is first placed in position on the shelves in the dish and the developer then poured in, bubbles are a moral certainty. The plate is rocked in the developer for half a minute, the dish placed on the floor, and three-quarters of an inch of magnesium ribbon is burned at a vertical distance of 3 ft. above it. The plate is then left covered for five minutes, when secondary development will be complete. Fix in an acid fixing-bath, and wash.

When soft results are required (as, for instance, in making a slide from a photograph with a delicate range of tone gradation), magnesium light should not be used for the reversal exposure. In such cases the weaker light of a number 4 flat-flame gas burner is to be preferred. In my own practice the light from a gas pedestal, about a foot high, and standing on the table, is reflected by means of a mirror on to the plate as it lies glass side up in the developing dish. The mirror is clamped at an angle of 45 deg. to the vertical a foot above the dish, and the gas flame is placed some eighteen inches from the mirror. The light is kept on during the whole time of development, the duration of development being now regulated by inspection of the plate and the character of the slide required.

Reduction and Clearing.

Even if there be no appreciable fog, short immersion in a reducing bath always enlivens and brightens up a diagram slide. The best method of procedure is as follows: Place the plate for a minute or so in water to which enough potassium ferricyanide has been added to colour it distinctly yellow. Wash, and then immerse in a very weak hypo bath. If there has been fog or veiling of the background, and it is not yet removed, repeat the process. Do not expect the veiling to disappear in the ferricyanide solution. I find that this plan of applying the Howard-Farmer reducer in stages removes fog or veiling without detracting from the pluckiness of the image, as the employment of the mixed reducer is very apt to do.

Masking and Binding.

The paper mask is an abomination. Unless specially dried before binding up in the slide, it carries a lot of moisture, and is partly responsible for the dewing of slides when in the lantern. I mask my slides photographically, and thus ensure not only economy in time, but also an increased life for the slide.

The diagram to be copied is trimmed up square, and the copying-board on which it is supported during exposure is covered with the best black velvet. For the purpose of fixing the drawing to the board I at first used home-made drawing-pins (needle-points soldered into brass plates). These "pins" were made with large square heads painted dead black. They were fixed in the board so as to just cover and secure the four corners of the diagram. This procedure, of course, gave a masking of this shape:—



Lately I have adopted a far simpler plan of affixing the diagram to the copying-board—a plan which gives truly rectangular masking. Two thin slips of wood of the same

length as the board, and about 2 in. wide (I utilise that most invaluable commodity to the amateur craftsman, Venetian-blind slats) are bevelled off sharply along one edge. The slips are then covered both sides with black velvet, using Higgins' vegetable glue as adhesive. If the diagram is placed in position on the board and the covered laths be pressed on the board so that their bevelled edges slightly overlap the right and left-hand

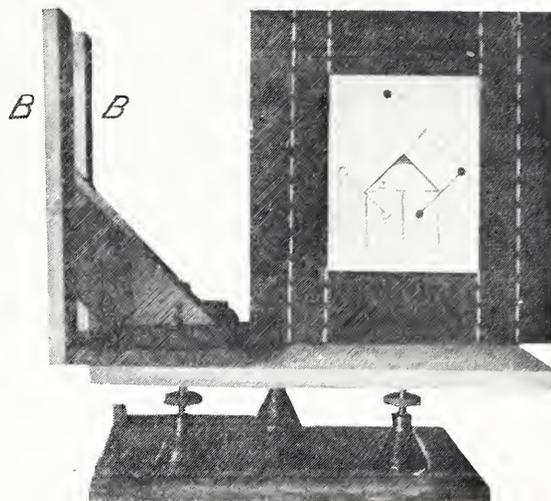


Fig. 1.

edges of the diagram, they will adhere to the board and firmly support the diagram, in virtue of the interlocking of the piles of the opposed velvet surfaces. Fig. 1 represents the copying-board with a diagram fixed thereto as described; the dotted lines touched into the print indicating the positions of the photographically invisible supporting laths.* Fig. 2 represents the arrangement of the board when copying from books. The method of supporting the book by the adjustable brackets B B is, I think, clearly enough indicated. The dotted lines again

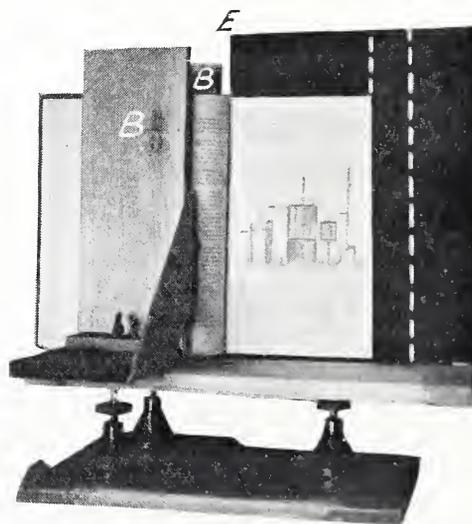


Fig. 2

show the position of the lath which is keeping the page taut and flat against the surface of the board. The hinder edge E of the board is bevelled off, so as to fit snugly into the angle that a reflexed book presents. By this device a perfectly flat page is expeditiously secured, and this without any detriment to the book. Unfortunately, there is no avoiding the ordinary paper masking in the case of copying diagrams which only form portions of a book page.

The conventional gummed binding-strip is a deeper abyss of abomination still than the paper mask. It is of little avail to dry your slide and its mask if the finishing touch on the

* The copying board as described is supplied to order by Messrs. Butcher and Curnow, Blackheath.

confection is the clotting it round with a substance of so hygroscopic a nature as gum. The adhesive tape sold for surgical purposes is a very efficient binder, but it is rather coarse and unsightly. The same objection of unsightliness and lack of finish unfortunately applies to the method of fixing the cover-glass by an edging of "Cementium" or Stickphast cement. There would seem to be a good opening here for the trade to supply an easily applied dry adhesive binding.†

In the method of lantern-slide making just described, both lantern plate and paper mask have been dispensed with; a future article which I hope to communicate shortly will describe how the mediacy of the camera itself may be eliminated in the preparation of full-scale positives direct from the print.

DOUGLAS CARNEGIE.

† Dry adhesive binding is supplied by J. Neubronner & Co., Cronberg-on-Taunus, Germany.—EDS. "B.J."

THE PHOTOGRAPHIC CONVENTION OF THE UNITED KINGDOM.

TWENTY-FOURTH ANNUAL MEETING—AT CANTERBURY.

THE Canterbury meeting of the Photographic Convention opened on Monday last under pleasant weather conditions, which, unfortunately, were not maintained on the following day, and at the time of writing it is difficult to summon up enough confidence, even in the vagaries of the English climate, to convince one that uninterrupted opportunities for photography are to be the privilege of conventioners during the remainder of the week. And that is to be the more regretted inasmuch as the practical side of photography figures more largely each year at meetings of the Convention. It would seem that the unpropitious weather of the past few weeks has had a discouraging effect upon those who usually make the Convention the occasion of a week's holiday, for the numbers which turned up at Canterbury on Monday were noticeably smaller than in previous years, a fact which is perhaps in some degree attributable also to the geographical position of this year's venue. However, under the inspiring presidency of Mr. Snowden Ward, the early part of the week's programme passed off with much success. Monday was devoted to visiting the many architectural and historical features of Canterbury. The evening took the form this year of a re-union, at which the presidential address was delivered, after which the annual general meeting of the Convention was held, this plan having the advantage that all the business part of the week's programme was disposed of at the start. Among those who assembled at St. George's Hall on Monday were:—Sir Cecil

Hertslet (Retiring President), Mr. and Mrs. Snowden Ward, Mr. and Mrs. E. J. Humphery, Mr. and Mrs. F. A. Bridge, Mr. and Mrs. A. W. Atkinson, Mr. and Mrs. T. K. Grant, Mr. and Mrs. S. G. Kimber, Mr. and Mrs. Walter Potter, Mr. and Mrs. Ward Thompson, Mr. and Mrs. J. B. B. Wellington, Miss Rosalind Goodey, Messrs. J. H. Baldock, R. R. Beard, G. Bingley, C. H. Bothamley, George E. Brown, F. B. Catley, E. F. Crouch, W. E. Dunmore, S. H. Fry, A. W. Green, F. W. Hindley, W. S. Hobson, C. Phipps Lucas, Thomas Manly, Sydney A. Pitcher, P. R. Salmon, T. A. Scotton, W. H. Smith, A. J. Snow, F. C. Starnes, T. B. Tompkins, Courteney Wells, Charles Winter.

At the opening of the proceedings, with Sir Cecil Hertslet, retiring President, in the chair, the Mayor of Canterbury, Mr. F. Bennett-Goldney, addressed a speech of welcome to the Convention, in which he referred to the useful part played by photography in making known such places of interest as Canterbury to those who might be led to visit them. He added that, as representing the citizens of Canterbury, it was a gratification to learn that on the first occasion on which the Convention had selected its own place of meeting it should have chosen the city of Canterbury.

Sir Cecil Hertslet, in then withdrawing from the presidential chair, conferred the badge of office upon Mr. Snowden Ward, who then delivered his presidential address. Votes of thanks to the Mayor and to others who had taken part concluded this part of the proceedings.

THE PRESIDENT'S ADDRESS.

(The following was the address given by the President of the Convention, Mr. H. Snowden Ward, F.R.P.S.)

My first words must be thanks, sincere and heartfelt, for the great honour you have done, and the great gratification you have given, to Mrs. Ward and myself. To some people, even in the photographic world, the presidency of The Photographic Convention of the United Kingdom may mean little: to us, and to all who really know the Convention and its members, the position means very, very much. The honour that one receives amongst one's own people is the great and the real and the appreciated honour, and we have learned to know the Conventioners so well that they all seem to be very specially and intimately our own folk.

With the honour came opportunity, with the opportunity a great responsibility, of addressing you, and through you the great world of photography which you represent. And with a full sense of that responsibility, the subject chosen has been Photography and Art.

To the old trite question,

"Is Photography Art?"

one must answer unhesitatingly, No! Photography is no more art than is painting, sculpture, the writing of verse, or that combining of noises into tunes which is often called music. In asking "Is photography art?" we begin with a question wrongly stated. I prefer to re-state it—"Can photography be used as

a means of artistic expression?" and to this the answer is unhesitatingly "Yes!" The man who hath real music in his soul is an artist, whether his means of expression be brush and paint, stone and chisel, or sun and sensitive salts; and I regard this as a fact to be stated rather than a subject to be argued about. Its demonstration to the world lies with those photographers who have pictorial aims. To-night let us consider briefly what those aims are, what are the means toward their attainment, and lastly—or perhaps firstly in this utilitarian age—"Is picture-making worth while?"

Many definitions of art have been given. For our present purpose let us hypothecate that art consists of

Seeing, Recording, and Suggesting.

All photographers are recorders. When they see, and suggest in any high, broad, noble sense, they are artists. The record, even the perfect record, is not necessarily artistic. Some of the earliest draughtsmen, working on lines which still appeal to the child, devoted themselves to portraiture. They showed the human head in profile, but realising that the normal face had two eyes, placed both of them, and a full front mouth, in the side of the head toward the spectator. Then realising that a full face without a nose looked odd, they drew a line between the eyes and mouth; and sometimes they inserted an ear



MEMBERS OF THE TWENTY-FOURTH ANNUAL PHOTOGRAPHIC CONVENTION OF THE UNITED KINGDOM.

HELD AT CANTERBURY, JULY 5 TO 10, 1909.

Negative by H. B. COLLIS,
The Studio, Westgate, Canterbury.

*Henry Greenwood & Co., Publishers,
24, Wellington Street, Strand, London*

THE
JOHN CRERAR
LIBRARY.

but not always. In some ways this kind of portraiture is a better record than the more normal form; for both the profile and the full face are interesting; yet it has been abandoned by general consent.

Another phase in the presentment of the human form was reached by certain Egyptian artists, who displayed the head in profile, the body and arms full front, the legs and feet in profile, walking the same way as the head. Another step in artistic evolution is represented by those Japanese works in which the head and body are shown as actually seen, but drawn as if they were flat, without any attempt at relief or roundness, without any real suggestion that the nose on a full face is nearer to the spectator than is the ear. We progress by stages to methods which suggest roundness, relief light-and-shade, and space between the sitter and his surroundings. This means a considerable advance towards art, but it is art of a mechanical, conventional class; and this is the highest that has been attained by most photographers.

The Beginning of Real Art.

is reached when one begins to see, and to record so that others can see, something beyond the mere physical facts, some hints of the inner, mental, or spiritual quality. At this stage we begin to realise that the subject is merely a means to an end, and that what we call a beautiful baby is no more pictorial than a wrecked old man. A picture does not mean a beautiful thing photographed, but a thing beautifully photographed. And pictorial ability depends upon insight, natural or cultivated, rather than upon technical ability. It depends upon the power to see beyond the obvious; upon the God-like power of sympathy which is not pity, but is understanding. Art sees beauty in the noble head of a fine old man who has done and triumphed greatly, or of a gentle lady who has suffered and been strong; but a greater art is that which sees the marks of struggle and of high aspiration in the degraded face of the man or the woman who has failed in life's fight.

Let us turn for a moment to the study of nature and of man's work as apart from man himself. Let us consider some of the differences between

A Picture and the "Usual Thing."

Photography, generally, is in the stage of the Japanese artist, who considers only the flat shapes of things. It depicts in landscape a certain amount of light and shade, but no roundness, and it ignores all effort at decorative placing and at beautiful or natural relations of its masses of light and dark. Beyond this point photographers are moving slowly. Many have already gone far beyond it. Let us take a concrete instance: the beautiful Bell Harry tower of the cathedral that stands near us. We know how it is ordinarily photographed. The picture postcards show it. We may see it bare and bald, rising above, but dwarfed by the lower buildings and the trees, often rising into a blank sky, sometimes almost lost in untrue printed-in clouds. And this sort of thing satisfied photographers for many years, while artists, who were not satisfied, blamed photography instead of blaming the men who misused our beautiful process.

When one realises that the tower has attributes of height, majesty, grace, and delicacy, one attempts to show these by selecting position, lighting, and treatment. To emphasise the tower and to subdue all competing detail becomes the object. The Prior's Green makes a good view-point: with the Dark Entry giving a rich gloomy base, from which the light, graceful tower appears to spring. When the subject is photographed in the ordinary way, whatever care we may give to exposure, development and printing, the result is untrue; even though many people may admire it and few may detect the untruth. The beauty of the Bell Harry tower in sunshine is when it shows white and filmy and lace-like against a deep blue sky of distinctly darker tone. In the print the tower is a light grey, against a sky of lighter grey

or white. It is not difficult to record the subject in its true values; the colour-sensitive plate and light-filter enable us to do that: but the study of nature that makes us realise the necessity for doing it is the artist's part.

If portraits may be treated to show character, landscapes may be made to typify peace, sunshine, prosperity, grandeur, or havoc; and architecture to show the ideas of worship and sublimity that inspired the cathedral builders, or the heroism and defiance of fate that are part of the very fabric of our historic castles. The maker of local views goes to Harlech Castle and gives us a print in which every stone is distinct, and the towers and bastions are smoothly lit and gently rounded. It can be properly described by the feeble adjective, "pretty," and it pleases the ordinary buyer of local views. But speak of Harlech Castle to the imaginative Welshman, who knows something of its long sieges, its stern defiance of the foe, its endurance of hardship and its times of triumph. Mention it to the man who knows that "Men of Harlech" was written during one siege, and set to the stirring, defiant strains of a tune composed during another siege by men who were in the front of the fighting; and while the thought of the great march quickens his every pulse, the vision of Harlech Castle called up in his mind is very different from that of the "local view" man. [I will show it to you, as imagined and recorded by Mr. George Davison.]

These thoughts raise the consideration of

The Equipment of the Picture-maker.

He should not only know something of history and of music, but also even of the history of music. In fact, he should know everything, and enjoy everything great and beautiful and noble—yea, he should even know the depths of sorrow and of disaster. A wide culture is demanded. No knowledge is useless. Every form of art, literature, poetry, music, history, architecture, anatomy, religion, politics, even engineering and manufacture, may be studied with advantage. But first and last and best and greatest of all is the reverent study of nature and of man. The question

Is Picture-making Worth While?

or should we not be content with excellent record work? is answered in the last few words. If it is worth while to associate with the best people, the best thoughts and the best aspirations of the world, then it is worth while to study and interpret, to see and to suggest, not merely to record in a mechanical way.

Photography may be a matter of teaching: art is a matter of education, which I prefer to call e-ducation, to remind us of the real meaning of the word. The drawing out, the cultivation, the unfolding of the best that is within a man is the making of an artist, and as he gives of his best to others he grows and gains for himself.

The Position of Photography amongst the Arts.

is destined to be a most important one, and it can never be too strongly impressed upon outsiders that what have been spoken of as the limitations of photography are really only the limitations of photographers. We have hardly begun to exploit the possibilities of our great versatile process. Even so, we have some achievements to our credit, and while there are many things in which we must long be content to learn from the great masters in other modes of expression, there are a few points in which I claim that the best photographers stand ahead of the popular successful painters of the day. In painted portraits that secure the highest prices and the chief places in exhibitions, one sees certain weaknesses that would be condemned if found in the work of the photographer, and I venture to claim, quite seriously, that to-day some leading portraitists might learn good lessons in (a) the placing of the figure within the canvas; (b) the proportion of the figure to its surroundings; and (c) the tone-harmonies of figure and surroundings, from the leading photographers. In these directions, at

least, our exhibitions of paintings show mastery quite inferior to that of Annan, Crooke, Hollyer, Furley Lewis, Hoppé, and several other British workers—not to mention many in other countries.

The Photographic Art Critic

demands a few words, and I hope for your pardon if, in talking of him I am talking "shop." He is badly needed in photography; and he needs to be more confident as well as more competent. His function is to interpret, to encourage. If he has to check the evil, it is only that the good may grow. He need not be an executant, and in my opinion he *ought not* to be an exhibitor or competitor, for he needs breadth of view and catholicity in the extreme, and it seems to me that the successful executant needs specialisation, which must give him bias in favour of the field of his own study. He needs insight, sympathy, and sterling honesty. Above all, he must be a seer. He should have facility of expression, for a single apt phrase may work an artistic revolution, as did the coining of the term "bald-headed landscape" to scarify the blank-sky abortions that too long satisfied the unseeing landscape worker.

Ultimately, the critic of photography will rank with the critics in other fields of artistic endeavour, and will use the same standards. He will compare the work before him with the best of which the process is capable, and will condemn what falls short. At present, however, he is beset by certain difficulties that are not fully realised by those who criticise the critic adversely. If he is not to quench the smoking flax of aspiration, he must judge leniently, and compare individual works with the achievement of to-day, rather than with the ultimate possibilities. And, while individuality and originality of thought are so rare amongst photographers, he must praise these qualities beyond their real worth, must exaggerate their value to encourage their growth. Thus he praises as exhibition prints many things which he could not recommend anyone to hang as home decoration or as "pictures to live with."

THE ANNUAL GENERAL MEETING.

The chief business of the meeting was the selection of the place of meeting for 1910. It was announced that the Council, as the result of several discussions of the question, had named Scarborough as a suitable meeting place for next year, and had added Nottingham as an alternative. Some short discussion on the merits of these two meeting places ensued, but, as pointed out by Mr. Godfrey Bingley, Scarborough provided very excellent facilities for a series of varied excursions, both to coast scenery, such as Whitby and Robin Hood's Bay, and to inland and architectural centres in Yorkshire. In the case of Nottingham it was further pointed out by Mr. W. E. Dunmore that most of the places which could be visited from that centre had already figured in the programmes of the Convention on the two occasions that it had held its meetings at Derby. An amendment that Nottingham should be the place of meeting was lost, and the original proposition that the 1910 meeting should be held at Scarborough was carried *nem. con.* Further

THE TRADE EXHIBITS.

Several of the leading houses in the photographic trade are represented at this year's Convention. The Platinotype Co. make their accustomed most effective exhibit of the results produced by this most beautiful of processes in the ordinary and "Japine" varieties. The photographs exhibited are of all descriptions of subjects, both portraiture and landscape, and the mounting and framing showed the great variety of ways in which the platinum print lends itself to effective presentation. More than this, the Company had prepared a little surprise. In outward appearance the frames, which hung upon a background of cloth, presented no unusual feature, but the mounting

He places more value upon an original effort that may be faulty in many particulars, than upon commonplace, tame work that is free from faults.

Of Photo-Pictorial Politics

a few words must be said, though to touch them at all is to invite misunderstanding and opposition. The one thing needful, as it seems to me, is the broadest possible catholicity, and the breaking down of all artificial barriers. The aim of an exhibition's management should be to obtain a strong, broad-minded board of judges, and to obtain entries representing every school and phase of pictorial effort. The aim of the exhibitors should be to support every exhibition that is on honest, catholic lines, regardless of whether any other exhibitor or school or society does or does not give it support. I know that great success has been achieved, and notable work done for photographic art on other lines, but the conviction remains that the broadest possible freedom must be the ultimate aim, that the best presentment of photography can only be gained by the selection of work from the whole field. We shall never place ourselves truly before the artistic world until faction is obliterated, and until exhibitions realise that they cannot afford to omit a work good enough for their selection committee merely because it may happen to be shown at another place at the same time.

In conclusion, may I repeat what I have often said to other meetings? I believe that there are in this room half a dozen people who have not yet taken up pictorial work, but who, if they would give as much time to it in the next five years as many a man gives to golf and many a woman to needlework, might take a position in pictorial photography higher than that of anyone save six or eight leaders in the present day. This I do believe most sincerely. And I believe photography to have such enormous possibilities in the pictorial direction as even painters and sculptors may envy. May it be part of the lot of many here to help in the realisation of these possibilities.

brief business included the re-election of the auditors, Messrs. C. L. Burdick and Alexander Corbett, and the election of a new member of council to fill the vacancy caused by the resignation of Mr. Bainbridge, who is succeeded by Mr. F. B. Catley, of Harrogate.

On the proposition of Mr. Godfrey Bingley, seconded by Mr. J. H. Baldock, the thanks of the Convention were given to Sir Cecil Hertslet for the great services rendered by him on the occasion of the Brussels meeting. Sir Cecil Hertslet, in acknowledging the vote of thanks, expressed the pleasure it had been to him to have been of any service to his countrymen and countrywomen on the occasion of their visit to Belgium.

The only other vote of thanks which figured in Monday's programme was that to the Secretary, proposed by Mr. C. H. Bothamley, seconded by Mr. E. J. Humphery, and received with every acclamation.

and framing had been so arranged that each print was illuminated from the back as well as from the front, the prints, without any special treatment, being mounted by the edges in cut-out mounts, or simply placed against these latter and appropriate apertures being cut in the supporting wall on which the frames were hung. With the ordinary front illumination the result of this extra light behind the pictures imparted a certain added richness, the difference being quite perceptible on the light behind being switched on, whilst if the front light was cut off the prints appeared to excellent effect as transparencies. The ready way in which a small exhibition, or series of panels of

prints, is arranged in this way suggests that photographers might frequently make use of a similar device as a window display, which would attract a good deal of notice.

Messrs. Wellington and Ward showed a series of prints and enlargements on the many Wellington bromide, gaslight, and print-out papers, which, like every previous exhibit by the renowned Elstree firm, served to emphasise the high qualities of these standard products.

Messrs. John J. Griffin and Sons exhibited prints on bromide and self-toning papers of their manufacture, together with apparatus of which they make a specialty, such as automatic enlarging lanterns, etc. One novelty just appearing on the market and not previously exhibited is a developing tank for plates which possesses one or two advantageous features. The grooves of the tank are made of double width, so that the plates are readily inserted at either end, a transverse guide passing down between the two sides of the groove serving to keep the plates apart. This little device thus allows of the

more ready insertion of the plates in the dark. The tank is also made so that it can be hung on a tap and used as a washer for the plates, and it has the further good point of being provided with means for delivering the developer down the sides of the tank instead of centrally, thus leading to more uniform action upon the plates. The tank is just being issued by Messrs. Griffin at the price of 7s. 6d. in quarter-plate size.

The Lumière Co. exhibit a large collection of Autochromes, most of which are transparencies made in France and showing the marvellously beautiful results to be obtained on the Autochrome plates. The transparency and brilliance of a number of these pictures show the qualities which can be obtained when the manipulation is in the most skilled hands. In the rendering of some of the quieter tones of landscapes some of these Autochromes are among the finest examples of the process. There are also one or two more striking effects, particularly one of a portrait by lamplight.

PHOTOGRAPHIC METHODS FOR DECIPHERING FADED OR BURNT DOCUMENTS.

[Among those who have specialised in the use of photography in reproducing writings, etc., on documents which have faded in the course of time, or have been damaged by fire, Dr. R. A. Reiss, of Lausanne, has taken a prominent place, and some of the remarkable results obtained by him have been seen in recent exhibitions. A recent issue of the "Bulletin Belge" gives a résumé of his methods prepared from papers contributed by Dr. Reiss to recent congresses of "documentation photographique" held on the Continent.—Eds. "B.J."]

AMONG the many great services which photography now renders in modern life, its use for the reproduction, or, rather, the reconstitution, of documents has become indispensable. The characteristic sensitiveness of the photographic plate allows of impressions being recorded which are invisible to the eye, and as a result traces of writing left in a document which has faded in the natural way, or has been tampered with, may be brought to light again by suitable photographic methods. Suggestions have been made, and have been put into practice, to treat such documents by chemical means, as, for example, with solutions of gallic acid, sulphide of ammonia, etc. Although these methods may at times afford good results, they suffer from the obvious drawback of injuring the original document, and in every case there is no necessity to make use of them in preference to a photographic process. The latter is sufficient to give the most conclusive results even without any chemical treatment of the document. Further than this, photography provides the only means of reconstituting written documents which have suffered damage by fire, a branch of work which is of great importance, particularly in criminal investigation. It may, therefore, be of service if a brief account of the most suitable photographic methods, many of which have been worked out by myself, should be given. We will deal both with the recovery of faded writing and of that in which a document has been more or less carbonised by fire.

Take first the case in which inscriptions have been removed by mechanical or chemical means, or have disappeared in a natural way as a result of storage in a damp atmosphere, etc. In either case the method is the same, but it may perhaps simplify the description to refer only to those of the first order.

Chemical Methods of Tempering with Documents.

When removing writing from a written document other means are employed than that of mechanical erosion. Among the chemical methods which are practised are such agents as oxalic and hydrochloric acids, applied by means of a brush, and subsequently removed with water applied in the same manner. A finely powdered mixture of sulphur and ammonium carbonate wrapped in a small muslin bag is also employed, the writing

to be removed being rubbed with it. Another reagent is chloride of tin applied with a brush, and solutions of sodium hypochlorite and of chlorine water are also used.

Copying Faded Inscriptions.

By the employment of these chemical means it is not difficult to remove every apparent sign of inscription, but in the majority of cases there results at the same time a change in the colour of the paper in the parts treated. The same thing happens in almost every case where writing has disappeared by natural process of time aided by keeping in improper conditions. This change of colour is frequently very small and imperceptible to the eye, but in the majority of cases it can be brought to light by the photographic plate. For example, the portions which have been treated, or where the writing has disappeared, will have become yellowish and a negative made on an ordinary plate will show this portion as of lesser density than the rest. Conversely, paper which had in the first place a faint yellowish tint and had been treated with a bleaching liquid will reveal the fact by the removal of the colour, a change which is shown in the plate by the greater density of the treated portion. As will be supposed, these operations are not as easy in practice as they look in theory, and a good deal of patience and many attempts are necessary before conclusive results are reached. The following is the method of working:—The document to be examined is placed in a printing frame behind a plain piece of glass. It is exposed to as uniform and intense a light as possible, preferably direct sunlight or the light of an arc lamp. A series of exposures on ordinary plates and with different times of exposure will show the operator the nature of the treatment which the original has had, or of the vanished writing. As already said, the part of the negative in question will be lighter than the remainder if a solution has been used giving a yellowish tint to the paper, whilst on the other hand the density will be greater where a yellowish paper has been bleached. The amount of the contrast in such cases may be intensified by using a blue filter, preferably a glass cell containing a solution of copper sulphate to which ammonia is added, giving a clear blue solution.

The negatives obtained in this way are printed on paper giving plenty of contrast. A very suitable print is the "Carbon Velox," or the special Rembrandt papers made for getting strong prints from weak negatives. Some further methods of increasing the contrasts are given below.

The Use of Enlargements.

All these operations serve not only to show markings produced by a chemical treatment of the document, but they disclose writing which has been removed by an eraser or by the destructive action of time. If all trace has disappeared so far as the eye can see, it is more than probable that minute traces of black ink or of particles of yellowish oxide of iron or other colouring matter remain in the body of the paper, and their existence may be brought to light by taking steps to record such minute differences of tint. In many cases it is advisable to make use of enlargement upon a considerable scale in accordance with the following method:—The original is placed in a printing frame along with some finely printed matter by which an exact focus can be obtained. It is strongly lighted by sunlight or arc light, and enlarged direct in the camera up to at least two diameters: all the better if the degree of enlargement is four to five diameters. The blue filter already recommended is used, and a normal exposure given. The most suitable developer is one acting slowly, such as ferrous oxalate. A negative having been obtained showing traces of the writing, a print is taken on paper. Frequently at this stage the writing is very feebly reproduced, and special means require to be taken in order to obtain a sufficient exaggeration of the contrast. This may be done, as has already been said, to some extent by a suitable choice of printing paper. Another means is to print through a yellowish or green glass, a method which can be used with print-out papers and with those which are developed. In the case of the former, exposure is commenced without the coloured screen, and as soon as a sign is seen of the inscription, the remainder of the printing is done with the coloured filter.

Increase of Faint Contrasts by Repeated Reduction and Intensification.

Intensification with mercury, as also reduction, may be used to intensify the contrasts, but about the best plan is to combine the two operations. The negative having been thoroughly cleared of all trace of hypo by means of a weak (1 per cent.) solution of ammonium persulphate made slightly acid with sulphuric acid, it is again washed, and, after drying, treated with the bichloride bath. The bleached image is then darkened with an ordinary developer, and, by properly adjusting the degree of reduction and of after intensification, this method will considerably increase the contrast.

Greater Contrasts by Copying.

But the best means for securing an increased degree of contrast is to make a second negative *viâ* a positive transparency. This allows of the first negative being retained intact as made in the enlarging camera. A positive transparency is prepared by contact on an ordinary plate, the weak light of a match burnt about twenty inches from the printing frame is used for the exposure, and a strong developer well restrained with bromide employed to get a vigorous positive, which, if necessary, may be intensified with mercury and a developer, reduced, and again intensified, as directed above. This positive will show a much greater contrast than the negative from which it was made, especially if a slow plate and ferrous oxalate developer be used. A precisely similar procedure is employed for printing a second negative from it.

One last method, very difficult in manipulation, but capable of greatly enhancing the contrasts, is to make a series of negatives from the same original and, stripping the films from the glass supports, to lay them one on the other. This is by no means an easy business, but results which I have obtained

in this way have been most satisfactory. Still one further method should be mentioned—namely, the so-called chromolytic process of Burinsky, in which the work is done by the wet collodion method. The manipulation is long and complicated, and can only be recommended to those making a specialty of this class of work: used with skill, however, it gives very striking results.

Preparing Partly Burnt Documents for Photographing.

There are many occasions on which it is very important to decipher writing from printed documents which have been accidentally or intentionally destroyed by fire. Obviously, this can only be done if the carbonised document has not fallen into pieces. Frequently the text can be read, but the document cannot be preserved on account of its fragility. In treating such cases the following process is employed:—The burnt paper is laid on a sheet of glass and carefully unfolded. As most papers cockle up whilst burning, the task of evening them out is surrounded with the greatest difficulties, but these may to a large extent be overcome by spraying the burnt paper (by means of an atomiser) with a fixative such as is employed for fixing crayon or pastel drawings. The particular fixative which I use is that of Dr. Schoenfeld and Co., of Düsseldorf. After this treatment the paper is much less fragile, and may be spread out on the glass by the aid of a couple of small soft brushes. When this has been done, the glass plate bearing the paper is placed in a printing frame and finally gently but strongly pressed between two glass plates. It is then in a state for copying by direct sunlight or strong arc light. In the case of writing inks composed of iron it will be found that the writing can be seen as dark grey on the black ground of the carbonised paper. On then exposing an ordinary plate, slow and restrained development with ferrous oxalate will give a satisfactory result. In the case of printed originals, or documents made in Indian ink, the writing will be as black as the ground. In this case the plate and its treatment are selected as already described. In cases where the writing has been produced by aniline inks, or by vegetable solutions, it will be found that at this stage there is nothing visible to the eye, but an orthochromatic plate and a coloured screen will give a negative showing traces of the inscription, the contrast being worked up by the means already mentioned.

Paper bearing writing done with an iron ink presents no difficulties in photography when the paper has been entirely calcined, not merely carbonised; the writing appears brownish on a white ground. However, an original of this sort is so extremely fragile that the mechanical difficulties of obtaining a photograph are very great indeed.

Copying Burnt Pencil Notes.

In cases where it is desired to obtain copies of a burnt paper on which writing has been done in pencil the photographer's task is by no means easy. The following method communicated to the International Congress of Photography at Liège some years ago has given very good results, and by means of it a number of pencil notes made on paper which had been burnt were successfully deciphered. The original is laid on a horizontal copying board, or, if it has become crinkled, is pressed in a printing frame; in either case the surface is placed at an angle of about 60 to 65 deg. to the axis of the lens. The lighting is provided solely and only by an incandescent gas burner provided with a reflector. This burner is placed to the side of the original remote from the lens, so that the rays fall upon the surface at an angle of about 30 deg. A yellow-sensitive plate is used. The rays are reflected by the inscription, and the latter can sometimes be faintly seen on the focussing screen. In the negative the inscription is thus obtained in black on a more or less transparent ground. A very protracted exposure requires to be given.

DR. R. A. REISS.

THE BIRKHÄUSER APPARATUS FOR THE MEASUREMENT OF SHUTTER SPEEDS.

[Since, in the review of the Dresden Exhibition, we made brief mention of the apparatus exhibited by Dr. Rudolf Birkhäuser, of Berne, we have received from him a description and seen from the translation which follows, is a modification of the method in which a rotating body or point of light is photographed on the stationary plate. Dr. Birkhäuser dispenses with the use of a scale photograph along with the rotating object, and obtains results to a very considerable degree of accuracy in the shape of points or dots on the plate, the number of which, in conjunction with the setting and speed of the apparatus,

allow of the time of the shutter being calculated.—Eds. "B.J."]

METHODS for the measurement of shutter speeds are divisible into four groups:—(1) By means of the kymographon, (2) photographing a falling body, (3) photographing a pendulum, and (4) photographing a rotating point or object. The first method gives the most exact results, but, on account of the complex nature of the apparatus, is only suitable for use in a physical laboratory. Methods 2 and 3 are the most simple in principle, but have found no extended use, since the final result requires to be calculated from a number of involved data. The use of a body rotating as uniformly as possible in a circle has been most largely adopted in practice, since it is readily carried out. A luminous point moving in a circle at a known uniform speed is photographed by means of the shutter to be measured, and in the resulting negative the length of the arc serves as a ready means of measuring the time that the shutter was open. This system, however, is not suitable for all descriptions of shutters, and is particularly unsuitable for the focal-plane shutter. With these considerations in view, I have endeavoured to design an apparatus which is fitted to give the uniform movement of a point in a straight line, this apparatus to have as simple mechanism as possible, to be readily manipulated, and to give uniform results.

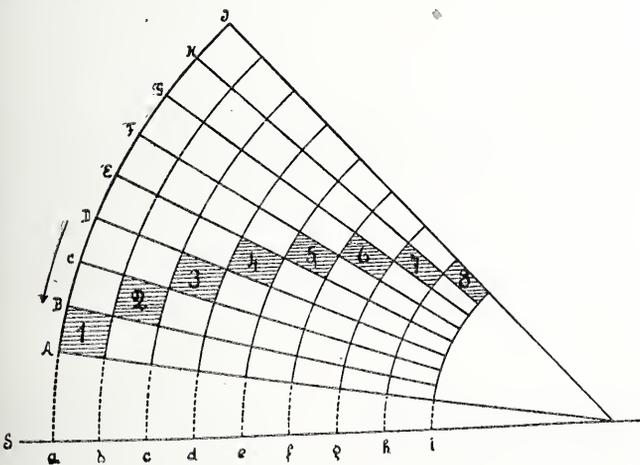


Fig. 1.

If a luminous point moves in a straight line at a uniform and known speed, it may be used as a test object for shutters of all kinds. If such a point is photographed during its motion, its image is a straight line, the length of which is a measurement of the time during which the shutter has remained open, the focal length of the lens and the distance of the latter from the object being known. In order to avoid unnecessary calculation, the point may be photographed along with a scale, but a still simpler method of arriving at the final result is to so arrange the straight line movement that the path of the point is broken up into a series of dots separated from one another by equal intervals of time. If such a system as this is photographed there is obtained on the plate a series of dots, each of which represents a certain unit of time. Taking as unit the time of 1-100th of a second, the exposure given by a shutter in the case of five dots recorded on a plate will be 5-100ths of 1-20th of a second. The apparatus now to be described is built on this plan, and thus supplies in a very simple way—simply the

counting of a series of dots—the means of determining the speed of shutters within a very considerable range. As shown in Fig. 1, the sector of a circle is divided by radii A to J into eight equal sectors. Concentric with the circumference of the circle are eight arcs of the circle a to i. If the circle is rotated at a uniform speed in the direction of the arrow, the radius A is the first to reach the line S, and the shaded area 1 passes S between a and b. As soon as 1 has disappeared the radius B arrives on the line S, and the area 2 passes between b and c, the process continuing in this way. As the divisions of the sector are equal, the same time is required by each in passing the line S—that is to say, each of the areas 1 to 8 require the same interval of time in passing the line S. Imagine now these areas 1 to 8 being cut out of a metal disc, and imagine also in place of the line S a narrow slit. If now these arrangements be placed in front of a light and put in rotation there will first be seen the area a to b, then b to c, and so on, each for the same period of time. If one second is required for all these sectors to pass by, the total distance a to i will be divided into

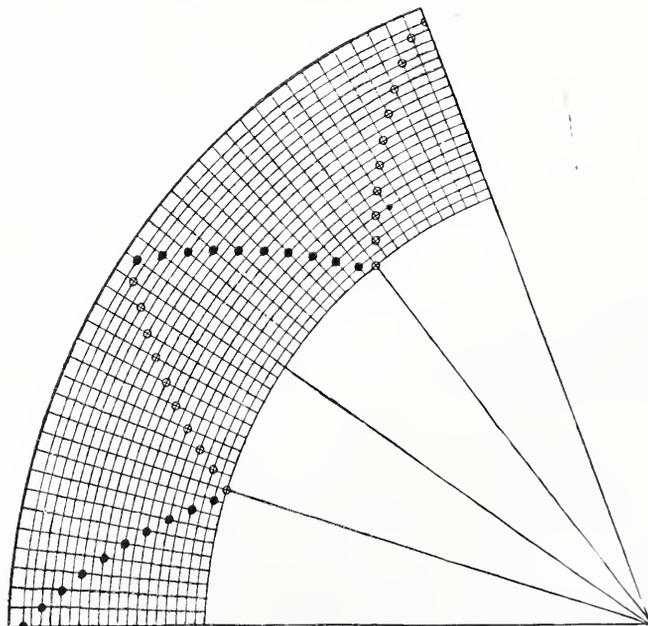


Fig. 2.

eight luminous impressions, each of which lasts $\frac{1}{8}$ of a second; in other words, each area of the series 1 to 8 represents the time of $\frac{1}{8}$ of a second.

It should here be mentioned that in practice a metallic sector of this kind is by no means an easy matter, and therefore the square apertures are replaced by circular holes of equal diameter. Since the separate sectors are only a small distance from each other, and since also the concentric circles take in only about 1-5th of the radius, it follows that the various apertures are necessarily very small, so that no error is involved in making them of circular instead of square aperture. In doing this the centre of each aperture is placed at the intersection of the radius and the arc of the concentric circle in question.

The division of the screen thus becomes that of Fig. 2. A circular surface is divided into 10 equal sectors (only 4 of which

are shown in the drawing), and these again subdivided, sector fashion, into 10 parts, so that the whole screen carries altogether 100 sector divisions of equal size. Starting from the circumference, there are 20 concentric circles placed at the same distance from each other. For the first sector (the lowest in the diagram, Fig. 2) the concentric circles 1, 3, 5, and 7, and the radii 1, 2, 3, 4, 5, etc., are chosen to form the centres of the circular apertures. We thus obtain in the first sector the 10 holes shown in black in Fig 2. In the next sector we take the concentric circles 20, 18, 16, 14, etc., in conjunc-

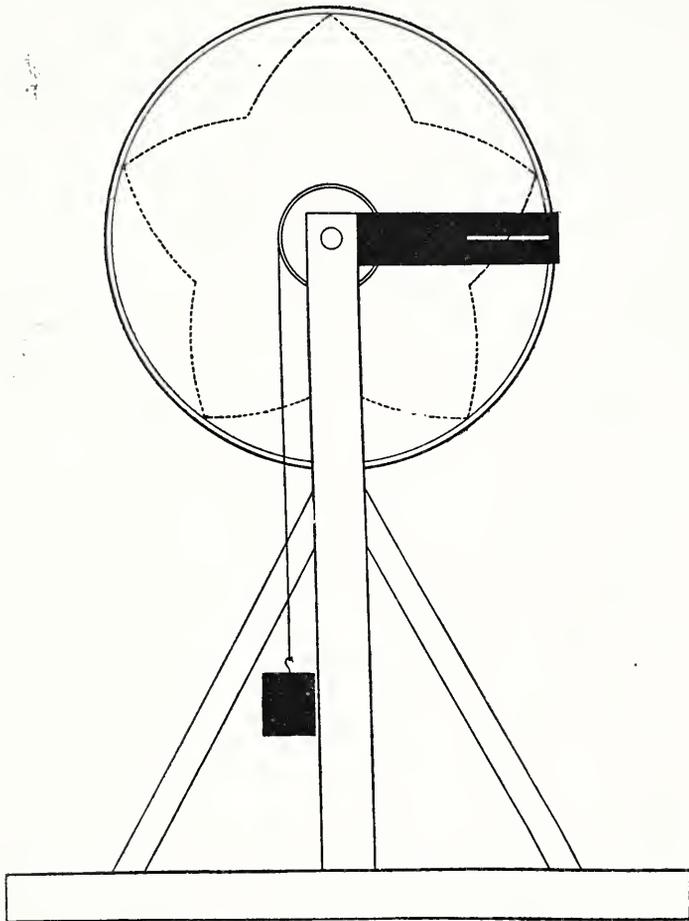


Fig. 3.

tion with the radii 11 to 20 to form the centres of the 10 apertures shown as white in Fig. 2. Sector 3 is constructed as sector 1, and sector 4 as sector 2, this alternation being repeated throughout the 10 sectors. If now this screen be rotated behind the narrow horizontal slit there first pass the holes of sector No. 1 in the order from left to right. The distance between each hole is a little less than the diameter of the hole. As soon as sector 2 arrives behind the slit its series of holes become visible through the slit from right to left, their images being formed on the photograph intermediate between those of sector No. 1. This arrangement makes it possible to employ as many as 20 holes for measurement, a point of considerable advantage. The process takes place in the way just described in the case of the other sectors.

The screen is perforated in this way, except that the 10 sectors are divided each into 25 sector portions, so that 25 holes come to each sector, or a total number for the whole screen of 250. That is to say, as many as 50 holes may be employed for measurement.

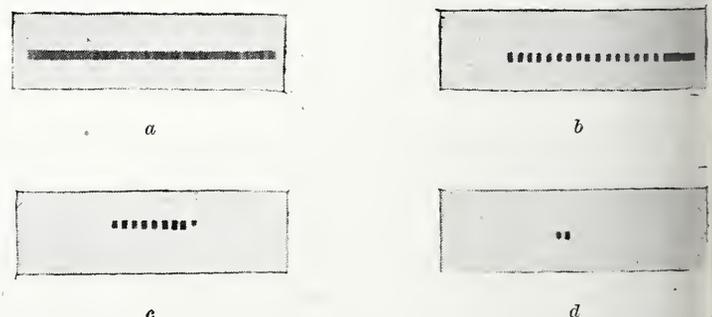
The screen is rotated uniformly in a simple manner. It is made about 43 cm. in diameter of stout metal, and mounted on a horizontal axis. To this a pulley with loose cord is firmly attached, and provided with a simple form of strong stop, so

that the disc can be held in any position. As motive power a weight is used, the cord by which it is suspended being wound on the journal of the disc. The weight being at its highest point is held by the stop, but when this latter is released, by pressure on a small lever, the cord unwinds from the axis, and the weight descends with increasing velocity. When the weight has almost reached the base of the apparatus, the string detaches itself from the axis, and the screen, which runs very lightly on its ball bearings, maintains for some seconds a perfectly uniform speed. The narrow horizontal slit is cut from a metal plate, and mounted as close as possible to the disc. On the other side of the disc from that on which the slit is placed a long mirror is mounted lengthwise on an axis, and the light from a clear sky thereby reflected through the holes of the disc, which, it will be understood, rotates between the mirror and the slit. Three different weights are used. The first gives to the disc at the moment that it detaches itself a speed of one revolution per second, the second one of two, and the third one of four revolutions per second. As the disc carries 250 holes, each hole thus represents the following spaces of time according to the speed of the disc:—

- 1-250th of a second at 1 revolution.
- 1-500th of a second at 2 revolutions.
- 1-1,000th of a second at 4 revolutions.

It will thus be seen that the smallest speed which can be measured with the apparatus as thus adjusted is 1-1,000th of a second, whilst the longest time is 1-5th of a second. If a still greater weight be employed, say one to give 8 revolutions per second, a speed as high as 1-2,000th of a second can be measured.

In making use of the method for measuring the speed of a shutter the apparatus is placed at a window or out of doors, and the mirror adjusted to reflect the maximum of light through the slit. For small speeds up to 1-100th of a second weight No. 1 is attached to the axis and wound up to the top position. A camera provided with the shutter to be tested is then brought as near as possible to the slit, which is focussed on the ground glass. The shutter having been set and a plate or film placed ready for exposure in the dark-slide, the weight is released and the disc set in rotation. As soon as the weight has descended on to the base of the apparatus the shutter is released, and on subsequent development the plate is seen to have been impressed by one or more dark dots corresponding to the holes in the disc. As already mentioned, each dot represents either 1-250th, 1-500th, or 1-1,000th of a second, according to the



- a. One revolution per second : 50 dots = $\frac{1}{10}$ sec., i.e., shutter speed $\frac{1}{10}$ second.
- b. One revolution per second : 24 dots = $\frac{1}{10}$ sec., i.e., shutter speed $\frac{1}{10}$ second.
- c. One revolution per second : 8 dots = $\frac{1}{10}$ sec., i.e., speed = say, $\frac{1}{20}$ second.
- d. Two revolutions per second : 2 dots = $\frac{1}{250}$ sec., i.e., shutter speed $\frac{1}{250}$ second.

Fig. 4.

speed of the disc. Examples of a number of records made in this way are shown in Fig. 4. The apparatus also serves for measuring the times of combustion of flashlight powders, which are fired behind the apparatus, the mirror being removed.

RUDOLF BIRKHAUSER, M.D.

THE USE OF A COPYING CAMERA IN LIBRARIES.

THERE is a short article in the current issue of "Photographische Mitteilungen" which emphasises a wish that has often been expressed by scholars and students who have occasion to make use of public libraries containing manuscripts and other documents. This is that in many cases time will not allow of an ancient parchment or other document being copied by hand or studied in the library, whereas if facilities were available for making photographic copies the labours of those engaged in research of this kind would be very greatly assisted. Our author, Herr Joseph Fassbinder, instances a case in which it was necessary for him to make copies of a large number of pages, for which purpose he provided himself with a

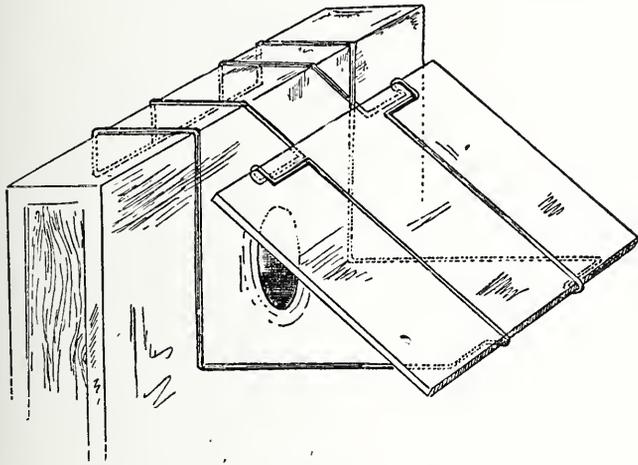


Fig. 1.

camera, to which had been fitted a reversing mirror by a simple attachment such as that shown in Fig. 1. This allows of the camera being placed on the edge of a table and the pages of the book to be copied laid on a shelf below it so that the photographic operations entailed no chance of damage to the document, whilst the pages could be more easily laid out flat and brought in position one after another for focussing. In undertaking work of this kind a changing bag is a necessity in places where no dark-room is at disposal close at hand. The exposures were made on a glossy bromide paper, each copy being thus obtained in white lines on a dark ground, a form of record which is even more suitable for the purpose of after study than that made in positive form by taking a negative and printing from it. If there is any difficulty in getting the printed page to lie flat a piece of plate-glass may be laid over it; but if this is not

necessary it is better to keep the page in position simply by means of short lengths of silk to each end of which is attached a weight, as shown in Fig. 2. With bromide paper of the rapidity obtainable commercially, exposures are possible of 20 to 30 seconds at an aperture of $f/18$, and the author states that with some practice he can make six separate exposures in ten minutes, including the reloading of his six dark slides. In doing a large number of pages from a single work it is naturally found most convenient to take first six right hand pages and then six left-hand, in order to avoid the trouble of re-focussing and re-adjustment on the ground glass. It was found that when reducing to about one-quarter the natural size the chief

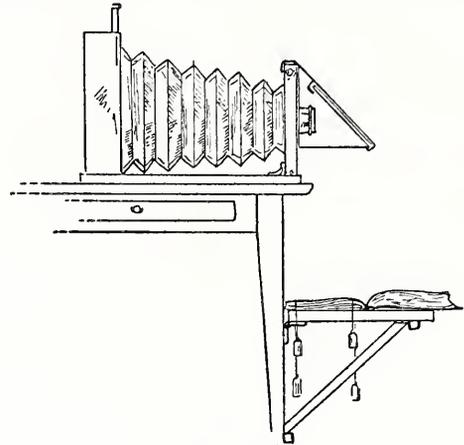


Fig. 2.

portions of the manuscript were decipherable with the naked eye, whilst some finer writing could be easily read by aid of a lens.

If it is wished, for purposes of reproduction, to obtain the copies in the positive form, the author transfers from the developer into a 3 per cent. solution of acetic acid, and after washing in running water dissolves away the silver image in copper-chloride solution. The bleached print is then given a short exposure to daylight, and placed back in the developer, a positive copy being then obtained in black lines on a white ground. After this the prints are washed and fixed in the ordinary way. It would seem that in many instances great use could be made of photography by many libraries if the very simple facilities which are necessary for work of this kind were provided and the opportunity given for students to make use of an apparatus kept at the library and placed at their disposal under any supervision which may be thought necessary.

"ENSYNA" AND "ENSYNIDS."

Of all that has been written with regard to "Ensyna" the greater portion has been with reference to its admirable qualities as a gas-light development paper, but it seems to have escaped notice that it can also be used for enlarging, and that if sufficient exposure is given first-class results may be obtained. When using daylight I have found that the exposure required for "Ensyna" is about as many minutes as one would give seconds to the average bromide paper. Development appears to take a little longer than usual, the chief difficulty being to prevent the paper becoming stained. If the dishes are clean these stains can always be traced to finger-marks. This difficulty, however, may be considerably lessened by adopting the following plan:—Instead of fastening the paper to the easel with pins fill a printing frame with a piece of white cardboard and focus on that, then remove the cardboard and replace with the paper, being careful to handle the latter as little as possible, then place the frame in the same position as when focussing and make the exposure.

"Ensyna" can also be used as a printing-out self-toning paper, and prints out in about the same time as ordinary P.O.P. With a thin negative the final result is rather flat, but a good strong negative gives a very satisfactory print, and from a negative inclined to print hard a better result may be obtained with this paper than with any other. Printing requires to be carried rather far, as there is a decided loss in the fixing bath. On being taken from the frame the print should be immediately plunged in the usual fixing bath, where

it at once assumes a decided good brown colour. After fixing and washing the tone of "Ensyna" prints may be altered to a considerable extent by placing them in an ordinary gold toning bath, where they take some time to tone and get, if anything, a little stronger in contrast. Although the fact that "Ensyna" paper can be used for printing-out is perhaps of no great advantage, still it is at times convenient to know that one has a paper at hand on which a good print may be obtained from a negative that by some mischance has been considerably over-developed.

"Ensyna" has been referred to as "a magic paper," but as no developer other than that supplied with the paper can be used in its manipulation it occurred to me that some of the "magic" might be in the developer. I therefore exposed a piece of Imperial glossy P.O.P. under a negative for about one-fourth of the time necessary to print fully, then placed it in water for a short time, and finally poured over it some very dilute "Ensynoids" developer. To my surprise I saw the print begin to develop and gain strength, just as if it had been a piece of "Ensyna" paper, and when finished it looked a good strong print, almost like a piece of toned P.O.P., but when placed in the hypo bath turned an odd greenish colour in no way suitable for a finished photograph. Several other pieces of P.O.P. were then printed to various depths, some being exposed for only one minute and showing a very faint image, both Imperial glossy and Ilford carbon-surface being used. All the prints developed up well without stain of any kind on the surface, though in some cases

odd dark markings were observed on the backs. After being developed, the prints were well washed and placed in a gold toning bath (Rae's "Okra" bath, which is rather energetic) for five minutes, washed, and fixed in hypo. When finished and dried the prints are of a brownish-grey tone, not unlike P.O.P. prints a little over-toned. The dilute developer used was: Water 1 oz., "Ensynoid" liquid developer 4 drops, or dissolve one A and one B "Ensynoid" tablet in 8 ozs. of water. A quarter of an ounce of this was taken and made up to one ounce with water. The final tone is not perhaps what every one would like, but I only give the results of my haphazard experiments and leave it to some one else better able to work out proper formulæ to give different and more agreeable tones. One thing at least is certain, that in "Ensynoids" we have a developer that will, without any additions except water, develop a piece of partly printed P.O.P. without stain. Some experiments with P.O.P. postcards showed that they were not so well suited for the purpose as paper, as a granular effect was produced on the surface, and a self-toning paper also tested did not develop up at all. J. PEAT MILLAR.

New Apparatus, &c.

The Watkins Daylight Time Tank. Made by the Watkins Meter Company, Hereford.

Several new and commendable features are embodied in this piece of apparatus. These apply quite as forcibly when the tank is employed for development by inspection of the negatives instead of when the instrument is used for the specific purpose for which it is made, namely, development by time only. In the first place, the rack, which holds a dozen plates, is made one with the cover of the tank, the racking being mounted in it so that the plates are held horizontally, not vertically, in the solution. The advantage of this arrangement is that when only one or two plates are to be developed they may be placed in the lower grooves, and thus a small quantity of developer only is needed; that is to say, while the full dozen of plates requires 18 ozs. of developer, two plates can be developed with 4 ozs., and further plates with an additional 3 ozs. for each two. The delivery piece of the tank which projects from one end serves, not only for admission and discharge of the developer,

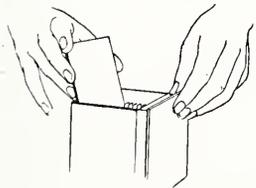


Fig. 1.

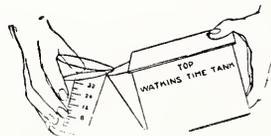


Fig. 2.

but also accommodates a thermometer, which serves to check the temperature of the solution. The tank is very substantially made, and, if care is taken to rinse it out and set it to drain after each time of use, will last for a long time, but it should not be forgotten that, like any other metal dish, if allowed to stand in a damp place, where any last traces of water will not dry up in it, its life will be considerably shortened. The arrangements of the rack make it very easy, we find, to load plates into it even in the dark, the edge of the empty rack, and afterwards the edge of each plate, serving as a guide for the insertion of the next. As we have said, this piece of apparatus is one of great usefulness in the dark-room as an economiser of time and space, and this, equally when working by time or by the method of inspection, which perhaps the more old-fashioned workers will still prefer to adopt. The price of the tank in the quarter-plate size is 5s.; it is also made in the half-plate size, holding 36 ozs. of developer.

The Watkins Time Thermometer. Sold by the Watkins Meter Company, Hereford.

Still another of the many pieces of equipment with which Mr. Watkins has provided the photographer is now introduced in the shape of this thermometer, which is unlike any instrument of the kind, inasmuch as the scales with which it is provided are not marked with temperatures but with times of development for certain developers and certain species of plate. Development being

more rapid the warmer the developer, it therefore follows that the scale is a descending one, and this fact should not be disregarded, otherwise a mistake may easily be made in reading the thermometer. For example, if the mercury stands half a division above 15, the reading is not 15½ but 14½. It will thus be understood that the thermometer represents a variation of the system of providing for differences in temperature in time development, the modified method being to develop for the time corresponding to a certain temperature and to make allowance for the differences among plates as regards speed of development by modifying the composition of the developer, that is, by using it at greater or less dilution. The thermometer itself contains a table giving the dilutions which must be taken for plates of the seven different classes and for four separate developers. These are the Watkins one-solution (time) developer, a pyro-soda and metol-hydroquinone developer (of which the formulæ are given), and, lastly, the one-solution commercial developer, such as Rodinol,



Azol, Certinal, and Victol. Also a separate scale on the thermometer gives the correct time for the various Kodak and Premo film tanks, with their appropriate Kodak tank powders. It will thus be seen that in this instrument the Watkins Meter Company have endeavoured to provide the amateur worker with a method of controlling his results, which involves nothing more than the reading of the simple leaflet of instructions, and relieves him of the necessity of keeping his dark-room or his developer at a normal temperature. At the same time it must not be overlooked that the times given on the thermometer and in the leaflet are for a certain degree of contrast, and workers who may wish to produce negatives which depart more or less from this standard must make one or two experiments for themselves in order to know what allowance must be made in reading the thermometer or in diluting the developer. While the modified system, therefore, is a distinct gain to the careful worker, it does not thereby prevent him from adjusting the conditions of his work in accordance with the type of negative which he wishes to produce. In all cases, too, an exposure which is practically correct must be assumed in using these methods, and on that account beginners who would make the most of the later forms of assistance which the Watkins Meter Company offer them must not neglect the use of an exposure meter nor the study of the Watkins Manual. The price of the thermometer in a wooden case is 2s. 6d.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications have been received for patents between June 21 and 26:—

CINEMATOGRAPHS.—No. 14,472. Improvements relating to cinematographic lantern accessories. John Weightman, 75, Warwick Street, Middlesbrough.

OPTICAL LANTERN.—No. 14,482. Improved optical lantern for projecting opaque objects. Frederick Charles Meyer and Herbert Dickinson, 112, Stamford Hill, London.

PHOTOGRAPHS.—No. 14,484. Improved surface for photographs. Alfred Herbert Pearce, 14, Baches Street, London.

PRINTS.—No. 14,502. Improved method of preparing photographic prints. Gustav Kogel, 18, Southampton Buildings, London.

SHUTTERS.—No. 14,509. Improvements in or relating to photographic shutters. Henry Frank Purser, 8, Quality Court, Chancery Lane London.

COLOURING FILMS.—No. 14,743. Improvements in processes for colouring cinematographic films. Reginald William James, 1 Queen Victoria Street, London, for Compagnie Générale de Phonographes, etc., France.

COLOURING PRINTS.—No. 14,824. Improvements in processes for colouring photographic prints by previously toning. Reginald

William James, 1, Queen Victoria Street, London, for Compagnie Générale de Phonographes, etc., France.

ANIMATED STEREOSCOPY.—No. 14,834. Improved process and apparatus for obtaining and observing animated stereoscopic views. Louis Joseph Emmanuel Colardeau and Jules Richard, 11, Southampton Buildings, London.

CAMERAS.—No. 14,883. Improvements in photographic cameras. Otto Halbach, 53, Chancery Lane, London.

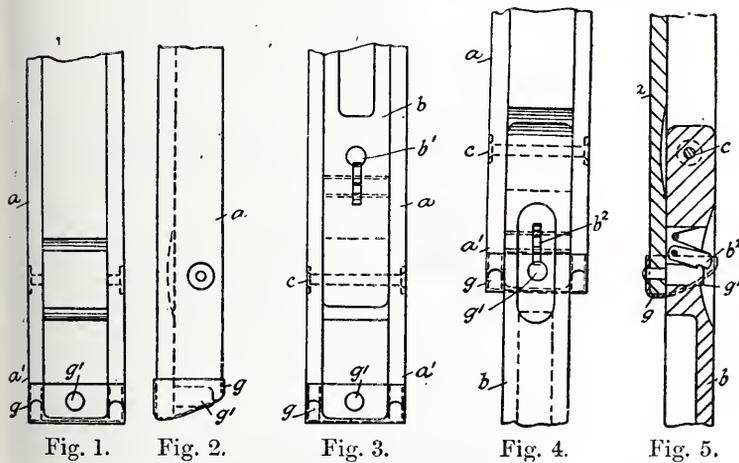
CINEMATOGRAPHS.—No. 14,950. Process for neutralising the band supports of cinematographic films. Reginald William James, 1, Queen Victoria Street, London, for Compagnie Générale de Phonographes, etc., France.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

TRIPOD LEGS.—No. 5,159. 1909 (March 3, 1909). The invention is an improvement of that described in Patent No. 19,198, 1908 ("B.J.," January 8, 1909, p. 29). The sections of the tripod leg are now made of channel or U shape. The end *a'* of the lower end of section *a* of a tripod of channel form, within which another section *b* is folded, is inserted in a metal shoe *g*, the shoe extending along the bottom and clipping the sides of the section, which are thereby rigidly retained and are not forced out by any lateral pressure. A stud *g'* is fitted in the centre of the shoe *g*, which when an extension as *b* is turned over will enter the hole *b'* in



the extension as shown in figs. 4 and 5, and retain it in position, a spring catch *b²* or an equivalent preventing it being withdrawn until the catch is pressed back when the leg is required to be closed. We may if preferred place the spring catch *b²* on the opposite side of the stud *g'*. By these means the several sections of the legs can be opened and closed instantly, and perfect steadiness of the tripod when the legs are extended and in use is ensured. John Wilkinson and Alfred Wilkinson, of St. Oswald Street, Rochdale Road, Manchester.

PORTABLE DEVELOPING CHAMBERS.—No. 668. 1909 (January 11, 1909). The invention is a box having an open top, an inner cover of coloured transparent celluloid closing the top, an opaque cover hinged enclosing the inner cover, the outer cover being so arranged that it may be closed while handling the dry plates and open while printing. There is a combined lens, shutter and focussing apparatus in one of the walls of the box, and an adjustable plate holder arranged in the box and behind the lens. John Bunyan Willyerd, 3726, South Jefferson Avenue, Saint Louis, U.S.A.

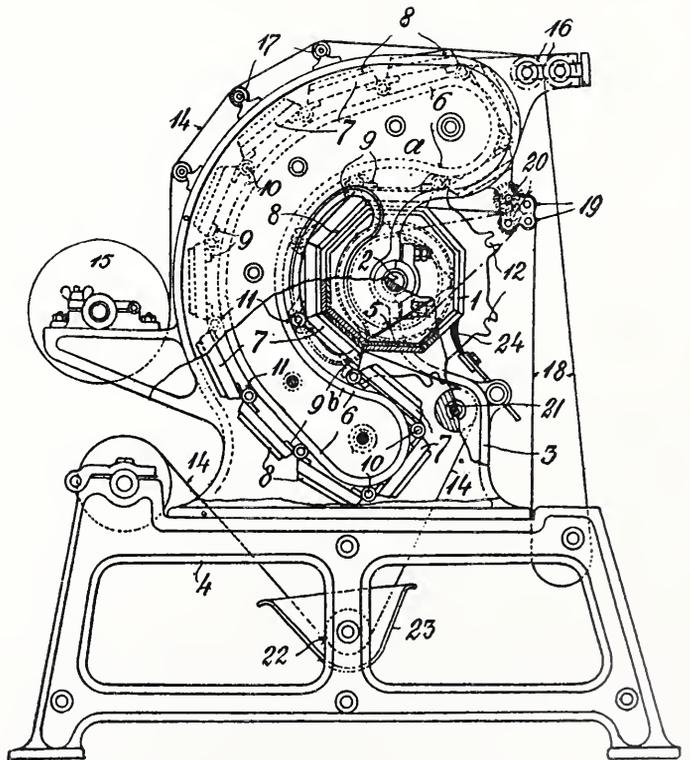
FILM CAMERAS.—No. 14,828. 1908 (July 13, 1908). The invention relates to a removable back for roll-film cameras provided with yielding pieces adapted to engage the film and flatten its edges against bearing surfaces on the camera. The whole surface of each film is thus maintained in the focal plane of the lens. A further object is to provide a simple device for supporting a photo-

graphic plate within the camera when it is desired to use a plate instead of films.

Yielding pressure pieces, preferably in the form of parallel strips of resilient material, are supported on the inner side of the back. These strips project inwards to an equal extent and are normally in contact with the bearing surface for the edges of the film. They are curved slightly in cross-section and are so mounted that a brushing contact is maintained between the rear surface of the film (or its backing) and the faces of the strips. When it is desired to use a plate instead of a roll-film, the plate, instead of being carried in a plate-holder or dark-slide, may be mounted directly on the inner side of the removable back, brackets being provided in the rear or underside of one yielding strip to support one edge of the plate, the opposite edge of the latter being held in place by the other yielding strip, the arms on which the strips are preferably mounted preventing any transverse displacement.

The inspection opening in the back, in addition to having the usual transparent coloured window is provided with a slide or shutter whereby the entrance of even non-actinic rays is prevented. Kodak, Limited, 57-61, Clerkenwell Road, London, E.C., for Robert Kroedel, Rochester, U.S.A.

ROTARY PRINTING MACHINE.—No. 5,801. 1909 (March 10, 1909). The invention consists of a machine for the rotary printing of lengths of papers in such a way as to avoid the use of rubber cloth and the uneven stretching to which the latter is liable. This is done by means of a pressure device which is composed in the manner of a chain or links of individual pressure blocks corresponding exactly in size to the side faces of the drum, which



device is automatically moved forward by the drum by means of a suitable feeding device. The tension effort necessary to produce the forward movement is always applied directly to the connecting bolts of the individual links whereby stretching in any manner is prevented.

The improved machine consists of the polygonal drum 1 made of transparent material, the shaft 2 of which rests in bearing brackets 3 which are secured to a suitable sole plate 4. The drum may be actuated by hand or by any suitable mechanism. In the interior of the drum is located a source of light and a screen 5 cutting off a part of the drum surface corresponding to the field of illumination. The pressure device co-operates with the drum 1 and is moved forward by the drum itself. On the sides of the standards 3 facing each other a guide-way is formed by means of projecting ribs 6 of which the part *a-b* corresponding to the field of illumination limited by the screen is concentric with the axis of the drum while the remaining part represents a return

path suitably connecting the two end points *a*—*b*. This guide-way 6 serves to guide the pressure device proper. This pressure device consists of a number of frames or plates which at the side coming in contact with the sides of the drum is covered with an elastically resilient coating, preferably of sponge rubber, or with an air cushion of a size corresponding exactly to the size of one side of the drum. These frames or links are assembled to form an endless chain, by means of eyes 9 and bolt 10. Each bolt carries a roller at each end, the rollers running on the outer surface of the ribs 6, forming the guide-way when the pressure device is being fed forward. The drum 1 carries at the corners of the end faces blocks 12, which in the rotation of the drum successively embrace the bolts 10 of the links 7, and so move the link of the chain located between two bolts, and thereby move the pressure device.

In this way regular movement of the pressure device is obtained, and as during that time when the covering 8 of the links bears on the side of the drum, the corresponding rollers 11 are running on the concentric part of the guide-way 6, the pressure must be entirely uniform and continuous.

The machine further provides for the automatic pull off of the web from the supply roll. Heretofore the web was pulled off the supply roll directly by the tension between the drum and the pressure device. This has the drawback that the material forming the web is often subjected to irregular or excessive strain and may accordingly be stretched.

According to the present arrangement the web 14 is pulled off the supply roll 15 over guide-rollers 17 by means of a pair of rolls 16 driven from the shaft 2, so that there is always a loop 18 ready to be supplied taken off the roll, from which the machine takes its supply according to requirements. The web 14 runs then between two guide rolls 19 and two brush rolls 20 to the drum 1, is then guided by the latter through the field of illumination limited by the screen, and passes finally over guide-rolls 21 to a winding-roll 22 or directly into the developer for further treatment. Paul Hamburg, 96, Reinickendorfer Strasse, Berlin.

The following complete specification is open to public inspection, before acceptance, under the Patents Act, 1901:—

CINEMATOGRAPHS.—No. 14,343. Manufacture of cinematograph films. Dupuis.

New Trade Names.

DREADNOUGHT.—No. 312,529. Sensitised photographic plates. Arnott Halliday and Co., Marshall's Mills, Marshall Street, Holbeck, Leeds, photographic mount manufacturers and printers. April 24, 1909.

Acta.

Extracts from our weekly and monthly contemporaries.

Judging Distances Correctly when Using the Hand Camera.

Learning to judge distances accurately and quickly (writes Mr. F. J. Mortimer, in "The Amateur Photographer and Photographic News" for July 6) is easily learnt by some, but with others it is a matter of difficulty. The following method can therefore be recommended for training the eye, and when once the lesson has been thoroughly learnt it is difficult to go wrong. The procedure is as follows:—When out walking choose a number of yards, say ten, and as each street-corner, pillar box, lamp-post, etc., is approached, a guess is made as to when you have arrived at a distance of ten yards from the object. It is then measured with full strides—each stride being approximately one yard. This is repeated with the next convenient object, and on all possible occasions for one or two days, until the eye has got a good grip of a ten-yard distance with all sorts of objects and under different conditions.

Follow this with another distance, say six yards, and continue the exercise until this is well drilled into the eye. Several distances—e.g., six, eight, ten, twelve, fifteen, twenty yards—can be thoroughly learnt in this manner with absolutely no trouble, but only a little

thought every time you go for a walk in town or country. The next course is to stop at all sorts of irregular distances during your walk—e.g., eight, twelve, ten, six, fifteen yards—guess the distances at once, and then verify by long strides. Then the new power thus obtained can be applied to the hand camera, and, provided the scale is correctly marked, very few spoilt plates or films will result through being out of focus. The best—i.e., most useful—of all distances to get well fixed in one's eye is ten yards, as this is in many cases the nearest distance one can have foreground figures (on a quarter-plate with five-inch lens) without the near figures looking out of proportion in comparison with others at, say twenty yards' distance.

The Fading of the Autochrome Colour Screen.

In the issue of "Photography and Focus" for July 6, the editor says: "A number of Autochromes which were shown to us the other day were all quite wrong in their colour rendering, having a bluish-violet tinge all over them. When the cause of this defect was sought it was found in the colour screen with which they had been taken. Last year this screen gave perfectly satisfactory results, but having been left lying casually about since then it was now found to be visibly several shades less deep in colour than a similar screen of the same age that had been protected from light when the two were put side by side for comparison. The moral of this, of course, is to keep the screen in its box whenever it is not actually in use. But one may go further and say that not merely the Autochrome but no other colour screen should be exposed to light more than is necessary, as few, if any, are made without the employment of more or less fugitive dyes."

New Books.

"Optisches Hilfsbuch für Photographierende." By Dr. H. Harting. Berlin: Gustav Schmidt. Price Mks. 4.50.

In this volume Dr. Harting has provided a text-book of the modern optics of the photographic lens. Within the space at his disposal he has not attempted a lengthy exposition of the more theoretical parts of this subject, but, nevertheless, he has produced a very readable account of the principles of the construction of the modern photographic lens, and a description of the properties of the chief objectives. When we say readable, we do not suggest that the "Hilfsbuch" is a volume for a railway journey, but the mathematics in it are only such that any one with a nodding acquaintance with algebra may readily digest without having to indulge in surmises as to the precise meaning.

After a brief consideration of the principles of reflection and refraction of light, the author introduces the reader to the formation of images by way of the pinhole, and then passes to the single and double lenses. The next section explains the chief aberrations to which a lens system is liable, and is followed by short chapters on the regulation of the rays in photographic lenses, orthoscopy, depth of field, and achromatism.

The chief section is in the later part of the volume and is that in which the modern types of astigmatic and anastigmatic lens are classified and their relations to each other shown. The consideration of the telephoto lens and an appendix on the optical calculations which require to most frequently made in photographic work bring the volume to an end.

"Das Arbeiten mit farbenempfindlichen Platen." By Dr. E. König. Berlin: Gustav Schmidt. Price, Mks. 2.25.

In this volume (which forms No. 25 of the "Photographic Encyclopædia," issued by Herr Schmidt) Dr. König gives a most useful précis of the present technics of orthochromatic photography. He first describes the properties of the chief sensitising dyes and gives formulæ for their use both as baths or as additions to the emulsion. The functions of the different classes of light-filter are dealt with at length, and formulæ given for compensating and contrast filters suitable for plates of given types of sensitiveness. In these matters the practical points which the worker must observe receive a full share of notice, and the same may be said of the chapters on development and dark-room illumination for plates. The later portion of the book deals with the photographic uses of orthochromatic plates and filters in portraiture, landscape, copying, and flashlight work,

and is well illustrated by a series of plate illustrations which appropriately emphasise the differences producible. The volume is not a large one, but it is certainly the best-selected formulary of colour-photography which has come before us.

"Leerboek der algemeene Fotografie. Part I.: General Principles." By W. H. Idzerda. Amsterdam: S. L. van Looy.

This is the first part of a treatise on photography which is evidently planned upon a comprehensive scale. The present volume aims at giving a general review of the principles of photography and of the many applications of the camera, such as cinematography, astronomy, photo-micrography. It also contains a brief history of the early days of photography from the time of Schulze to the conclusion of the work of Fox Talbot.

CATALOGUES AND TRADE NOTICES.

MESSRS. FALLOWFIELD have just issued a new edition of Nos. 2, 3, and 4 of their small price lists, which deal respectively with the plates, papers, and sundries, mounts and albums, and chemicals and preparations obtainable from this firm. Those who do not care for the trouble of consulting a large comprehensive catalogue when they are in need of some particular description of chemical or material should procure these lists, which are arranged in a manner very easy for reference, and may be obtained on application to the above firm at 146, Charing Cross Road, London, W.C.

USES OF THE AIR-BRUSH.—There is now a journal issued under the title "Die Spritmalerei," devoted to air-brush work, which gives particulars of the many ways in which this well-known and fascinating process may be employed. From a perusal of some early numbers of the paper, shown to us by the firm of The Airostyle and Lithos, Ltd., makers of the noted "Airostyle" air-brush, we should say that the new journal will find a ready welcome by users of the process, as well as by manufacturers of the apparatus. The publisher is Otto Dietrich, Albrechtstrasse 102, Steglitz-Berlin, Germany.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

SATURDAY, JULY 10.

Glasgow Co-operative Camera Club (Govan). Outing to Uplawmoor.
South London Photographic Society. Rambles round Rickmansworth.
Southampton Camera Club. Ramble to Fawley.
Worthing Camera Club. Outing to Angmering.

TUESDAY, JULY 13.

Birmingham Photographic Society. Ramble to Solihull.
Hackney Photographic Society. Members' Sale (Council Meeting).

THURSDAY, JULY 15.

Leamington Photographic Society. Exhibition of Home Made Apparatus.

Commercial & Legal Intelligence

LEGAL NOTICES.—The first meeting of the creditors of Chas. Hamilton Walker (carrying on business at 120A, High Street, Marate, with a limited partner, under the style of the High Street Photographic Company) is fixed for the 10th inst. at Canterbury. The public examination of the debtor will be held on the 15th inst.

PICTORIAL POSTCARD FAILURE.—The first meeting of the creditors of E. Alexander, pictorial postcard dealer, etc., of 71, Southampton Row, W.C., was held on July 5. The liabilities are £2,393, with assets estimated at £1,905 and classed as uncertain, consisting mainly of shares of E. Alexander, Ltd. According to his statement, debtor in 1903 entered into a partnership arrangement with Messrs. G. and W. Knight to carry on the business of fine art publishers under the name of Knight Bros., in Southampton Row. Shortly afterwards the debtor became seriously ill, and remaining so for nine months, the partnership was dissolved by mutual consent. In the latter part of 1904 debtor became the English agent for the Leipzig Photographic Printing Co., at 71, Southampton Row, W.C., and so continued until March, 1908. Subsequently E. Alexander, Ltd., a limited liability company, was formed, with a capital of £6,000—£3,000 in shares and £3,000 in debentures. Of these were allotted £1,107 in shares and £1,893 in debentures. Under this arrangement debtor became

managing director of the company, receiving a salary of £6 a week and a weekly allowance of £4 for expenses. In February, 1909, the company went into voluntary liquidation. It was resolved by the creditors, with the concurrence of the Official Receiver, to appoint Mr. F. S. Salaman to wind up debtor's affairs, and also to appoint a committee of inspection.

NEW COMPANIES.

RECORD FILM TRADING COMPANY, LTD.—Capital £500, in £1 shares (150 Preference). Objects: To adopt an agreement with P. Rittener, and to carry on the business of photographers, cinematographers, manufacturers, and exhibitors of, and dealers in, pictures, photographs, cinematographs, etc. Private company. The first directors are P. Rittener and L. Shrapnel. Qualification, one share. Remuneration, £6 per week, divisible. Registered office, 31, Norfolk House, Laurence Pountney Hill, E.C.

J.P. INFORMATION REGISTER, LTD.—Capital £500, in £1 shares. Objects: To carry on the business of advertising agents, printers, publishers, newsagents, merchants, displayers of advertisements, photographers, etc. Private company. The first directors are not named. Registered office, 15, St. Andrew's Square, Glasgow.

DAILY EVENTS, COMPANY, LTD.—Capital £50,000, in £1 shares (40,000 Cumulative Participating Preference). Objects: To take over the business of advertising apparatus, pictorial advertisements, photographs, contracts for placing of cabinets and frames in hotels, clubs, public-houses, theatres, mess-rooms, and other places, and contracts for the display of advertisements in the said cabinets and frames, and other assets belonging to the Daily Events Syndicate, Ltd., of 105-106, Moorgate Station Chambers, E.C., and to adopt an agreement with the said syndicate and its liquidator. The signatories are: O. G. Browne, The Pines, Kelling Heath, Holt, Norfolk, 75 shares; E. N. Trappo-Lomax, Clayton Hall, Accrington, 1 share; C. E. Constable, 21, Carlyle Mansions, Cheyne Walk, S.W., 1 share; W. D. Smith, 73, Denbigh Street, S.W., 1 share; T. E. J. Fitzgeralds, 75, Jermyn Street, S.W., 1 share; J. H. M. Roberts, 31, Acre Lane, Brixton, S.W., 750 shares; H. W. Brown, 1, Bishopsgate Churchyard, E.C., 750 shares. Minimum cash subscription, £8,000. The number of directors is not to be less than three nor more than nine. The first are O. G. Browne, J. H. M. Roberts, and H. W. Brown. Qualification, 750 shares. Remuneration, £100 each per annum (chairman £150), free of income tax. Registered office, 236, Dashwood House, New Broad Street, E.C.

News and Notes.

THE PHOTOGRAPHIC STUDIO of Albert Wilkes, the well-known International football player, who carries on business as a photographer at West Bromwich, was completely gutted by fire last week. Cameras and fittings were either destroyed or damaged.

ROYAL INSTITUTION.—At a meeting of the members of the Royal Institution, held on the 5th inst., the Duke of Northumberland, K.G., President, in the chair, the Duchess of Northumberland, Lady Victoria A. Percy, Mr. H. E. Edmunds, Colonel Sir Charles Euan-Smith, K.C.B., and Mr. Alfred Rowe were elected members.

FIRE IN GLASGOW.—A fire broke out one morning last week on the premises of Messrs. Lafayette, Ltd., photographers, at 15, Gordon Street, Glasgow. The scene of the fire was the studio on the top flat, and the flames spread to the roof. Before they were extinguished the studio was destroyed, along with a large number of valuable negatives and thirty square feet of the roof. The damage is estimated at £500.

"EAST COAST HOLIDAYS" is the title of the Great Eastern Company's latest handbook, and those intending to spend their holiday in this part of England should not fail to provide themselves with a copy. Whilst dealing with all the holiday resorts on the East Coast, special prominence has been given to some of the less known districts, also to the districts around Cromer and to the Norfolk Broads. The information is of an eminently practical character, including such items as the railway service, cost of journey, names of hotels, boarding houses, etc., excursions by road or rail, a list of golf links, and particulars of the facilities for fishing and yachting. The book contains a number of illustrations in colour, together with maps of the various districts dealt with, these latter being clearly printed.

with the routes of the railway, motor omnibus service, and the carriage roads distinctly indicated. Copies may be obtained free from the Superintendent of the Line, Liverpool Street Station, London.

EASTMAN'S NON-INFLAMMABLE FILM.—The "Kinematograph Weekly" publishes the following report, on the new Kodak "non-flam" film, from the chemical laboratory of the Bureau for the Safe Transportation of Explosives and Other Dangerous Articles, of South Amboy, N.J. :—

"Two samples of picture films, one plain and the other printed, were received from the manufacturer, the Eastman Kodak Company, of Rochester, N.Y. Material has the same appearance as the ordinary celluloid film, but has an odour resembling carbon tetrachloride.

"Material when held directly in flame ignites with difficulty and burns much more slowly than the ordinary film. It was found by holding film in path of sparks from an induction coil that it was a much better insulator than the regular celluloid film. With apparatus here, it was impossible to make sparks penetrate the film without starting spark on edge of film and letting it work into the centre of the sheet gradually. In this way a series of holes would be melted or burned into the film, but no flame or ignition of body of film occurred. With regular film from the same maker sparks will penetrate the film at any place, and a succession of sparks in same place invariably ignites the film.

"When gradually heated the film swells up, melts, and finally turns black, but does not ignite, even at a temperature of 400 degrees C. This film is evidently practically free from fire risks."

HOLIDAYS IN IRELAND.—The latest additions to the popular series of holiday booklets published by the Health Resorts Development Association, 29, John Street, Bedford Row, London, W.C., are devoted to some of the beauty spots of Ireland, and deal with the towns and surrounding districts of Cork, Enniskillen, Kingstown, Londonderry, Portrush, and Youghal. These little guide books, like those previously issued by the association, are abundantly illustrated and contain much useful information, both topographical and historical in character. Copies may be obtained post free by addressing a postcard application to the respective Town Clerks.

THE SCOTTISH SALON.—It is a custom of the Scottish Salon, initiated at the opening exhibition, to ask one or two "foreigners" to send representative collections of their work. The workers invited for the 1910 Salon, to be opened at Dundee in January next, are Charles Job, who is sending a collection of twenty-four of his pictures, and the Brothers Hofmeister, who will be represented by six of their large "canvases."

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.—Thursday, July 22, has been set apart by the above association for the showing of lantern slides made upon the various colour-screen plates that are now obtainable, and visitors will upon this evening find a hearty welcome awaiting them at the meeting rooms at the Apple Tree and Mitre, 50, Cursitor Street, Chancery Lane, E.C., at 7.30 p.m., and are invited to bring any slides that they may have made upon the plates mentioned, as the association wish the evening to be not only a show of this class of work but also an instructive one.

PHOTOGRAPHS BY THE "REGINA" ARC LAMP.—A competition has recently been held by the Regina Arc Lamp Works, Sülz, Cologne, Germany, the awards taking the shape of apparatus and cash prizes. The awards were made by Dr. G. H. Emmerich, of Munich, Ernst Ohle, of Cologne, Herr Lichtenberg, of Osnabruck, and J. Rosemeyer, of Cologne. The following is the list of awards, the judges being guided in their decisions by technical quality, in which there were the least signs of the fact of artificial illumination having been employed:—First prize—Julius Thomson, Sonderburg, 2 Regina Studio Lamps; second prize—Eugène Coubilliers, Cologne. Hohenstaufenring 36, 1 Regina Studio Lamp or Printing Table and 100 marks cash; third prize—E. O. Hoppé, London, W., 8, Mar gravine Gardens, Baron's Court, 1 Regina Printing Table; fourth prize—Messrs. Spalte and Kluge, Augsburg, £5 cash; fifth prize—Felix Korb, Crimitschau, £3 cash; sixth prize—Arthur Schneider, München, Thorwaldenstr., £1 10s. Although the number of exhibits sent in was not great, the Regina Works has been fortunate in having submitted to it a considerable quantity of excellent photographic portraiture, considering the short time during which the

studio lamp has been available. The Regina lamp, it may be mentioned, is an enclosed arc of special pattern and portability, and the makers claim that the apparatus allows of photographs being made with effect quite equal to daylight; the lamp, too, is extremely simple in manipulation. We understand that further competitions are to be arranged by the Regina Works, while the prints which have been entered for the present competition are being exhibited at the stall of the Regina Company in the International Exhibition at Dresden.

GEVAERT PAPERS.—An error crept into the paragraph in our issue of the 25th ult. in reference to the Dresden Exhibition, in which it was stated that the Gevaert factory is solely supplied with raw paper by the factory of Schoeller. Messrs. Gevaert and Co. advise us that this is not the case, and that their arrangements allow of them purchasing raw stock from other sources, both in France and Germany.

Correspondence.

* We do not undertake responsibility for the opinions expressed by our correspondents.

* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

THE SPEED NUMBERS OF PLATES.

To the Editors.

Gentlemen,—The various discrepancies which Mr. Biermann alludes to will not cease even if a standardised speed test is agreed upon by all makers. Accuracy can only be attained if each batch of plates is marked from an actual test of that particular batch. This is not likely to be adopted by makers who follow the nonsensical plan of advertising that their plates are the most rapid on the market, for in actual practice it would be sometimes one maker and sometimes another who would have the highest markings on their boxes if the tests were actually made on a uniform system.

The firms who sell exposure meters obviously cannot attempt to test every batch turned out by a maker, and can do no more than test them at reasonable intervals and give approximate information.

At present, while there are a few makers who mark actual batch tests on the boxes, the great majority simply put an approximate number on the box, which stands unaltered through the variations of different batches and changes of emulsion makers.

I have had two different boxes of the same brand bearing the same speed numbers, one of which, on careful H. and D. test, proved to be double the speed of the other. I have known a firm change their emulsion maker, and one of their brands becomes suddenly quite different in speed and in character, without there being any indication on the box of any change. It is obvious that the speed cards of different meter makers cannot possibly agree under such conditions.

Even suppose they are dealing with a plate accurately marked by a standardised speed test which the meter makers have also adopted: the average speed number of the particular brand is 300. The one meter firm gets hold of a batch marked 280, and as this comes within the 250 group, he quotes it at that speed. The other meter firm gets hold of a batch marked 320, and as this comes within the 350 group he quotes it as such, and at once some one shows up by comparison the supposed inaccuracy of their quotations.

Hereford, July 3.

ALFRED WATKINS.

INTENSIFICATION MARKINGS.

To the Editors.

Gentlemen,—Allow me to say, in reply to "Kent," that his remarks seem to apply to negatives intensified after developing before drying. For the most part mine are intensified afterwards, as after intensification with me is rather the exception than the rule. I am disposed to think that my trouble partly arises from the water off chalky soil; it certainly is not caused through such carelessness as "A. F." suggests, and the marks are not removable by hypo. I have tried after a long soak in plain water and shorter one in acid water with a little improvement, but success is not yet attained.

PROF.

Answers to Correspondents.

- All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.*
- Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*
- Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.*
- For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

PHOTOGRAPHS REGISTERED:—

- I. Ramsden, 63, Granby Street, Leicester.** Six Photographs of Miss Nellie Wilson; Photograph of Miss Olive Carson; Two Photographs of Miss J. Fletcher; Photograph of Miss Ethel Shipley.
- V. Rochard, 3, Honey Street, Bodmin, Cornwall.** Photograph, a Group consisting of the Prince and Princess of Wales with Mayor and Town Clerk reading Address on steps of Assizes Court, Mountjolly, Bodmin, June 8, 1909.
- B. Hughes, 28, Patrick Street, Cork, Ireland.** Photograph of the Most Rev. Dr. O'Callaghan, Bishop of Cork.
- H. Webster, 141A, Stockport Road, Levenshulme, Manchester.** Three Photographs: New Mills Town Hall; St. Mary's Road and Church, New Mills; and New Mills Wesleyan Chapel.

PAIRING LENSES.—I have two Taylor, Taylor, and Hobson $\frac{1}{2}$ -plate R.R. lenses. The focus of one is 7.32 inches, that of the other 7.35 inches. Will you kindly tell me in your Answers to Correspondents' Column what foci supplementary lenses I must add to the two R.R.'s to make them both 5 inches focus so as to use them for stereoscopic work?—W. H. R.

The 7.32 inches lens would require a supplementary lens of about 13.62 inches focus and the other one of about 13.57 inches focus, but it is impossible to calculate the right foci with absolute accuracy, and you will probably have difficulty in obtaining supplementary lenses that will exactly suit. If each of your lenses is exactly symmetrical, as an R.R. should be, your best plan will be to change the glasses. Use those now belonging to one objective as the two back lenses and those belonging to the other as the two front lenses. You should then have a pair sufficiently alike. Of course, only two lenses need be changed, the front lens of one objective changing places with the back lens of the other. You can then add a 14-inch (or 2.75 D) supplementary lens to each objective to reduce the focal length to about 5 inches.

PHOTOGRAPH ON WATCH CASE.—Having seen some time ago a photograph printed on the inside of a watch-case, I should be much obliged if you could give me any idea how the process is done. It was on a gold ground, without any paper support, being the same colour as the gold, and looking more like a toned bromide. Whether it was burnt in or not I cannot say; it would not wash off with hot water. Does this work need special apparatus? If so, where can it be obtained?—E. H. HIGGIN.

First prepare the following:—

- | | |
|---|-----------|
| No. 1. Plain collodion, of a tough character... | 1 oz. |
| Venice turpentine..... | 20 drops. |
| Castor oil | 10 drops. |
| Spirit of camphor | 2 drops. |

The above will require thinning with ether and alcohol—about a quarter of an ounce of each, according to the viscosity of the collodion.

No. 2.—Take the white of one egg, remove the germ, and put into a bottle with 2 ozs. of water and 3 drops of liquor ammonia and shake well for a few minutes.

No. 3.—A bottle of Zapon enamel, "No. 103." This may be obtained from the Frederick Crane Chemical Co., 22, Newhall Street, Birmingham, at 1s. the bottle.

Having made a glossy vignettted C.C. print of the subject, this is toned, fixed, washed, and dried as usual. It is then flowed over with No. 1, just as in varnishing a negative. This strengthens the film for the next stages. The face of the print is then well gone

over with Higgins or other thick mountant, laid face down on clean glass and well squeegeed down, being then allowed to dry. To transfer to the watch-case or other article, the glass plate bearing the print is dipped into warm (not hot) water, and when the paper softens the latter is removed by rubbing, re-dipping in the water two or three times as necessary. The paper is rubbed away only from those parts of the print which are to appear on the article, this leaves a margin of paper which supports the delicate collodion film. When the area has thus been cleared of paper the plate is put in very hot water when the film separates. It is dried and then cut off from the paper frame on which it finds itself, and trimmed to size. The surface of the article is now flowed over with No. 2, the picture immediately pressed down on it, and, without further delay, flowed over with No. 3 and allowed to dry.

PAINTING BACKGROUNDS.—Can you give me some information respecting the painting of backgrounds for studio? I have been using vegetable black and white lead, with gold size and turps, upon unbleached calico previously sized. My difficulties are: (1) That the colour sets too quickly, not allowing sufficient time to blend the various shades together. (2) The colour dries several shades lighter than when in the wet state, and also rubs off a little when dry. Can you inform me how to mix a paint (giving quantities) that will dry a matt surface without the above difficulties?—SMUDGER.

You are evidently using too much turps or not enough gold size. Add more black until the colour dries to the right shade and then add gold size or reduce the turps until the colour remains fast. We cannot give exact proportions. The only way is to try the mixture and vary it until it gives the effect you want. You would probably find it easier to manipulate a water paint, mixed with ordinary size alone, in place of the gold size and turps.

MOUNTANT.—Can you please give me some information upon making up a dextrine mountant that will keep well. We make it according to the "Almanac" formulæ, but when left in the pots the surface gets quite hard and dry, almost brittle and horny, whereas a jar of patent mountant, evidently much the same, is not affected by air like this. What can we put in ours to keep it usable, but, at the same time, fairly stiff and thick?—S. E.

We have found that the commercial pastes also get very hard as the water evaporates. Most probably you are using too little water in the first instance and so producing too stiff a paste. Overheating or boiling will also account for a considerable loss of water and cause the paste to dry very rapidly. We cannot suggest any better addition than a little more water.

WORRIED.—(1) We do not think fading is due to keeping the gold and acetate in the one stock solution, nevertheless it is best not to keep in this way, as the gold is more likely to be thrown down. It is preferable to keep in separate stock solutions, which should be mixed 24 hours before use. (2) Imperfect fixation it is the most likely of the causes you name. Your procedure is quite correct. Do you use plenty of fixer and keep prints constantly on the move in this bath? (3) We can hardly believe that any atmosphere which you would tolerate in your reception room would be sulphurous enough to affect prints. Gold and sulphocyanide will keep in single solution for some time—not indefinitely—but it is best to keep separate and mix two hours before use.

F. G. CHRISTOPHER.—We can only advise you to go to a dealer in old furniture and curios, such as is to be found in most towns. You could possibly dispose to some other photographer by an advertisement in our columns.

W. J. B. T. (Calcutta).—The paragraph you refer to appeared in our issue for April 2 last, page 261.

MAKING BACKGROUNDS.—Would you please give me the information required for repainting photographic backgrounds in distemper and flatted oil? (1) Where I can get the canvas or linen? (2) The strength and material used for distemper? (3) Ditto for flatted oil? (4) Which is preferable and the easiest to work? (5) The tools usually required? I do a good deal of picture drawing and painting, and would like to do my own grounds.—COLOUR ARTIST.

(1) At any large drapers, under the name of unbleached sheeting. (2, 3, 5) We cannot spare space in this column to give full working

details, but if you refer to our issues of February 1 and March 1, 1907, you will find full working details of both methods. (4) Flatted oil is the most durable, though not perhaps the most easy, for a novice to work. The Vanguard Manufacturing Company, Maidenhead, supply colours ready for use of different tints, and they are very good.

BURNISHER.—I should be much obliged if you could inform me where I can get the bar of my burnisher ground and polished. The bar is hollow, and this causes the photographs to stop halfway through, which results in a mark across them.—W. RUDLAND.

The best way will be to send the bar to the makers of the burnisher, or to those who supplied it to you; either will do the needful.

LENS QUERY.—Would you kindly inform me on the following subjects? (1) I sent to a second-hand dealer's for a 6in. focus cabinet portrait lens, and they sent me one on approval. It bears the name G. Fleming, 198, New Oxford Street, London, and the diameter is 2½in. There are no stops; it takes 13ft. from the sitter to get a full length. Can you tell me what focus it is, and can I have stops made for it? If so, where? as I find it does not give head and shoulders so sharp as I should like, also particulars as to price and quality of lens, and what it is most suitable for? (2) Where can I get an iron stamp made to stamp plate-sunk mounts?—ANXIOUS.

Fleming was not a maker of lenses, but a photographic dealer in New Oxford Street some forty or more years ago. You must not expect a portrait lens of 6in. focus, made forty or fifty years ago, to cover cabinet size to the edges. As you have the instrument on approval you can see, by trial, if it answers your purpose, and if not return it to the dealer. (2) Such houses as Fallowfield's, Houghtons, or the like, will supply the stamp, or any die-sinker will make you one.

VARIOUS QUERIES.—Will you kindly inform me (1) whether there is a temporary studio made up of canvas and glass to be had anywhere? Does anybody sell such a thing, and what is about the price of same in small size? (2) I have a large lens in my studio camera, with Waterhouse stops; there is a screw to separate one lens from the other. What is the use or effect of moving same further or nearer to one another? (3) How to vignette a cabinet bust direct on plate. (4) How to get a distant part of a street view clear and print even with near part of the camera. I get the sides of negative very dark, printing quickly, the middle part rather diffused, and printing slowly, although I use good lens (Goerz), $f/4.8$, I stop it down to $f/11$ or $f/16$. (5) Will sulphocyanide bath keep long, or does it require to me made fresh every time?—POROYSON.

(1) We do not know of anyone who makes studios of canvas and glass. You will find the addresses of some who make ordinary studios in our advertisement columns. (2) To diffuse the focus, the greater the separation the softer will be the definition. (3) This may be done by interposing a white screen, with a serrated opening, between the sitter and the camera. The size of the opening and its distances from the sitter is a matter for experiment. (4) Probably you are using a lens of too short focus to cover the plate. Try using smaller stops. (5) It is best to make up a fresh bath an hour or two before use. This is no trouble if you keep the sulphocyanide as a stock solution.

RETOUCHING (Reply to "A. R. B. K.")—Your retouching tells that experience is defective; the touch is much too minute and mean for the nature of the study. This head should be boldly treated and the likeness fully respected. Note how you have filled in the wrinkles of brow—much too radical an alteration and unjustifiable. You have the making of a good retoucher in you, but need careful guidance at this stage of your progress.

STUDIO QUERY.—(1) I am enclosing a plan of a bungalow I have taken. By its help could you advise me as to the best method of utilising it for portraiture studio—viz., what method of curtaining to employ and what source of light to use and which to block out? The whole of the roof is glass except the alcove, and one of the ends has also a glass side to within 6ft. of the floor. I should also like to know what focus lens on a half-plate camera should be employed for portraiture. I want to approximate as near professional results as possible. (2) Can you tell me what paper is used

for enlargements by the newspaper press illustration agencies? I cannot secure the same contrasting results that they do—pure blacks and whites. What developer should I use, and is there a special bromide paper made for this work? I presume the prints are burnished to secure the high glaze.—A. THORBURN.

(1) We are afraid that we are not quite clear with regard to the sketch. It seems to us that you will have little but a top light. However, we should think that the best way will be to place the sitter at the S.W. end of the room and stop off the light there for about 6ft. of the roof, and then use curtains and screens, in order to convert the top light as much as possible into a side one. We are unable to advise you further from the sketch. A suitable lens, as you have a good length, would be a portrait one of about 12 in. focus. (2) A glossy bromide paper is what is generally used for the purpose, and that will be glossy enough. Better employ the developer recommended by the makers, but avoid over-exposure if you require great vigour.

C. JAMES.—We cannot trace having received your query until now. We will reply next week, but such formulæ are naturally kept secret, as far as possible.

FERROTYPE CAMERA.—I want to take one-inch circular as well as quarter-plates by means of one ferrotype camera. Do you know of such an instrument at home or abroad to suit this double purpose? I have tried Billcliff (Manchester) and Fallowfield (London).—FERROTYPE.

We do not know of such an article being obtainable, if not from these two sources.

A. NICOLSON.—We have looked back two months, but cannot find the advertisement you mention.

REGISTERED PHOTOGRAPHS.—1. Where can we get a list of all photographs registered during last month? 2. Re the list given week by week in JOURNAL, is this a full and complete list of all registered photos, or only photographs registered by your publishers, Henry Greenwood and Co.?—DOUBTFUL.

Only at Stationers' Hall. For a fee of one shilling the registers may be examined. 2. Only those sent to our publishers for registration.

B. R.—They are made by W. Butcher and Sons, Ltd., Camera House Farringdon Avenue, E.C.

ANXIOUS.—Usually the higher the better up to 15ft. or so. In your case you should try and average 10ft. It is placed to one side and a little to the front of the sitter. The usual diffusing screen of muslin is placed a few feet in front of the lamp.

TEACHER OF RETOUCHING.—Could you, through the medium of your columns, give me the address of the secretary or headmaster of the London School of Photography, or refer me to the best means of finding out where to apply for a post as teacher of retouching?—QUERY.

Mr. Howard Farmer, Photographic School, Regent Street Polytechnic, W., is the most likely person to be able to make use of your services.

PHOTOGRAVURE.—Messrs. Penrose and Co., Farringdon Road, E.C. supply copper plates for the process of photogravure. Zinc plates are no good for the process, since the softness of the metal prevents more than a very few impressions being taken.

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No. 2567. VOL. LVI.

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PRICE TWOPENCE.

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SUMMARY.

The Photographic Convention. We publish this week the papers on stereoscopic photography by Mr. C. Welborne Piper, and on "High Power Telephotography," by Captain Owen Wheeler, read before the Convention on the 8th inst. (P. 549.)

The key to the group presented as a supplement with last week's "B.J." is given on page 554.

Mr. Godfrey Bingley has been elected president of the Convention for next year's meeting to be held at Scarborough. (P. 545.)

That art is inborn and that the life work of the artist lies in perfecting his technique are two opinions on this much-discussed question which apparently we do not share with Mr. Snowden Ward, whose recent address before the Convention is the subject of an article on page 547.

The really pressing need of photographic record work lies, we think, in the housing and arrangement of the photographs which have been and will be made. (P. 548.)

A last reminder of the invitation being made through our columns by Messrs. Speaight for photographers to visit the exhibition now being held at 157, New Bond Street, appears on this page. A note on some new photographs recently added to this exhibition of "Fair Children" appears on page 558.

The whole secret of regularity in sulphide toning is contained, according to Mr. S. H. Fry, the well-known enlarger, in making a perfect bromide in the first instance. (P. 546.)

We draw attention to the dicastrous effects upon P.O.P. prints of an impure sample of alum. (P. 545.)

A very interesting example of the commercial utility of the telephoto lens is to be found in the current issue of "T. Q." (P. 546.)

A contributor, Mr. D. Berlin, offers some practical hints on the repair of printing frames. (P. 556.)

One of the advertising papers has recently commented upon the absence of even occasional advertising by photographers in the daily press. (P. 546.)

Rush work in photo-engraving, lithographic processes for poster work and sensitisers for collodion emulsion are topics dealt with under "Photo-Mechanical Notes." (P. 557.)

A German chemist has patented the use of an acid bath for destroying the red-sensitiveness of panchromatic plates prior to development. (P. 546.)

EX CATHEDRA.

Next Year's Convention. As decided at the annual general meeting of the Photographic Convention, held on Monday in last week, the place for the 1910 meeting will be Scarborough. At a subsequent meeting of the Council Mr. Godfrey Bingley was unanimously elected president. Mr. Bingley, who is a Yorkshireman by birth and residence, has been one of the most staunch supporters of the Convention, and his sustained and unostentatious work in record and architectural photography has been steadily carried on for many years past. "A conventioner for the Convention" has been a P.C.U.K. watchword, and in electing Mr. Bingley to the presidency for the Scarborough meeting the members have the gratification of knowing that no one perhaps has a more intimate knowledge of the district and of its photographic possibilities than their president.

* * *

The Speaight Exhibition. In reference to the visit which Messrs. Speaight are asking photographers to pay to their gallery on July 21, from 6 to 8 p.m., we learn that the president and officers of the Professional Photographers' Association have signified their intention of being present, and it is expected that other prominent photographers in the West End of London and in the provinces will take this opportunity of forgathering with their colleagues. Messrs. Speaight have issued no invitations except a general one through our own columns, so that we may be allowed to say again that admission is simply by presentation of visiting card, or, in the case of photographers' assistants, by presentation of the employer's card. The invitation is extended to photographers and their assistants of both sexes, and it is hoped that a gathering which will not be without its importance for professional photographers will be brought together at 157, New Bond Street. Any foreign photographers who may now be in London are also invited to be present.

* * *

Impure Alum and P.O.P. Prints. Alum is one of the numerous chemicals used by photographers that is seldom under suspicion of producing evil effects, and therefore one the purity of which is seldom considered. We have, however, recently come across a sample of alum that proves this confidence to be misplaced. A correspondent sent us a sample taken from a hundredweight of powdered alum recently purchased by him, and also a specimen of a P.O.P. print submitted in the usual way to a hardening bath prepared from this alum. The result was a very strong reduction of the image, all detail in the high-lights having been destroyed. We tried the sample with similar results. It served as a reducer, and also altered the colour of a P.O.P. print

toned in the gold and sulphocyanide bath, while it almost destroyed another print that had been toned in a combined bath. No such effects are, of course, produced by pure alum, whether that be ammonia or potash. Ammonia iron alum does, however, have this effect, and testing showed that this bad sample was simply loaded with iron compounds. It contains both potassium and ammonia alum, while the presence of the iron no doubt shows that it had never been properly purified. Evidently, therefore, it is advisable to be cautious in the selection of alum samples. There may not be many as bad as this one, but any sample that has not been properly purified by the manufacturers may be expected to produce a similar effect to a certain extent. The iron exists in both the ferrous and ferric state, and no doubt it is to the latter that the reducing effect is due. Pure alum gives no indication of iron, but in the early stages of manufacture large quantities of iron salts are present, and have to be removed. Their presence in the commercial article shows that the alum is of exceptionally bad quality, and quite unfit for photographic purposes.

* * *

Snapshotting "in Camera." Like a boy with a new watch, as the saying goes, a Paddington Councillor, in the pride of possession of a hand-camera, must needs take it with him to the meeting, and commence to mark down his fellow-members. What is the strange passion that impels the hand-camera worker? We believe it to be the combination of two factors: the first, that fatal ease in pressing the button, which makes the fingers itch for action, and second, the fanatical enthusiasm which cries, "I must have that" to everything. In the Councillor's case it rose to such a height that the Mayor was cheeked, a solicitor sought and consulted, excitement and disorder involved, an hour and a half of public time wasted, the police called in, and finally the camera man forcibly removed by two beadles and the mayor's marshal, before the police arrived. The last episode would have made a capital subject. Of course, we do not hear the photographic martyr's side of the case. It may be that the Paddington Councillors are in fact irresistible as subject matter, in which case we can understand their efforts to fend off the fusillade, while we sympathise with the operator in the fruitlessness of his valiant attempts and deeply laid plots.

* * *

Developing Panchromatic Plates. A recent German patent granted to R. Krayn describes the use of an acid bath or acid developer for the treatment of red-sensitive plates prepared with dyes, such as panchromes, which are decolourised by acids. This has for its purpose the destruction of the red-sensitiveness of the plate after exposure, and is on the lines of the acid diamidophenol developer which has been stated to be effective for the same result, although some experimenters have failed to find that it does behave in this way. If the process recommended by Krayn be that mentioned in the patent specification, namely the use of a $\frac{1}{2}$ per cent. bath of sulphuric acid before development with ferrous oxalate, or the addition of acid to the developer itself, it is possible that the stronger sulphuric acid may be able to effect a more complete action than that of sulphurous acid.

* * *

Photographers' Advertisements Under the title of "The Sun Artist's Opportunity," a recent issue of "Printers' Ink," the little journal of advertising issued by Messrs. S. H. Benson, Limited, of Kingsway Hall, London, W.C., remarks upon the almost complete absence of por-

trait photographers' advertisements in the daily press. Our contemporary's comments are suggested by a recent illustrated article in the "Chronicle" on a lady photographer's work, and it is led to suggest the forms which advertisements of a firm of popular photographers might take—such as notes on the kind of clothes to wear, the necessity of avoiding the ultra-fashionable attire now existing—for example, the present combination of Directoire clothes and beehive hats—which give a date to the photograph and appear grotesque in a year or two's time, if not a good deal sooner. While it is realised that a photographer cannot make lavish use of such advertisement in the daily press, the suggestion is made that an expenditure once a year on a series of, say, quarter-page advertisements in a London daily paper would prove remunerative, particularly as the photographer's business lends itself excellently to the making of very satisfactory advertisements by means of half-tone blocks. And we are glad to note our contemporary's last words, namely, that if such a business is "to achieve success through advertisement, it must deserve success."

* * *

Commercial Telephoto Work.

There is one article in the current issue of Captain Owen Wheeler's "Telephoto Quarterly" which runs to only a score or two of words, but points a practical lesson which may be learnt with profit by photographers making a business of outdoor work. The writer, Mr. E. A. Biermann, shows the advantage of a telephoto lens, working at nine magnifications in the particular instance, in making a series of photographs of houses on a certain estate which was being offered for sale. Owing to the undulating nature of the ground the natural picturesque surroundings of the houses could not be shown when a near standpoint was taken, as required by a lens of the normal focal length, but by taking a more distant view-point a greatly improved aspect was obtained, and the two illustrations reproduced make the strongest possible case for the inclusion of a telephoto lens in the equipment of the photographer who would go out prepared to make the very best of a commission of this kind.

* * *

Regularity in Sulphide Toning.

So much discussion takes place as to the causes of trouble in the sulphide toning of bromide prints that one might almost suppose that the method was incompatible with the regular output of work on a commercial scale. But as a matter of fact the commercial enlarger or printer, even if he is not prepared to discuss the formation of the sulphates or dithionates in the toning-bath, nevertheless has a practical science of his own which is commercially sufficient. Being the other day at the Frisian House establishment whereat Mr. S. H. Fry carries on his business of enlarging and printing for photographers and the trade we happened to mention the question of sulphide toning and were interested to hear Mr. Fry's declaration that in their experience the sole secret of regularity in working lay in the making of a perfect bromide print in the first instance. Errors of exposure, development, or incomplete fixing or washing would upset the toning process, and the print was found to tone irregularly or to give an unsatisfactory colour in the sulphide bath, the only necessary course was to send it back to the enlarging-room to be repeated. An ocular proof of the soundness of the principle happened to be forthcoming at the time of our visit in the shape of seven or eight enlargements, each measuring 60 x 24 inches, and all toned by the sulphide method. The evenness of the tone over the whole surface of each of these large prints, and at the same time the

regularity of the tone throughout the series, showed that the principle adopted worked out most satisfactorily in practice, for the enlargements were of remarkably fine colour and quality.

ART AND PHOTOGRAPHY AGAIN.

SINCE an art status is undoubtedly the acme of the hopes of pictorial photographers, and the only footing by which the amateur can stand up to the professional portraitist, it is not surprising that Mr. Snowden Ward should elect the vital topic for his presidential address at the Photographic Convention at Canterbury. He has always been a staunch supporter of art interests in camera work. It is to be doubted, however, whether he really contributed to the gaiety or the illumination of the conventioners by stamping down, so to speak, the already hard-trodden ground of that dry and sterile question: "Is Photography Art?" Presidential addresses usually take the form of a retrospection, followed by a prophetic outlook; but they may do this without disinterring old bones of contention, and without uttering wild and sanguine forecasts that are lacking in due justification.

Mr. Ward led off with his question, "Is Photography Art?" answering it with an unhesitating "No." But this proved a mere quibble, for in the same breath he paraphrased the question, and gave it as unhesitating a "Yes." It would seem that, as a class, photographers feel inwardly the "No," but assert the "Yes" in mere loyalty to their craft, and hope in themselves. When the president crystallised his observations into aphorisms, it was not always possible to agree with him entirely. For example: "A picture does not mean a beautiful thing photographed, but a thing beautifully photographed." One can approach such an ambiguous statement from several opposite points of view and make it either wrong or right. It has, therefore, little in it beyond sententiousness. Possibly Mr. Ward's real meaning is one that we could readily endorse; but, on the face of it, the epigram is open to dispute. In elaborating the point he betrays that his mind was running upon the fact that matters of sentiment and romance form a part of the make-up of the artist, for he talks of beauty in a noble head of a fine old man who has done and triumphed greatly; or of a gentle lady who has suffered and been strong. Further, he alludes to a "greater art" which sees the marks of struggle and high aspiration in the degraded faces of those who have failed. Our contention is that all this is not art at all, but something else. Though it smacks of the Parish Church Magazine, it may, indeed, afford that "literary" help to a picture which many seek and enjoy; but, nevertheless, it is no part of the picture's art in the strictest connotation of the term. To refer to a view of Harlech Castle as called up in a Welshman's mind by the strains of the famous march is just as much beside the point. Who is to say that the man who takes the *pretty* "local view" is less imbued with Welsh patriotism than Mr. Geo. Davison? Association of ideas is one thing, and art, or even an innate feeling of romance, is another. The precise and commonplace view is really the more likely one to cause association of ideas. But though sentiment and romance may, to some extent, prompt the work of the artist, they are not the qualities which make him either great or feeble in art. Moreover, they are possessed by many more people who have no touch of the graphic artist in their composition. These qualities have as much, and no more, to do with the equipment of the artist, as "the history of music" and "the depths of sorrow and disaster," or of "art, literature, poetry, music, history, architecture,

anatomy, religion, politics, even engineering and manufacture." "Ars longa; vita brevis." If a man put himself to any pains to get more of these things than he could get reading as he ran, he would be stultifying instead of brightening his chances in art. Admirable Crichtons do not make good painters. Depth, not width, is what is wanted in the studies that pertain to art, and dilettanteism results in superficiality. Mr. Ward's contention is only true in the limited sense that "no knowledge is useless," as he puts it. We are prepared to say all knowledge is useful; but the man who takes the proffered advice, and deliberately studies upon the modest curriculum suggested, will find that, before he has more than begun his "prep.," the great head-master is beckoning with bony finger.

As a matter of fact, the great artist is often the uncultured and boorish man; but however much he may fail in the Crichton accomplishments, he has that in his temperament which makes him know what he wants in a picture, and that is the undefinable and inexchangeable gift that all but a very few photographers do *not* possess.

This gift is only too rare, and thousands of painters are without it, namely, the daubers who commercialise and live upon the shame of their handiwork. The gift is born in the painter, and is developed by practice. Mr. Ward says art is a matter of education. Here we believe him to be wrong. "Execution" alone is a matter of education, and the art student is concerned with that, and that alone. He may become a perfect virtuoso in paint, but he will not be an artist without the natural gift. Yet this execution is a lifelong thing to come by. Sargent once (perhaps often, for that matter) employed a model four days a week for nine months consecutively, and painted a head every one of those days, scraping it all out at night, to do another at the next sitting. The model grew weary first. In such singleness of purpose has he arrived at his ease and dexterity of execution. If mere technicality demands so much there is little time for book-learning or sight-seeing. Fortunately, the gift, the artistic talent, grows by what it feeds on, making no demand upon the outer world. Or, rather, we should say that, whilst the outer world can teach nothing of art to a person wanting the proper receptivity, the talented one gathers sustenance everywhere unconsciously. As to the president's view that to-day some leading painters might learn good lessons from leading photographers, we should regard it as a sop-in-the-pan for his audience had he not put forward the claim "quite seriously." "Our exhibitions of paintings show mastery quite inferior to that of Annan, Crooke, Hollyer, Furley Lewis, Hoppé," says Mr. Ward. The picture of Sargent sitting at the feet of Mr. Hoppé learning good lessons is too exquisitely delightful.

The closing words of the address referred to the future position of photography among the arts. Needless to say, they were highly sanguine. Loath though we should be to place a deterrent in the way of enthusiasm such as Mr. Ward's upon a matter wherein our own sympathies and interests are so much involved, we cannot but question whether the apostles of free methods in pictorial photography are not living in a fool's paradise. The greatest pictorial advances are being made upon lines which do but react against photography as a means of artistic expression, and the question, "Is Photography Art?" becomes less difficult to answer day by day. It is an undignified spectacle, that of photography struggling and panting up the slopes of Parnassus, only to slip back again and again. If its apostles would not claim so much, but contentedly employ it for what it is, there would be less room for faction among its votaries and for the amused smiles of those who look on.

PHOTOGRAPHIC RECORD.

It is a pity that Mr. Bothamley, in his paper before the Convention last week, did not say less on the methods of photographic record and more on the measures to be taken to render the results of photographers' work accessible to those to whom it is of particular value. There would appear to be a general impression among those who advocate photographic record work that the making of a photographic print of any building or scene of interest to the antiquarian or historian is necessarily a valuable piece of work. In the circumstances under which record work is carried on at the present time the chances are largely against such indiscriminate photography by detached workers being of the slightest use to anybody. From the point of view of service to antiquarians or archæologists, what is now wanted is not so much the stimulation of photographers to take up record work, but the provision of means whereby such work is rendered accessible, and particularly means whereby duplicates of the photographs made are readily obtainable. We think the example which has been set by the Sussex photographic survey, namely, placing the prints in the charge of a public librarian, deserves to be largely followed. After all, the proper place for record photographs, because the easiest and most accessible place, is the home of some educational or literary body in the immediate neighbourhood. That is obviously the best course so far as inspection or consultation of the prints is concerned, but it does not solve the difficulty of obtaining copies of any photographs of special interest. The suggestion that those who took the negatives

will be prepared to supply prints is one which can hardly be considered as practicable. Though it may suffice for a few years, yet in time to come the owners of the negatives, if not the negatives themselves, will have disappeared, and the only means of obtaining duplicates of the prints will be by copying. If those who spend their labour in the advocacy of record work would turn their attention to awakening municipal interest, they would, we think, be touching the weak spot in this very desirable branch of work. Really, what is needed is not a great amount of work by separate workers, much of which overlaps, but a planned and concerted scheme whereby within a few miles of any historical building, and most properly in a public library, there shall be collected photographic prints, and also the negatives from which they were made. Such a scheme will give plenty of opportunity to those who are interested in this branch of work, and it will supply all that the archæological students require. We think that many of our professional readers, who take an interest in the affairs of their town, might do worse than concern themselves with the question from this standpoint. The cost to the municipality of the storage of prints and negatives should be trifling, and the work of indexing and cataloguing one which could be done without laying any appreciable extra labour upon the staff employed in a public library, and the fact that the archæological student will usually require prints to take away with him would mean that a certain amount of business should come the way of the professional photographer in districts where such collections of negatives as well as of prints exist.

THE PHOTOGRAPHIC CONVENTION OF THE UNITED KINGDOM.

II.

THE weather conditions continued mixed during the Convention week, but were never so serious as to interfere appreciably with the excursions and other fixtures. At the garden party, given by the Mayor of Canterbury, on Wednesday afternoon, the group reproduced last week had just been taken when the rain descended heavily, and the party had to take advantage of the shelter offered to them by Mr. Bennett-Goldney, whose many acts of kindness and hospitality to the Convention remain one of the most pleasant memories of the meeting.

Among the many pleasant functions held during Convention week, the dinner at the County Hotel was one of the most successful. To begin with, the dinner was good, and well served. The toasts were "The King," "The Queen and the rest of the Royal Family," "The Photographic Convention," "The Dean and Chapter of Canterbury," "The Mayor and Corporation," "The President," and "The Ladies."

Among the guests were The Mayor, The Rev. Dr. Moore (Canon in residence), and Mr. B. Twyman (Secretary of the Canterbury Chamber of Commerce). Sir Cecil Hertslet proposed "The P.C.U.K." in his usual felicitous manner, and highly eulogised the Hon. Sec., who replied reminding Sir Cecil of the time when they were together on the Council of the "Parent Society," and, in conjunction with other gentlemen, prevented the absorption of that body by the Polytechnic.

Canon Moore spoke of the pleasure it gave the Dean and Chapter to offer facilities to the members visiting the Cathedral. Mr. E. J. Humphery made an excellent speech in proposing "The Mayor and Corporation," and the Mayor not only responded, but gave a very fine recital of one of Kipling's poems. Mr. Bothamley, who was entrusted with "The President," spoke

with the weight and deliberation due to such an important toast, and Mr. Snowden Ward, who during the evening had kept up a running commentary on the proceedings, "and so on and so forth," responded in his usual genial and cheery way. Mr. Alfred Watkins submitted "The Ladies," and a suitable response was made by Mr. A. H. Dodman. In fact, everyone endeavoured to say as many nice things as possible about everyone else, and the majority succeeded admirably.

The proceedings were interspersed with some excellent music by members of the St. Lawrence Amateur Musical Society, who gave a selection of orchestral pieces, songs, instrumental solos etc., the concert being under the auspices of the Canterbury Chamber of Commerce.

Among the many absent members who desired to be present "in spirit" at the dinner, and expressed their regret at being unable to be present "in the flesh," were Mr. and Mrs. Alfred Werner, Mr. and Mrs. Alfred Ellis, Mr. Andrew Pringle, Mr. J. H. Walker, Mr. T. C. Turner, Mr. Geo. Davison, Mr. and Mrs. G. W. Atkins, Mr. Harold Baker, Mr. and Miss Brand, Mr. and Mrs. F. P. Cembrano, Mr. and Miss Seaman, and Mr. W. J. Croall.

On the Rochester excursion the President proved a tower of strength in pointing out the many literary and historical associations of the castle, cathedral, and other ancient buildings of Rochester. At the evening meeting Mr. C. H. Bothamley delivered a very lengthy address, which was further prolonged by an exhibition of a set of lantern slides dealing with "Some Aspects of Photographic Record Work." The paper dealt with the general desirability of record work, and of the lines upon which it might be most advisably done; but it cannot be said

that the lecturer touched any new ground in his treatment of the question, his dicta as to the taking and printing of photographs intended for record purposes repeating the methods which are generally found suitable for this purpose.

The excursion of Friday to the ancient towns of Rye and Winchelsea was attended by a large party, most of whom spent the day amid the picturesque surroundings of Rye, a small proportion journeying to Winchelsea, and exploring the quaint nooks of this ancient place.

The two papers at the Friday evening meeting proved full of interest. Captain Owen Wheeler described his practice of high-power telephotography in the concisest form, and illustrated the results attainable by a number of comparative examples, the remarkable sharpness of definition in the case of the high-power work proving the most convincing demonstration of the possibilities of this branch of work. Mr. Martin Duncan, in a lecture on "Colour Photography Applied to Natural Science," showed a number of examples on the Autochrome plates of the processes of fertilisation in plants by means of bees, and proceeded then to show also some cinematograph pictures, which illustrated the use of this method in the investigation of physi-

cal phenomena—namely, in recording the forms of vortex rings, and, further, in natural history, in reference to the prevention of yellow fever by covering the surfaces of pools containing the germs of fever with some oily layer which prevented the organisms, existing near the surface of the liquid, from obtaining the necessary supply of air. The formal part of the proceedings of the Convention came to an end with this meeting, and the occasion was taken to offer to the Mayor of Canterbury a framed photograph of the group of members as a mark of the great help and hospitality received by the Convention from Mr. Bennett-Goldney. The Mayor, in acknowledging the gift, expressed the pleasure the visit had been to him, then somebody said "Why is there no vote of thanks to the President for all he has done?" and, on the motion of Mr. Bridge, the meeting showed by acclamation its great appreciation of the President's interest and help.

Saturday's outing was taken by a few conventioners who, under the guidance of Mr. Snowden Ward and several members of the Maidstone Camera Club, visited the assize town of Kent and some of the surrounding objects of interest, chief among which was the ancient Allington Castle.

WHY WE SEE RELIEF IN THE STEREOSCOPE.

(A paper by Mr. C. Welborne Piper, read before the Photographic Convention, July 8.)

THE complete theory of stereoscopy should include an explanation of why the objects represented in a stereoscopic slide appear to be "in relief" when we view the slide through a stereoscope. As a rule, however, we hear very little of this part of the theory, and a great deal with regard to that which concerns the proper method of making the slide. I therefore propose in this paper to deal only with the more neglected part of the theory, and to describe some of my own experiments made in the endeavour to elucidate the true cause of the effect produced.

The first of my experiments was devised to test an assumption that seems to have been almost universally accepted without question and without test. It is generally assumed that the stereoscope reproduces by artificial means the conditions that prevail when we look at the original object with our two eyes, and that the cause of relief is in both cases the same.

It is, of course, clear that the conditions are not, and cannot be, exactly alike. In the stereoscope we look at prints on a plane sur-

face by the apparent diminution of size due to distance, and by atmospheric effects that alter tones at different distances. This factor of perspective must therefore be eliminated in any experiment such as that I attempted, and, consequently, the only satisfactory test subject will be two simple points situated in space and at different distances from the eye.

The slide shows the apparatus used.

An oblong rectangular box is shown in Fig. 1 in thick lines. This box is 13in. long, 6in. wide, and 4½in. deep, while 2½in. from one end and it is divided by a vertical partition, *a, b, c, d*. In this partition there is a narrow horizontal slit *s*¹; in the nearest end a corresponding slit *s*², and at the other end another slit *s*³, this last slit being covered with tissue paper. All three slits are on the same level, and if the box is dead-blackened inside and covered with a light-tight blackened lid nothing but slit *s*³ is visible when we look through the box lengthwise with the eyes at *s*². Two thin black rods, *r*¹ and *r*², are fixed in the positions shown, so that both are easily within the limit of clear vision from *s*². The more distant rod, *r*², is slightly thicker than the other, so that each subtends the same angle and looks the same width when seen from *s*². On looking through slit *s*² we can see only such portions of the rods

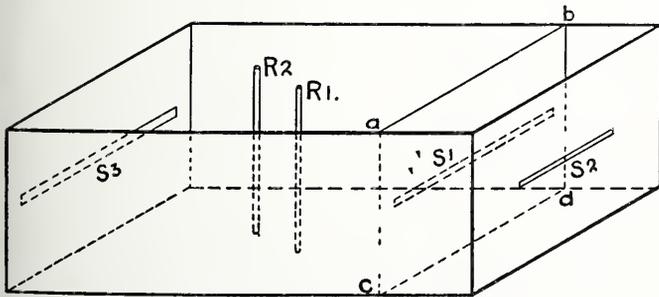


Fig. 1.



Fig. 2.

as are opposite slit *s*³, the effect of a single rod being something like Fig. 2. All perspective is thus eliminated. We cannot see the tops or bottoms of the rods. We can see no apparent difference in thickness and no apparent difference in tint or lighting; therefore the effect is very much that of viewing two points in space.

Whatever differing effects may be visible when looking with both eyes through slit *s*² at either of the two rods must therefore be due only to the change of convergence of the eyes and the accompanying change of accommodation.

The effect actually produced is, however, somewhat surprising, in view of preconceived ideas, for the difference that actually exists in the distances of the two rods becomes altogether unrecognisable. Instead of two points at different distances we see three all at the same distance.

The next slide shows in plan the effect produced.

*E*¹ and *e*² are the two eyes, and the black dots *r*¹ and *r*² the two rods. If we converge the two eyes on to *r*¹ we see three rods in a row apparently equidistant from the eyes, as indicated by *r*¹, *a*, and *b*. If we converge both eyes on to *r*² we again see three rods, *r*², *c*, and *d*, all equidistant from the eyes, but apparently more widely separated from each other than the first three observed.

To see these effects the rods should be placed so that *r*² is about

face and our eyes are accommodated, or focussed, always on that plane, even when their axes converge to points beyond it. But in viewing the natural object the accommodation is always varying with the convergence and with the distances of the different parts of the object. This may seem to be a small matter that cannot affect the truth of the proposition that the stereoscope reproduces the conditions that prevail when we view the actual object, but it is never safe to neglect small matters in scientific work, so I tried a practical experiment.

Perhaps the problem involved may be expressed more clearly in this form. Is the effect of varying distance, relief, or solidity that we see in the stereoscope due to the same causes as the similar effect produced when observing the actual object? Of course we know that one condition conducive to an effect of relief exists in both cases, that is perspective. No argument is needed to show that our ideas of solidity or of shape or of distance must be governed to some extent by perspective—that is, by the direction of lines,

2in. farther away than r^1 , while each rod is about $\frac{1}{4}$ in. away from a central line $e f$. If placed farther away from this line there will be some difficulty in seeing all three points distinctly.

A variety of other effects, including curious movements of the points, can be observed in this vision box, which is a very useful instrument for testing various phenomena of vision, but for our present purposes we need only consider the two effects described.

The existence of three images is, of course, in all cases, due to the fact that the point at which we are not directly looking appears to be doubled. When looking at r^1 , then r^2 appears in duplicate at a and b , and when looking at r^2 , r^1 is doubled at c and d .

Now the line r^1 , a , and b is not straight, but forms part of a circle (shown dotted) which is known as the horopteric circle, the property of which is that all points lying upon it are seen as single points when the eyes are converged upon any one of them. Thus if a and b were actual points we could look at any one of the three points r^1 , a , or b without seeing either of the others doubled. But any point not on the circle, such as r^2 , is seen double, and in the conditions of the experiment the doubled images are so realistic that we take them for two real points, a and b , situated on the circle.

The same conditions apply exactly to the points d and c , which are situated on another horopteric circle which is not shown.

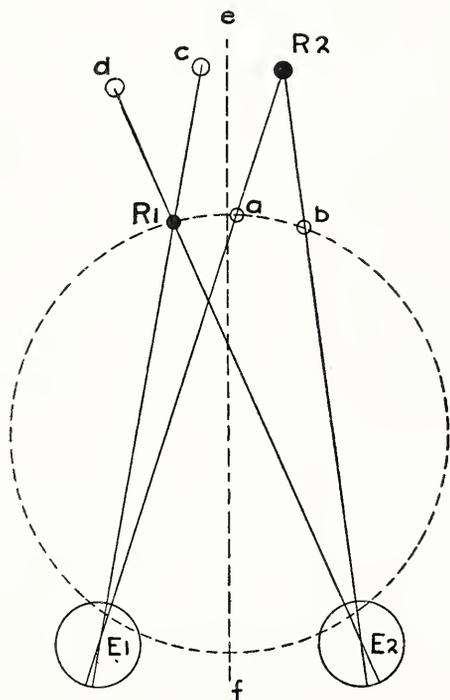


Fig. 3.

If we take away rod r^2 and substitute two others at a and b , we see precisely the same effect as when we have the two rods alone and converge both eyes on to r^1 . Further than this, when using the two rods only, we can with a little practice turn both eyes on to either of the apparent points at a and b without disturbing the illusion. I mention this last effect as an interesting fact which adds to the realism of the result, but at present there are difficulties in the way of understanding why we are able to do this, and it is just possible that the sensation is deceptive and that the two eyes do not move in the manner they appear to do. In any case, however, the impression that three rods really exist at r^1 , a , and b is very convincing, while there is no effect tending to suggest that the real subject we are looking at is simply two rods in the positions of r^1 and r^2 .

If we increase the number of rods the points visible, of course, increase, but however we arrange the rods and whichever one we look at, all the points appear to be at an equal distance from the eyes. This is a very interesting fact, as it confirms what is known as the law of Aguilonius (or Francis Aguillon), a Jesuit who published a book on optics in 1613. This law has been disputed and generally considered to be erroneous, but those who have denied its truth evidently failed to test it under conditions in which per-

spective effects were eliminated. Aguilonius made one mistake in his law. He stated that all objects seen at a glance with both eyes appear to be situated in the plane of the horopter; but the horopter, or surface upon which all points that exist appear to be single, is not a plane. It is a complex surface that can be represented in plan by a circle just as I have shown in the slide. If this mistake is corrected and the effects of perspective are eliminated, we see that his law holds good.

From the result of this experiment we see that in ordinary vision the convergence of the eyes and the act of accommodation have no effect in enabling us to see the difference in the distance of two points. We can only tell that r^2 is really farther away than r^1 by a complex process of reasoning. To do this we must understand the meaning of the various effects produced when we change the directions of our eyes from one rod to the other. That is, we must know what is indicated when the three points appear to separate or when they appear to draw nearer together, and beyond this we must understand the meaning of the appearance of three points and be able to distinguish the real points from the doubled false ones. If the arrangement of the rods is previously unknown it is a very difficult thing to exactly determine their relative positions. Even when they are known, and the experimenter has had a great deal of experience, it is very easy to become confused.

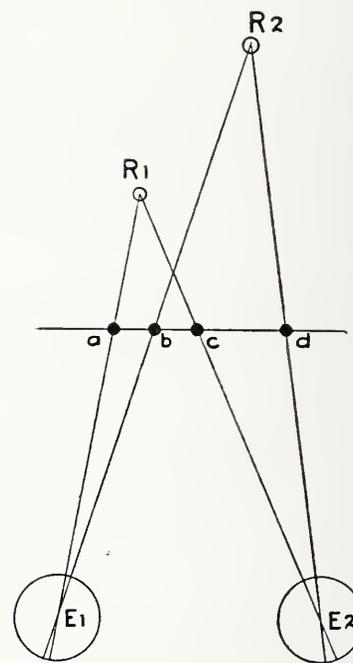


Fig. 4.

I may point out that some practice is necessary before the effect I have described can be exactly repeated. Not only are they confusing, but at first it is difficult to control the eyes in such a way as to direct both on to either r^1 or r^2 . One of the first discoveries made with the box is that our eyes are very much out of control when no perspective effects exist to guide them, and that the sensations aroused are then very deceptive and difficult to interpret.

The next experiment is made on similar lines, but with the view of testing stereoscopic vision.

In Fig. 4 the circles r^1 and r^2 show the positions of the rods previously used, but we now replace these rods by four others, a , b , c , d , arranged in a plane nearer the eyes, but still beyond the second slit in the box. The four points in space that these rods represent can now be combined stereoscopically by the eyes (e^1 and e^2) without any difficulty whatever, and the result is the representation of two apparent points, r^1 and r^2 , at unmistakably different distances from the eyes. When our attention is directed more especially to one of these apparent points the other may appear doubled, but the double images do not by any means seem to be in the same plane as the point we are looking directly at. We can see distinctly at all times and in all circumstances that the image produced by the combination of points a and c is nearer to us

han that formed by *b* and *d*. This effect can be confirmed in the ordinary stereoscope if we take a stereoscopic mount, mark our dots upon it, as in Fig. 5, and examine it in the stereoscope.

From these experiments it is, I think, evident that the stereoscope does not exactly reproduce the conditions of ordinary vision. On the contrary, it gives us a power of appreciating differences in distance that we do not ordinarily possess.

The reason for this cannot well be ascertained by direct experiment, but it appears quite logical to attribute it to the different conditions of stereoscopic and ordinary vision referred to before.

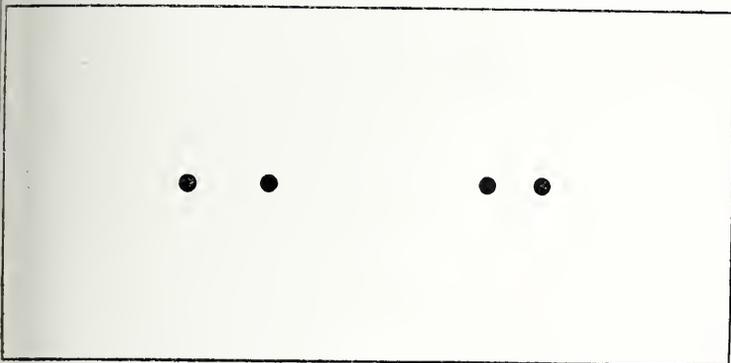


Fig. 5.

That is, to the fact that in stereoscopic vision the accommodation of the eye does not alter with the convergency, while in ordinary binocular vision it does so.

It has been generally assumed that we distinguish variations in distances because we appreciate changes in the angle to which the two eyes converge, and that the information is conveyed to us by the varying muscular sensations aroused, the most familiar sensation being that of the rotation of the eye-ball in its socket. It has, however, seemingly been forgotten that muscular sensations are practically obliterated in time as the result of much exercise. The only muscular sensations that we are really forced to appreciate are new ones aroused when we begin to exert the muscles in an unusual fashion or when we put a strain on muscles that are ordinarily little used. The eye muscles are certainly among the most freely exercised muscles in the body, and therefore it would appear quite natural for us in time to fail to appreciate any sensations aroused by their ordinary use. Possibly the sensations aroused in the case of a young child, who is just learning to use its eyes, are of great importance as guides to the meaning of what is seen, but the experiment with the vision-box proves, I think, that in the adult these sensations are no longer appreciated. In the stereoscope, however, a quite new sensation is aroused, for the muscles controlling the accommodation have to work independently of those controlling the convergence, while in ordinary vision the two sets work in unison. This new sensation enables the observer to appreciate relief independently of the aid of perspective.

We can now consider another matter rendered clear by the use of the vision-box. When I devised this experiment I was under the impression that it was a new one, which impression was confirmed when the facts observed also appeared to be new.

You will perhaps not be surprised to hear that this assumption proved to be quite wrong, and that the experiment in question is really a very old one. It is, in fact, described by Joseph Harris in his "Treatise of Optics," published in 1775 (Book II., sec. ii., article 169), but in his experiment he employed rods of different colours, which materially assist the observer, and he also fails to exclude all effects of perspective. His apparatus appears to have been quite open, therefore the differing lighting of the rods is sufficient to enable one to tell which is the nearest. This is so, even with black rods, when the lighting is not properly arranged, and the effect produced by the introduction of such an insignificant effect of perspective is an important thing to note. The moment perspective comes in then the differing distances of the rods are immediately observable. This shows the important part that perspective plays in vision. Some old writers have claimed perspective to be the important factor by which we appreciate distance, and while more modern writers have disputed this claim, I am inclined to think the old ones were correct. In any case, I feel certain that it is the

factor that the adult observer relies upon in ordinary binocular vision.

It may be argued that this theory cannot be correct because only a few specialists understand perspective at all; but, as a matter of fact, a person who does not even know the meaning of the word is absolutely familiar with all the important facts of perspective. Every one knows that an object seems to become smaller as it is removed farther away, and even though it has never occurred to him that, as a necessary consequence, parallel receding lines must appear to converge on to a single point, yet he will at once appreciate the fact that receding lines that do not converge cannot be parallel. Dimness and mist, lack of detail, and softness of colour he also appreciates as evidences of distance. Indeed, he is perfectly familiar with all the facts, though quite incapable of formulating or describing the theory. This instinctive knowledge is, of course, only obtained by experience, and while the child with no such experience is probably quite dependent on the sensations aroused by eye movements, the adult relies on experience and neglects the muscular sensations which it is no longer necessary for him to note or interpret. In the stereoscope perspective plays the same part as in ordinary vision, for a good photograph must show perfect perspective, but the perspective effects are supplemented by one due to the unusual muscular sensations aroused, so that in the final result relief and solidity may be even more obvious than in the original object. That these qualities are actually more apparent soon becomes evident if we inspect a number of slides.

We may now conclude that the appreciation of relief in the stereoscope depends on two things—on perspective and on the sensations aroused by the unusual manner in which the acts of convergence and of accommodation are accomplished. It must, however, be understood that these unusual sensations would not exist at all but for the fact that the two pictures which make up the slide present slightly different views of the object. The right-hand view shows a little more of the right-hand side of the object than is visible in the left-hand view, while the left view shows a little more of the left side than is visible in the right-hand view. In these circumstances what is known as "parallax" exists, and we may therefore describe the relief as due partly to perspective and partly to parallax.

Here again we are led to another inquiry. We can not only appreciate form or relief in the stereoscope, but also distance. That is, we can distinguish that one point is close at hand and another a very long way off. Suppose we have a slide in which a distant church spire and a near tree are both shown. Put a spot of ink on the same point of the spire in each image and another spot on the same part of the tree in each image. Then bleach out, or in some way destroy, the photographic image so that only the four spots remain. Examine the result in the stereoscope, and we see two spots at slightly different distances, but both apparently within a foot or so of the eyes. The destruction of the image has also destroyed all perspective effects, and with it the perception of distance has vanished. The parallax which remains enables us to perceive relief, but it is evident that our conception of distance must depend entirely on perspective. In other words, we must have perspective to show us what the objects are, and what their distances are likely to be, before we can estimate distance at all. In the absence of perspective we simply refer all points to the nearest possible positions.

The importance of parallax in stereoscopy has always been realised, but that of perspective has generally been under-estimated in the cases of both stereoscopic and ordinary binocular vision. In the latter the mistake has also been made of attributing to parallax an importance which it does not possess. It exists, of course, but I think my experiments show that the change of convergency, which is brought about as the result of the parallax, is not the factor by which we appreciate relief in ordinary vision, though it is a very important one in stereoscopic vision, owing to the peculiar conditions that prevail in viewing the slide. This idea is confirmed by the fact that a one-eyed man can see solidity and form in natural objects and also appreciate distance with practically the same accuracy as a two-eyed man, though parallax is a factor that does not exist for him.

I do not, however, mean to suggest that the possession of two eyes is no advantage to us. On the contrary, it permits us to see more of a near object in one glance—an obvious and very material advantage which we also possess in stereoscopic vision. In binocular vision we can judge form by the aid of two different perspective

views from two different view-points. In stereoscopic vision we can do the same, but we have the additional advantage of the special sensations aroused by the change of convergency.

The rest of the theory of stereoscopy is mainly concerned with

the methods of obtaining correct parallax and of avoiding distortion in the mounted prints; but, as stated before, I do not propose to touch on this matter, which is fairly well understood by all practical stereoscopic workers and of little interest to anyone else.

HIGH-POWER TELEPHOTOGRAPHY.

(A paper read by Capt. Owen Wheeler before the Photographic Convention, July 9.)

Ladies and Gentlemen,—Before I touch even the fringe of my subject I want to put myself right with this highly representative audience as to my personal attitude towards high-power telephotography. I have given, I confess, a good deal of time and thought to the employment of the telephoto lens at comparatively high magnifications, and some of my friends seem to think that because I have done so I look upon high-power work as the be-all and end-all of telephotographic practice. Now this is really quite a mistake. As a matter of fact the great bulk of my own work, such as it is, is done at comparatively low magnifications, and it is only occasionally that I use very high-power lenses to secure some special effect, or for purposes of technical demonstration. I fully agree with the majority of those experts who hold that the future popularity of telephotography depends upon the general and successful use of lenses of moderate power. And I admit that there is a great deal to be said for the proposition that a telephotograph at six magnifications which can be comfortably enlarged four diameters is more to the point in nine cases out of ten than a direct telephotograph at twenty-four magnifications which will stand no enlargement at all.

But there is another side to the question, and it is with reference to this other side that I seek to explain my own predilection for an occasional attempt at magnifications somewhat beyond the average. In the first place it is surely pardonable on the part of any enthusiast to familiarise himself with the utmost limits to which he can ride his hobby, provided that in so doing he does no harm to anyone else. The telephotographer at, say, thirty magnifications may be a crank, but he is, at least, a harmless crank, whose high-power negative is not in the same category as, say, the eighty horse-power car of the racing motorist. Secondly, it does sometimes happen that you must either use a very high-power telephoto lens, or do without the result you want to secure. Lastly, high-power telephotography is really—if you go the proper way about it—by no means difficult, and it is immensely instructive, besides being rather fascinating. I do not suggest that it is a good policy to obtain a grip of the differential calculus in order to enable you to solve simple equations with facility. But I do say that, looking at the small extra trouble involved in learning how to take high-power telephotographs, it is worth while, at any rate, making a few cheap experiments, if only for the reason that a little success in these higher flights will make ordinary telephotography seem almost ridiculously easy.

High, Low, and Moderate Power.

After this preface let us now get to facts. First, we have to consider what high-power telephotography is. As far as I can make out most writers on the subject have slightly different opinions on this point, but I daresay none of them would quarrel seriously with the proposition that, when you fix a telephoto attachment to an ordinary lens, and use the system thus obtained in such a way that an image is produced showing an enlargement from two to four diameters of the image obtainable by the ordinary lens when used alone, this is low-power telephotography. When the magnification is from five to eight or nine diameters the result may surely be called a moderate-power telephotograph. Anything above nine magnifications may, I think, fairly be classed as a "high-power," and, indeed, since in telephotography all magnification is linear, I think the majority of those who see a photograph

enlarged in area even sixty-four times are inclined to regard the "power" used as considerable.

Placing our lowest high-power at nine magnifications, let us see what in the ordinary way is necessary in order to produce even this enlargement. As most of you are probably aware, a telephoto lens consists of two elements, a positive and a negative, the former being usually an ordinary photographic lens, and magnification in telephotography depends upon three conditions, the separation of the positive and negative elements, the camera extension, and the focal length of the negative lens. It has nothing to do with the focal length of the positive, so we can leave that out of account. We also need not trouble ourselves now about the separation of the two elements. But the other two conditions, the camera extension and the focal length of the negative, have seriously to be reckoned with in high-power telephotography. They are inter-related, and the connection between them is expressed by two important rules, which lie at the root of all telephoto work. These rules are as follows: (1) To find the camera extension which is needed for any particular magnification you must multiply the focal length of the negative by the number of magnifications less one. (2) To find the magnification at any given camera extension you must divide the camera extension by the number of magnifications, and add one to the result.

Camera Extension versus Short-focus Negative Lens.

Now, if you ordinarily use a 7-inch lens, and want to convert this into a telephoto system, an optician will probably advise you to have a 2½-inch or 3-inch negative, because he will assume that you want to work at the lower magnifications, and at these the plate will not be properly covered by a system in which the negative is of short focal length and small diameter. But, suppose you take his advice and procure a 3-inch negative, you very soon reach the limit of your capacity. Your camera may have an extension of as much as 23 inches. From this you will probably have to deduct two inches for the projection of the tele-mount inside the camera, leaving 21 inches clear. Taking the second of the two rules given above, and dividing 21 inches by 3 (the focus of your negative lens), and adding one to the result, you find that the utmost magnification you can obtain is eight diameters.

It is obvious, then, that high-power telephotography means either very long camera extension or the use of very short focus negatives. Theoretically, the former has some advantages, and it certainly makes it possible to cover a large plate with good marginal definition. But the disadvantages are very great, especially in working at very high powers. In Boissonnas' famous telephotograph of M. Blanc, where the magnification is thirty-six diameters, I believe that a 2-inch negative was used, and, even with this, the clear camera extension would have to be nearly six feet. Well, a camera with a six-foot extension is hardly a portable instrument. Moreover, at their full extensions, most cameras, other than the good old square-form type, are not rigid enough for high-power work, in which the slightest tremor renders focussing extremely difficult. That means added weight and complication in the matter of a support, a very simple form of which is sufficient when even a portable camera is used, at a moderate extension.

Commercial Tele-Negatives.

Turning to the alternative method of obtaining high-power by the use of very short focus negatives, I feel certain that the majority of workers do not appreciate the wonderful facilities which lie ready to their hands in this connection, provided always that they are not unreasonable in their expectations. It may be stated at the outset that the possessor of a 7-inch positive who expects by the use of a very short focus negative to be able to cover large plates with fine definition will be disappointed. But, if he confines himself to the half-plate which his positive lens is intended to cover if used alone, he will be amazed at the extra power which is placed in his hands by the possession of a tiny circle of glass about $\frac{1}{2}$ -inch in diameter, and costing at most not more than a couple of pounds.

There are at present three very short focus single tele-negative lenses listed by leading opticians who have establishments in this country, the $1\frac{1}{8}$ -inch Ross, the 1 1-16 Zeiss, and the 30-mm. Goerz, and, as they are all splendid lenses, you have only to pick and choose the one which you think will best suit your positive. The difference in power is, of course hardly worth mentioning. Assuming that you have an available clear extension of 21 inches, the Ross gives 19 2-3 magnifications, the Zeiss a fraction over 20, and the Goerz very nearly 19.

Surely these figures will appeal to anyone interested in tele-photography. Even granting that the occasions are few when you want to take a telephotograph at eighteen or twenty magnifications, it is interesting to be able to do it with such very little trouble, and at such small expense. For it must be remembered that no separate tele-mount is necessary. All that is required is an extension tube of from about one to two inches, according to the focal length of the low or moderate power tele-negative in ordinary use, and a simple adapter for the high-power lens. The change can be effected in a few moments, and in that time you can alter the equivalent focal length of your telephoto system without touching your camera—from 56 inch to 140 inch.

The Staley-Wheeler Tele-lens.

Nor is this the limit to which you can go by using a high-power negative with even a half-plate camera. There is on the market a tele-attachment of peculiar construction, called the Staley-Wheeler Tele-lens, the special function of which is to provide the possessor of small cameras with the means of obtaining telephotographs on special occasions, up to thirty or even forty magnifications. I hesitate even to allude to this instrument, in which I am personally interested, but, as it is the only lens of its kind in existence, and embodies a principle which has a direct relation with the subject under discussion, I may be permitted to make a brief reference to it and its capabilities. The tele-attachment in question is a compound one, consisting of three ordinary negative lenses of different foci which can be used separately or in any combination. The focal lengths of the three negatives which are lettered A, B, and C are respectively about 67, 50, and 27 mm. The two highest power combinations are, of course, BC and ABC, the former having a focal length of about 5-7 inch, while the focal length of the latter is about $\frac{1}{2}$ inch. Looking back at our rules we find that, using the Staley-Wheeler at its full power, we can obtain thirty magnifications with a clear camera extension of only about $14\frac{1}{2}$ inches.

Now, of course, the results at this great power are not equal in definition and in quality generally to those taken at a low magnification with a single specially calculated tele-negative of the first class. All telephoto lenses, except those which, like the Bis-Telars and the Zeiss special combinations, work only at one unalterable focal length, are necessarily to some extent compromises. When it comes to constructing a compound convertible set of three negatives, one has to com-

promise pretty freely in order to get lenses which will both work satisfactorily as single lenses and in any combination. But, taken all round, I think it may be claimed that the Staley-Wheeler attachment, behind a good positive, will make a good showing under all ordinary circumstances, and, if required, will do what simply cannot be done by any other lens at present available. Personally, I seldom use it at its full capacity, though I have worked it up to forty-one magnifications, using 20-inch camera extension, with very fair success. But I often employ the BC combination, even with a 6-inch positive and a portable 5 by 4 camera, at about seventeen magnifications. The definition falls off at the margins, it is true, and better results are obtainable with a 7-inch positive, for which the attachment was primarily designed. But it is interesting to be able to obtain even good central definition at seventeen magnifications with such an extremely portable kit.

A Limit of Useful Magnification.

Personally speaking, I put the limit of useful magnification at about thirty diameters. One can go a good deal further, but at anything over thirty so little light is passed, even when the positive is of large aperture, that accurate focussing becomes very difficult, and is only possible with specially rigid apparatus, and on a very fine day.

It is well to bear in mind, in dealing with these very high powers, the working aperture and the equivalent focus of the system which you are using. In regard to the former the rule is that you multiply the aperture of the positive lens by the number of magnifications, and, in regard to the latter, you apply the same multiple to the equivalent focus of the positive. Thus, a telephoto system in which the positive has an aperture of $f/6$, and an equivalent focus of 7 inches, has, at thirty magnifications, an aperture of $f/180$, and an equivalent focal length of nearly eighteen feet. At other than full apertures the aperture rule is not, I think, to be depended on, for reasons which are outside the scope of this little discourse.

Telephotographs of the Sun.

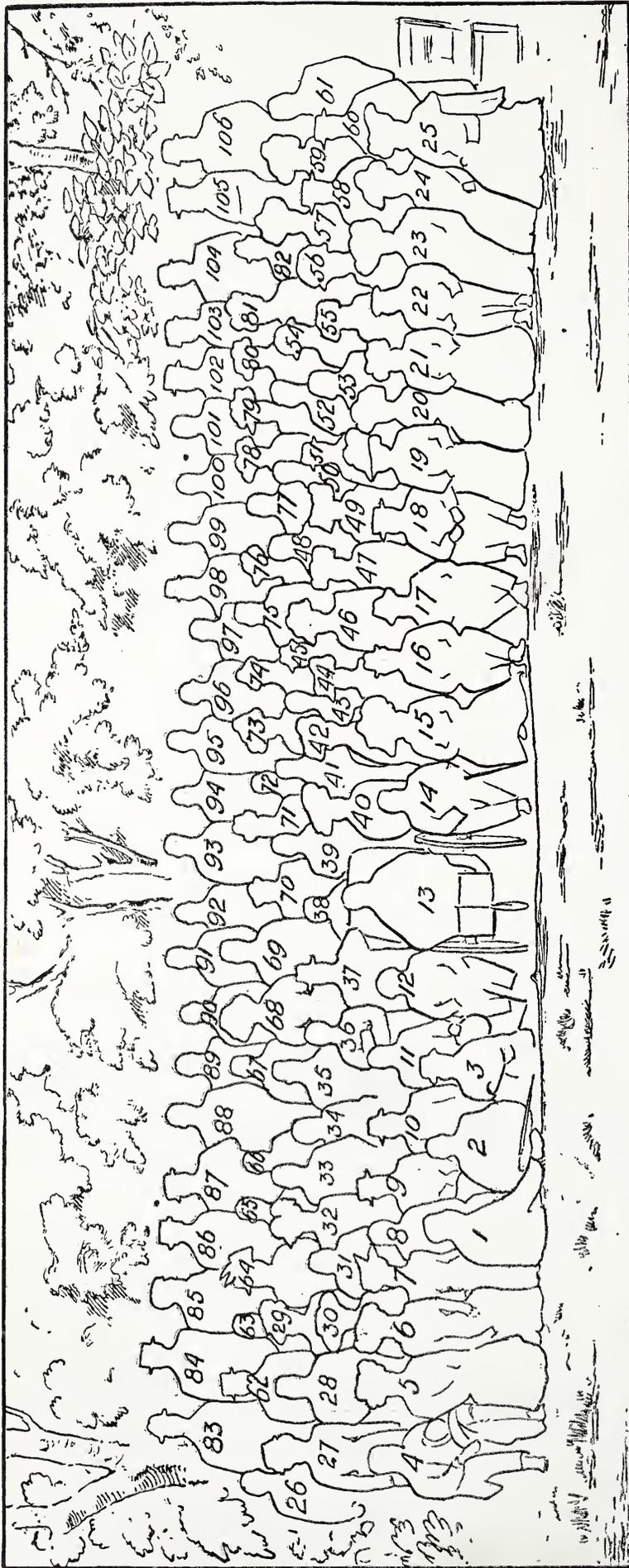
The matter of equivalent focus has a bearing upon the possibilities of the telephoto lens as applied to solar photography. I have myself only made a very few experiments in this direction, but they have been both interesting and encouraging. I think the calculation is that for every ten inches of equivalent focal length you can get an image of the sun 1-10 inch in diameter. Well, by using a compound negative lens of very short focus you can get 200 inches equivalent focus without much difficulty, which gives you an image two inches in diameter. In the case of the sun one can make an exposure which shows a clean margin, but, of course, in dealing with the moon, an equatorial movement with driving clock would be necessary.

And now a few concluding words as to working methods. My own are very simple, and I attribute such little success as I have attained to the fact that they are so. As I have explained elsewhere, I almost invariably work at one camera extension, and vary my powers by using different negatives or combinations of negatives. The proud possessor of a Staley-Wheeler can do this with peculiar ease, as at about 15-inch clear extension he can get from six to thirty magnifications without doing much more than shuffle his negatives as required. I generally use a tripod two or three sizes larger than the one which an amateur keen on having everything ultra-portable would use with my camera for ordinary photography; also a simple uniped lens support. For the rest, my principal stock-in-trade for high-power telephotography is a pretty close adherence to the old exposure rule of multiplying the exposure required with the positive lens only by the square of the magnifications (having regard to the portion of the picture to be telephotographed), a long telescopic lens hood, an opaque focussing

KEY TO THE GROUP OF MEMBERS OF THE 24th ANNUAL MEETING OF THE PHOTOGRAPHIC CONVENTION OF THE UNITED KINGDOM,

HELD AT

CANTERBURY, JULY 5th to 10th, 1909.



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|---|---------------------------------|-------------------------|
| 1. Charles Winter. | 43. Walter L. Stephens. | 86. A. W. Brooks. |
| 2. R. R. Beard. | 44. Mrs. W. Tate. | 87. F. J. Mortimer. |
| 3. Thomas Manly. | 45. A. H. De'Ath. | 88. Frank Reid. |
| 4. Thomas A. Scotton. | 46. Miss H. R. Goodey. | 89. Fred Schotefield. |
| 5. Miss L. Dora Schmitz. | 47. Mrs. Douglas. | 90. Fred B. Cattley. |
| 6. Miss A. C. Schmitz. | 48. John Noaks. | 91. T. B. Tompkins. |
| 7. Mrs. Varian. | 49. Mrs. V. C. Baird. | 92. B. J. Whishaw. |
| 8. Godfrey Bingley (<i>President-elect</i>). | 50. Arthur C. Baldwin. | 93. W. Fisk-Moore. |
| 9. Alfred Watkins. | 51. V. C. Baird. | 94. C. E. Cheetham. |
| 10. C. H. Bothamley. | 52. Col. C. W. Owen. | 95. B. J. Fisk-Moore. |
| 11. Sir Cecil Hertsiot (<i>Retiring President</i>). | 53. B. Ward Thompson. | 96. Herbert Biggleston. |
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| 20. Mrs. F. A. Bridge. | 62. A. S. Ray. | 105. John H. Spencer. |
| 21. Mrs. F. A. Bridge. | 63. Sydney A. Pitcher. | 106. Archer Clarke. |
| | 64. Miss Woods. | |
| | 65. W. J. Ballard. | |
| | 66. C. Phipps Lucas. | |
| | 67. W. H. Smith. | |
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| | 69. Edmund F. H. Crouch. | |
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| | 72. James Taylor. | |
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| | 88. Mrs. T. K. Grant. | |
| | 89. Mrs. Archer Clarke. | |
| | 90. E. Woodward. | |
| | 91. Mrs. W. Potter. | |
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| | 93. Miss M. E. Roods. | |
| | 94. Miss A. Leighton. | |
| | 95. J. M. Turnbull. | |
| | 96. Mrs. J. J. Burton. | |
| | 97. Albert Clont. | |
| | 98. A. W. Green. | |
| | 99. Albert J. Snow. | |
| | 100. J. B. B. Wellington. | |
| | 101. S. Evans. | |
| | 102. P. R. Salmon. | |
| | 103. Mrs. De'Ath. | |
| | 104. F. W. Hindley. | |
| | 105. Miss Walker. | |

cloth of generous size, a focussing screen smeared with lanoline which has been well rubbed in and off, a really good focussing magnifier, and a fair amount of patience. If I want to take a telephotograph at thirty magnifications with a half-plate camera, I simply set up the latter, extend to about $16\frac{1}{2}$ inches to allow for the projection of the tele-mount into the interior of the camera, affix the lens with an A B C Staley-Wheeler

combination in position, form the focussing cloth into a sort of tube, and wait. In a minute or two my eyes have got accustomed to the semi-darkness, and, as the separation of the two elements is slowly adjusted by the use of the rack and pinion, some part or other of the picture begins to take shape. The focussing magnifier is then brought into use, and the rest follows as a matter of course.

OWEN WHEELER.

DEVELOPMENT WITHOUT ROCKING.

[The method of applying to a plate which is placed level a certain quantity of weak developer has found occasional advocates during the past few years, particularly in Germany, where the method has been named "flat development," or "horizontal development," in reference to the fact that the essential point in the method is to preserve the developer perfectly quiescent on the plate, so that any products which are formed during the process are not removed to other parts of the film by agitation of the solution. In the current issue of "Photographische Rundschau" some notes appear on this method.—Eds. "B.J."]

THE recommendation to develop plates without rocking in a very weak developer has been made in the past, and experiments have shown that when a plate is thus placed perfectly horizontal, and the developer kept still, there is a notable improvement in the rendering of subjects in which there are very strong contrasts of light and shade, the result giving a more harmonious negative than would otherwise be obtained. In explanation of this phenomenon it is to be assumed that the products of the action in the portions which have been most strongly exposed to light remain in these parts of the film and prevent the further action of the developer, whilst the less exposed portions further develop. In order to comprehend the nature of this process it is necessary to understand the alterations which a freshly prepared developer undergoes during use. In the first place the developer loses strength by the reduction of the silver and by oxidation. In the second place it gains in bromide and in the oxidation products of the developing substances, and therefore, owing to the presence of these substances, the developing process is retarded. The author cannot believe that the reduction is solely due to the bromide which is formed, as the products of the re-action, as shown from the following experiments, do not hold back and render clearly the shadows as does bromide added to the developer, but lead to a flat image such as is obtained by great dilution of the developer. In the third place it is possible that the salts produced exert an action upon the gelatine which hinders diffusion in the latter, and in this way lead to a softer result. In order to exclude the influence of oxidation by the air and to be able to follow the action of the reduction products as closely as possible, properly exposed plates (the "Agfa" extra rapid) were developed in very small quantities of solution with complete exclusion of air. Previous experiments had shown that the minimum quantities of developer which could be used for proper development in weak solution represented a depth of solution of about 3 m.m., that is to say, in the case of a 9 x 12 c.m. plate a total volume of $9 \times 12 \times .3 = 32.4$ c.c.s. In the case of a normal developer a height of .75 m.m. was sufficient = $9 \times 12 \times .075$, or 8.1 c.c.s. With such small proportions of solution the time of development must be about half as much again as when using a normal amount, and the solution is then practically exhausted as regards obtaining density. The removal of oxygen from the air makes it possible to reduce the proportion of sulphite, and therewith the danger of reduction of unexposed silver bromide, so that on this account no ill-effects are to be feared from prolonging the time of development. The vessels used for the experiments are small glass receptacles in which the plate can be so placed that it lies with the glass side on one surface and its edges on the four low walls of the receptacle, whilst between the film side and the opposite wall a space of from 5 to .5 m.m. is left for the developer. In such a vessel, allowing a depth of developer of 5 m.m., a qualitative examination was first made of the formation of the production products, using the commercial glycin developer of Hauff in the dilution of 1:20, the normally exposed plate being placed vertical during development and remaining untouched during the whole period of the pro-



cess—three-quarters of an hour. The temperature was kept constant at 15 deg. C., and it was seen after fixing that the density of the plate gradually fell off from top to bottom. This experiment was therefore varied by employing a horizontal thin glass wall G in the figure placed 1 c.m. from the lower point of the developing vessel, but leaving a space of 1 m.m. both towards the plate and the glass wall of the receptacle. Above this separating wall the plate gave the same result as before, whilst at the height of the partition there was a dark band and underneath it a light band. The explanation of this would appear to be as follows:—As soon as the developer penetrates the film and reduces the exposed silver bromide the resulting products diffuse back again into the developer. There they endeavour to mix uniformly with the solution, that is to say, in general moving at right angles to the plate. As, however, their specific gravity is usually greater than that of the solution, they sink along the plate to the bottom of the vessel. There thus results a slow circulation of the developer to the plate downwards and to the above glass wall upwards, which, however, by repulsion by the walls and circulation currents, is so much disturbed that it only transfers a small fraction of the salts into the upper part of the vessel. The mixture of the products, therefore, accumulates in the lower portion of the solution, and thus retards the development. The formation of the streaks in the second experiment would appear to be due to the fact that the partition G produces more active circulation, and thus leads to an intensified action of the film across its width, thereby accelerating the development.

A second experiment with a plate carefully exposed under the same conditions, with the difference only that the glass receptacle during the whole three-quarters of an hour's development was placed successively on all six of its sides, gave an absolutely uniformly developed negative, which, however, was not of such density nor so clear as the upper portion of the plate in the first experiment, but more nearly corresponded with the middle portion of this plate. The experiment thus shows that the reduction products diminish the strength of the developer if they do not also harden the gelatine. The third experiment was made under the same conditions as before, the plate during the whole time of development (three-quarters of an hour) being fixed so that it was film downwards. The result was a brilliant negative, and the explanation is forthcoming from the two first experiments. The products of reduction are removed from the film, pass downwards by gravity, and diffuse, and thus allow of fresh developer gaining access most rapidly to the plate.

Next a series of experiments were made with thirteen plates. The first plate was developed in a quite horizontal position film upwards, the second was placed at an angle of 15deg., the third at an angle of 30deg., and so on, the seventh plate being vertical, the eighth at an angle of 15deg., and the thirteenth again occupying the horizontal position. This series of plates thus represented the gradual departure from the method of flat or horizontal development recommended by Walther to the ordinary tank process. It was found that plate No. 1 was uniformly flat; plates Nos. 2 to 4 were similar, but showed streaks; plates Nos. 5 and 6 were uniform in character, but not quite so flat; plate No. 7 resembled No. 1, as did also plate No. 8; whilst Nos. 9 to 13 were uniformly clear.

It may now be asked whether the method of development with the film downwards possesses any advantage over ordinary stand development when the vessel containing the plates is reversed once or twice during development. The density of the negatives is actually somewhat influenced thereby, although this defect can be avoided without involving other drawbacks simply by somewhat increasing the proportion of alkali in the developing solution. The worker is therefore in the position to get a brilliant negative of a plate either by inverting the receptacle once or twice or by allowing the plate to lie for some time film up to obtain distinctly softer negatives.

When using the non-rocking method in ordinary dishes the developing solution should be used to the depth of 2cm. ($\frac{3}{4}$ in.), a suitable formula being that given by Schering in the Satrap handbook, namely:—

Glycin .....	.9 gm.
Sodium sulphite	2.7 gm.
Potass carbonate	4.6 gm.
Water	1,000 ccs.

The plate is fastened in two metallic holders, the construction of which holds the plate 1cm. from the bottom of the dish, the plate being slid into the solution holding one edge at an angle. This procedure avoids the risk of air-bubbles. At least five times the usual quantity of developer is necessary, but against this may be placed the lesser space and apparatus required when, as is most usual, only one or two plates are to be developed compared with the tank or stand methods.

The virtues of this non-rocking method of development suggested the possibility of reducing the time of development without sacrificing any of the advantages of the method, and it was found possible to devise a method serving excellently for obtaining soft and still stronger developed negatives in the case of under-exposed plates. In order best to emphasise the essential features of this method, the following experiments may be alluded to: A normally exposed plate was developed in one of the above-described tanks, allowing of a free space for the developer of only $\frac{1}{2}$ mm. The normal concentrated glycin developer was used with frequent shaking. It gave a soft negative, with ample density in the high-lights. A similar plate exposed for only one-half the time gave an equally satisfactory result as regards gradation with somewhat longer development—twenty minutes; stronger negatives were obtained by this method of development by increasing the alkali or the developer proper, using, say, a solution containing 4gm. glycin, 10gm. potass. carbonate, in 100 ccs. of water, or in place of this a 1:10 solution of rodinal. The reason for the softness of the prints is the same as that in the second experiment. If the plate with the film downwards was allowed to remain in the horizontal position for ten to fifteen minutes with this particular glycin developer a strong negative was the result, but the expanses of high-light, the sky, etc., were somewhat mottled, and had lost fine details.

A similar phenomenon is noted when developing by the Walther "levelled" method. It has been explained as the result of the sideway running of the reduction products of the developer due to shaking or to a not perfectly horizontal position. In the present case the cause was to be sought in minute local circulation of the developer, this taking place most strongly in the parts which have received the greatest exposure. It would thus appear as if the density of the salts which sink down from the plate should not be too great if this local action is to be avoided—in other words, a certain minimum time of development should not be exceeded. I have found that when using a normal glycin developer in a film of 1mm. to $\frac{3}{4}$ mm. thickness for normally exposed plates, twenty to twenty-five minutes were necessary. These conditions were obtained not only in the case of normally exposed plates, but in the case of under-exposures and in negatives having great contrasts, with excellent results. Over-exposure requires to be corrected by addition of bromide.

It would thus be seen from the three first experiments above mentioned that the mode of action of the non-rocking method of development with solution of normal composition is to be explained by the fact that the strongly exposed portions of the negative quickly exhaust the developer lying beneath them, and do not develop further density after they have reached a certain point, whilst the less exposed portions do develop further. The result is that the

contrasts are softened and a negative of good density obtained. Comparison of the method, using both dilute and normal developer, with that usually adopted shows that in both modes of the non-rocking method better results are obtained. In a comparison with stand development it is seen that the non-rocking method, in conjunction with a dilute developer, is better for all kinds of exposures as regards brilliancy and strength, while it is superior to the non-rocking method using a normal developer only in the case of under-exposure.

HUGO SEEMANN.

REPAIRING PRINTING FRAMES.

DURING the year's work printing frames are often put aside as worn out and useless, and when spring cleaning comes they are put in the firewood box. This is quite a mistake, as a spare afternoon's work will make some of them at least into quite efficient frames once more. All the materials and tools required are some half-inch wire nails, three-quarter-inch round-head screws, some glue, a hammer, bradawl, screw-driver, and a file. Of course, one should discard any frames and backs that are beyond recovery, but as one back will fit another frame and spare springs may be obtained quite cheaply from dealers, out of a dozen old frames one can usually make eight or nine satisfactory ones.

It is best to commence by taking out and placing on one side all the backs and removing all such springs and screws as have perished or become loose. The screw-holes should be plugged before putting in fresh screws, by dipping a little peg of wood into hot glue and hammering tightly into the hole. A smart tap with the hammer on one side of the peg will snap it off close to the frame.

Any parts of the frame that have split or come apart should be closed with glue and have nails driven through. After the glue has set thoroughly hard the projecting ends of the nails, if any, can be filed away. It is advisable, before inserting the nails, to make holes with a small bradawl, as the wood of which many frames are made is liable to split easily. When the hinges of the backs have gone, it is hardly worth while on small frames to get new hinges, as a strip of thin leather or strong cloth glued on and further secured by a few tiny tacks or gimp pins will answer the purpose equally well. Where the cloth on the backs requires renewal the old material should be soaked off with hot water and a scraper. Having cut pieces of baize or similar cloth into pieces slightly larger than each half of the backs, and with one edge quite straight, thin hot glue should be applied evenly over the wood and frothed up by working the brush over it with a rapid circular motion. The pieces of baize can then be placed on with the straight edge along the hinge line and rolled down with a roller-squeegee. When they are quite dry and the glue has set hard, the cloth can be trimmed round with sharp scissors or knife.

A cover-glass in a printing frame serves several purposes; it helps to prevent breakage of the negative, not only by being a protection from outward shocks and concussions, but also from any unevenness in the frame itself. Besides this, if frames get accidentally left in the rain for a few minutes the water will find its way between the two glasses instead of to the film and print. To fulfil these properties to the utmost, a cleaned negative glass of the same size is hardly sufficient, for the reason that the printing frames are usually slightly larger and the negatives slightly smaller than the standard size. Glasses should be cut from cleaned off negatives of a larger size to fit the frames accurately. This can easily be done in the absence of a diamond with a wheel-cutter, sold at ironmongers' for about sixpence.

D. BERLIN.

THE "BLUE BOOK."—From an inspection of the 1909 edition of the "Blue Book," the organ of the Scottish Photographic Federation, which has just reached us, it would appear that the energetic secretary, Mr. J. B. MacLachlan, is still adding recruits to his ranks, the number of "federated" societies being decidedly larger than last year. The portion of the book which will doubtless appeal most strongly to members of the federation is the list of gentlemen who have expressed their willingness to give expert advice in the various branches of photographic work to members who are in need of it. A large portion of the book is devoted to a "gazeteer," the chief interest of which would seem to be the information as to dark-rooms in various localities, where plates may be changed free of charge.

Photo-Mechanical Notes.

Rush Work and the Engraver.

THE BRITISH JOURNAL boasted last week that the reproduction they were able to show of the group photographed at the Convention was in the hands of their printer within a few hours of the photograph being taken. Of course it is essential in all block-making for newspapers that the utmost speed is shown, but it must not be forgotten that rush jobs, nearly always cost the engraver much more to execute, as other work has to be put on one side and special attention devoted to that one job, whereas frequently the same amount of attention and effort could have been seen through several jobs if events had been allowed to take their normal course. The worst of it is, that all customers are now anxious to have their work done in the shortest possible time since so much advertisement has made it plain how quickly it is possible to produce a block. Very often blocks are not required so hastily, and in any case it is frequently possible to wait a reasonable time for the work, which would enable the engraver to turn out his work at a more economical cost.

This difficulty is being met by some of those engravers who clearly recognise the extra costliness of rush work, in one of two ways—either by charging extra for specially quick work, or pricing all their work at a figure which allows of it being done at a rush pace, and then allowing a scale of discounts according to the delay the customer will permit, gradually increasing in amount from that allowed for a few hours until the maximum discount is reached if the customer will allow a week for delivery of his work. The customer finds this pays him, and so does the engraver, as it enables him to sort the work out and take it in batches which go together, thus economising in every direction.

Machine Etching in 1760.

Mr. S. H. Horgan has unearthed in "Diderot's Encyclopædia," published in 1767, a drawing and description of an etching machine, in which a clockwork mechanism is used to keep the etching-tub in movement. A reproduction of this ancient device is given in the current issue of the "Inland Printer."

A pendulum-rod goes through a slit in the table to the weight below. The latter has a set-screw for fixing it at any portion of the rod so as to regulate the speed of the machine.

A cross-section of the glass-covered etching-box calls attention to the bevelled corners on the inside of the box, much as we have them to-day.

Panchromatic Collodion Emulsion.

A reader of the "Inland Printer" writes to the "Photo-engraving" department of that publication, conducted by Mr. S. H. Horgan, to communicate the method he has found best for the colour-sensitising of collodion emulsion. He uses pinaverdol and ethyl violet.

"I first make up separate stock solutions of the two dyes in absolute alcohol; this keeps well in the dark-room. The alcohol is heated before adding twelve grains of the dye to 25oz. of the alcohol. Then I sensitise 10oz. of collodion by adding to it 176 minims of the pinaverdol stock solution and 42 minims of the ethyl-violet stock solution. The glass plate is coated in a faint red light and the excess of dye washed away; then the plate is dipped in a two-grain-to-the-ounce silver bath for two or three minutes. The plate is then drained and exposed while wet. With good strong filters this plate is panchromatic—that is, it is, with sufficient exposure, as sensitive to red as it is to yellow and blue."

Process and Lithography.

The application of photography as an aid to lithography is certainly extending, and it is possible that a majority of the new posters are partially produced by photography. The commonest method at present is to use the half-tone screen. The original sketch or photograph is pinned up and photographed, an ordinary continuous-tone negative being made. This can now be retouched, if necessary. From this negative a dot positive is made, using a fine cross-line screen if there is subsequently to be a big enlargement, as is often the case. This dot positive is then placed in an enlarging apparatus, and an enlargement made on to a wet-collodion plate, giving a dot

negative of the correct size. This plan has two advantages—first, a very large screen is not required; secondly, the negative can be retouched and the positive may be reduced easily so as to get clear high-lights quite free from dots if necessary. The lens is generally placed in the wall, and the camera is formed by the dark-room itself, in which the wet plates are sensitised and placed upon an easel, which traverses runners so that correct focus is quickly attained.

The negative is then printed on to the stone, or more usually zinc or aluminium metal plate, just as an ordinary line print is made by means of bichromated albumen, and after development the work is treated for lithographic printing as usual. Of course, in certain cases a screen and negative may be made direct, and if the job is not to be enlarged a coarser screen may be used. The method of printing grained negatives on to stone is being exploited as a secret process, but this is so simple that no one should be induced to pay any high figure for it, though it may be worth while paying a little for a demonstration from a competent man if it is inconvenient to get instruction at a school.

What we should like to impress upon lithographers is the necessity for meeting the prejudices against the screen-dot, and not to give up the use of photography on this account. We know that some advertisers will not look at a lithograph, however good it may be, if they can detect the screen dot in the print. In such a case an irregular-grain screen should be employed, such as the Metzograph. It can be used exactly in the same way as the cross-line screen, and it has the advantage that lithographic artists' work can be added without the additions being so obvious as in the case of the cross-line screen. Certainly to make as satisfactory negatives may require some practice, but it can be done. Further, there may be some little loss of detail as compared with the cross-line screen, but this is usually not of importance in large work. It will be possible to cure a customer of his prejudice against the cross-line screen by doing his subject first with the irregular grain, then with the cross-line, and letting him compare. For most subjects the greater detail and smoothness of the latter will make an appeal which is irresistible in spite of prejudice. The same process can be applied to two and three-colour printing, and more printings can be added of artists' work.

Some of the finest photolithography now being done is a combination of collotype and lithography, the collotype supplying the form and modelling of the subject and the colours being worked from stones drawn by hand. The photography in this case must be as perfect as possible, and the method is not applicable to large poster work.

PHOTO-MECHANICAL PATENTS.

The following patent has been applied for:—

PRINTING BLOCKS.—No. 13957. Process and apparatus for the production of printing blocks by etching. Axel Holmstrom, 40, Chancery Lane, London.

Exhibitions.

CANTERBURY CAMERA CLUB.

It was a happy idea of the Canterbury Camera Club to hold their seventh annual exhibition during the Convention week, and, like many other happy ideas, it had the result of giving the executive of the society an immense amount of work, of providing an interesting half-hour for members of the Convention, and of putting, it is hoped, into the pockets of the club enough money to pay for the enterprise. Moreover, it had the further happy issue of securing the first award of a silver plaque in the open classes to Mr. A. H. Dodman, a member, and a very dogged and Kimber-like member, of the Canterbury Camera Club. The Foresters' Hall, where the exhibition was held, is not an ideal building for the purpose, being both dark and hot, nevertheless the committee had done their best in displaying nearly 300 pictures and a goodly number of lantern slides and Autochrome transparencies, all of which the good people of Canterbury might see for the humble sum of threepence, a charge which, in our opinion, any self-respecting photographic society should at least double.

The best tribute we can pay to the success of the organisation is

that a number of photographs are shown by workers outside the ranks of the small number who regularly send round to every exhibition. The Canterbury Committee may pat itself on the back that they have done more than make use of the photographic pictures which are to be seen at every exhibition outside London. And in thus opening their doors to those who are at present not prominently known in the world of pictorial photography they have admitted very little that is stupid or silly. With the exception of one or two things, such as the "Silver Grey" (No. 60) of F. W. Memory, there is but little that one would wish excluded. C. H. Hewitt shows some striking effects in oil or bromoil, of which we like No. 13, "On the Arun," better than the more dramatic Nos. 11 and 12. A very big and powerful effect is secured in No. 23 by J. Cawood, whilst an equally ambitious but less successful attempt is made by S. A. Chappell in No. 44, which is entitled:—

"He brought streams also
out of the rock, and caused
waters to run down like
rivers."

This production is a curious mixture of idealism and realism. The upper part consists of a series of masses and outlines producing a quite fantastic effect and suggesting mystery and confusion, but at the centre of the picture the subject totally changes its character and the lower part consists of the photograph of half a waterfall, quite effectively rendered, but striking a note of utter incongruity with the part of the picture above it. B. Ward-Thompson exhibits several examples of his characteristic work, of which we like best No. 48, "Since Clouds Dispersed," which excellently renders the space and calm of the scene in a more cheerful key than is to be found in many others of Mr. Thompson's clever renderings of brooding or incipient storms.

Among the exhibits in the members' classes the first place is easily taken by A. H. Dodman, who is equally fortunate in his models as in his method of treating them. No. 219, "Portrait of a Violinist," is a fine piece of dignified work; whilst No. 217, "Sisters," is an excellent portrait of two quaint children. B. and W. Fisk-Moore, who are professional photographers in Canterbury, show quite a variety of work both in landscape and portraiture, No. 264, "The Dance of Spring," being a very dainty figure study of a girl. Another notable exhibitor in the members' class is F. C. Snell, whose "Early Morning" (No. 227), with its rendering of mist, we like best. The exhibition is also strengthened by a collection of twenty prints lent by Mr. S. G. Kimber, and including many of the strong and striking effects of lighting in architecture by which the energetic secretary of the Southampton Camera Club is so widely known. It only remains to congratulate the executive of the Canterbury Camera Club, and especially the exhibition secretary, Mr. B. J. Fisk-Moore, and the honorary secretary, Mr. S. T. Hobbs, upon a most successful exhibition, and particularly upon the plaque embodying a drawing of the Cathedral and the Arms of Canterbury, which—in silver or bronze—forms the award of merit.

PHOTOGRAPHS BY COLONIAL PHOTOGRAPHERS.

At the house of "The Amateur Photographer and Photographic News" there is an interesting collection of colonial work. Naturally it challenges comparison with the work of the Mother Country, and if it really represents the best from all parts, we at home may plume ourselves upon the fact that whatever our prowess in cricket and tinned provisions, in camera work we still hold the palm. Many of the exhibitors are well known, as are also the pictures they show. Mrs. Minna Keene has a good display, mostly old favourites. The work of H. Mortimer Lamb (Canada) is another mainstay of the show. His "Portrait of Lady Drummond" (45) is in our opinion his best work here, in spite of the fact that it is hung in the worst possible place. There seems to be an intentional resemblance to the manner of Rossetti in the head he calls "Portrait" (7). Mrs. M. Eardley Wilmot (India) has secured a strong and fine effect in "Storm Clouds on the Dal" (13). "The Return of the Temple Elephant" (16) is a capital subject and fresh to English eyes. It is the work of J. H. de Saram, of Ceylon. From New Zealand Reginald Passay sends a fine study of light and shade called "The Forest Clearing" (27), and another good work of the same class is "Sunshine and Shadow" (36), by A. W. Hunt, of Trinidad. A

well-arranged scene makes the success of John Quail's (South Africa) "Exiled" (48). Of South African talent is also Arthur Elliott's "Brer Tarrypin" (51)—two naked youngsters on the sand watching a tortoise. "A Maori Wedding" (57) is highly diverting in its go and character. This is by H. Winkelman (New Zealand), whence comes also Nelson Stedman's pathetic "Hard Labour" (60), an over-worked, "used-up" looking horse, which is treated decoratively by being in profile and having all the background blocked in. Arthur Elliott's pictures are all good, and among the best are "The Lanternist" (61), "The Wreck" (62), and "Amidst the Mermaids" (63). He hails from South Africa. When we have further mentioned R. D. Storil's "Canal" (Canada) and "The Village Blacksmith" (77A), by George Bell (Australia), we have dealt with practically the cream of the show. There are, besides, two portfolios of prints which do not appear to have been worth framing and hanging, but are placed at the tender mercies of any who care to handle them.

FAIR CHILDREN.

Since we reviewed the exhibition of "Fair Children," which Messrs. Speaight have been holding at their galleries, 157, New Bond Street, for the past two months, a number of new portraits have been added, and the receipt of a revised edition of the catalogue, in which the additions were italicised, led us to pay a second visit to the beautiful gallery in which Messrs. Speaight have arranged the photographs. Perhaps from the point of view of the subject the most interesting of the new portraits are those of the Earl of Arundel and Surrey, the future Duke of Norfolk, but from the purely photographic standpoint we like best No. 89, the children of the Lady Margaret Duckworth, No. 36, the children of Viscountess Emlyn, and No. 44, the portrait of the little girl of the Lady Hastings. In these, as in many other examples upon the walls, Mr. Richard Speaight shows his skill in securing spontaneity in his portraiture of children, whilst the composition and photographic quality of the portraits are in every instance exceptional. As we again mention in another column, photographers themselves will have the opportunity of inspecting these photographs by accepting Messrs. Speaight's invitation to visit the gallery on the evening of Wednesday next, July 21.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents have been received between June 28 and July 3.

CAMERAS.—No. 15,058. Improvements in and relating to photographic cameras. George Arthur Hale, 70, Chancery Lane, London.

DAYLIGHT LOADING.—No. 15,152. Improvements in direct positive print daylight loading flat packages. John Owden O'Brien, 6, Bank Street, Manchester, for John Edward Thornton, United States.

DAYLIGHT LOADING.—No. 15,153. Improvements in direct positive print daylight loading spools. John Owden O'Brien, 6, Bank Street, Manchester, for John Edward Thornton, United States.

FILM PACKS.—No. 15,154. Improvements in photographic film packs. John Owden O'Brien, 6, Bank Street, Manchester, for John Edward Thornton, United States.

FILMS.—No. 15,190. Improvements in or relating to the manufacture of cellulose films. Edwin Brandenberger, 111, Hatton Garden, London.

WASHER.—No. 15,277. Collapsible plate, print, and cut-film washer. George Gamblin, 9, Deynsford Road, Camberwell, London.

FILMS.—No. 15,281. Improvements in or relating to the manufacture of cellulose films. Edwin Brandenberger, 111, Hatton Garden, London.

CAMERAS.—No. 15,416. Improvements in cameras. Otto Halbach, 55, Chancery Lane, London.

Analecta.

Extracts from our weekly and monthly contemporaries.

Oil and Bromoil at One Operation.

In the course of an article describing the above method in the July issue of "Photo Notes," Mr. Ernest Marriage gives the following working instructions. The bromide print should have a smooth, but not glossy, surface. Rotograph half-matt bromide paper takes the ink well, and shows no symptoms of blistering under the brush. The transfer paper can be a piece of smooth final support for the carbon double transfer process.

The ozobrome solution is used at the ordinary strength, that is, one part is added to four of water. The double transfer paper is soaked in the above bath until it is limp. The bromide print meanwhile is soaked in plain water. When the transfer paper is limp it is placed for ten seconds in—

Hydrochloric acid	1 dr.
Common salt	550 grs.
Water to	25 ozs.

After this immersion the transfer paper is drained, holding it up by the corner, for half a minute, and then brought into contact under water with the bromide print and squeegeed in the usual way. It is important that the transfer paper be larger than the bromide print. The transfer paper and the print now in contact should be left to dry a little (say two or three minutes), the print uppermost. The transfer paper, still squeegeed to the print and the print uppermost, is now floated upon the ozobrome solution. In this way all the active solution must go through the transfer paper to reach the silver image, and it is more likely to take effect than if part of the bleaching is done through the back of the bromide print. The time required is about fifty minutes, but this would vary no doubt with temperature and different types of paper. It is easy to see when the bleaching process has been thoroughly carried out by holding the papers against a strong light; a faint image will be still visible, but all black should have disappeared. If this is not the case, the prints should be again floated on the ozobrome solution. The print should be held by opposite corners and lowered gradually on to the surface of the liquid, beginning at the middle. In this way the paper can be floated without getting any of the solution on to the bromide print lying uppermost.

When the bleaching of the silver image has been thoroughly effected the print is separated from the transfer paper by pulling from one corner, and both print and transfer are placed for about a minute in the acid bath. After washing until both papers are free from stain, the transfer paper is dried. The bromide print is fixed in a bath of plain hypo if it is to be treated as a bromoil, and dried after washing, or it may be re-developed, dried, and used again for making further transfers.

New Books.

"A Handbook of Photography for Amateurs in India." By Dr. Geo. Ewing, F.R.P.S. (Calcutta: Thacker, Spink, and Co. London: W. Thacker and Co.). 2nd Edition. 1909.

If, as Dr. Ewing says, the amateur photographers of India have, as a rule, neither the time nor the energy for a great amount of photographic reading, they have, at any rate, in this substantial volume of 769 pages, an excellent source of information that they can make use of as required. The first edition of this book is well known as a very reliable text-book, written for the use of amateurs in India, who have to work under somewhat abnormal conditions. This new edition embodies the good points of the old and is brought very fairly up to date, no easy task for a writer who lives more or less out of intimate touch with what is being done in this country and in Europe. A postscript represents the result of a trip "Home," in the course of which the author industriously endeavoured to obtain all the latest information, and as a result we note that very little

is omitted. Two exceptions are intensification with chromium and also the process of bromoil, the latter of which was probably not in existence when Dr. Ewing completed his book. The book is divided into sections or parts dealing with optics, chemistry, photographic practice, printing, etc., and most of the subjects seem to be particularly well treated. The optical portion is exceptionally good. The more practical part of the book seems equally sound, and the whole should be as valuable to English as to Indian workers. The book has a copious index, which should be an important feature in all works of this class. This particular handbook should be better known in England than it is at present, for it is far superior to the majority of the general text-books available.

"THE TELEPHOTO QUARTERLY."—No. 6 of Captain Owen Wheeler's ever-welcome "T.Q." makes the announcement that the publishing of our interesting contemporary will for the future be in the hands of Messrs. Gale and Polden, 2, Amen Corner, London, E.C., and Aldershot. "T.Q." may therefore be obtained for the year by sending the publishers a postal order for 2s., or may be purchased from Messrs. Smith and Son's bookstalls. The current issue contains some excellent illustrations of snap-shot telephotography by the editor, some notes on the diaphragm values of telephoto lenses, on convertible negative attachments, and on a commercial use of the telephoto lens, to which we make allusion under "Ex Cathedra." In addition to this our little contemporary contains the announcement of practically all the firms offering telephoto apparatus, and it further reviews certain new introductions of service to the telephotographer.

LONDON BY NIGHT.—A recent article by Mr. H. Wild from "Photography and Focus" has been reprinted, with an additional illustration, by Messrs. Iliffe and Sons, Ltd. The remarkable results obtained with a slow instantaneous exposure on Wratten panchromatic plates with a 2B Dallmeyer lens should give an impetus to this description of night photography. Mr. Wild's account of his methods is commendably explicit, and the illustrations offer an incentive to prosecute this interesting branch of work.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

SATURDAY, JULY 17.

- Manchester Amateur Photographic Society. Ramble to Great Budworth and Arley Hall and Grounds.
- South Suburban Photographic Society. Excursion to Dartford and the Darent Valley.
- Handsworth Photographic Society. Excursion to Bearley for Aston Cantlow.
- Birmingham Photographic Society. Excursion to Broadway.
- Hackney Photographic Society. Outing to Zoological Gardens.

SUNDAY, JULY 18.

- United Stereoscopic Society. Outing to Latton and Netteswell.

MONDAY, JULY 19.

- South London Photographic Society. Monthly Competition—(Prints.)
- Southampton Camera Club. Discussion: "What Makes a Picture?" F. Ryder.

TUESDAY, JULY 20.

- Hackney Photographic Society. "Should we Specialise?" F. W. Gosling.

WEDNESDAY, JULY 21.

- Worthing Camera Club. Outing to Burgham.
- South Suburban Photographic Society. "From Negative to Block." W. Wilkinson.

THURSDAY, JULY 22.

- Handsworth Photographic Society "The Use of Exposure Meters."

CROYDON CAMERA CLUB.—Owing to a contemplated tour abroad for an indefinite period Mr. H. M. Bennett has been compelled to resign the post of honorary secretary, held by him with conspicuous success for the last six years. The club thus loses a skilful pilot and each individual member a valued friend. The keenest regret was expressed by all last week when the not unexpected announcement was made. Mr. W. H. Claypole, of 63, Elmswood Road, West Croydon, was unanimously, and with much acclamation, elected to fill the position vacated.

CRIPPLEGATE PHOTOGRAPHIC SOCIETY.—At the eleventh annual general meeting of this society, held recently at the Cripplegate Institute, E.C., it was resolved that in future the society shall be known

as the City of London and Cripplegate Photographic Society. We are asked to make this announcement to our readers and point out that the old society is not being absorbed by another, but that the incorporation of "City of London" in the title will very materially assist the desire of extending its sphere of usefulness. The syllabus for the 1910-1911 season is well in hand, and special arrangements are being made with a view to assisting the beginner as well as the more advanced members. The new session commences in October, and the hon. secretary, Mr. H. S. Cuming, of 234, North End Road, West Kensington, W., will be pleased to forward full particulars of membership on application. The annual subscription is 7s. 6d., with-out entrance fee.

SOUTH LONDON PHOTOGRAPHIC SOCIETY.—Mr. J. A. Lovegrove, lecturing before the South London Photographic Society, on "Trimming and Multiple Mounting," advocated the use of this home-made mountant: Take half a pound of best white dextrine, mix to a thick cream by rubbing up small quantities at a time in cold water, then stir in a further five ounces of cold water, and bring to a boil (stirring all the time) in a water-jacket boiler. It should then form a clear thick syrup. Add 15 minims of oil of cloves and turn into pots to set. It is then ready for use.

Commercial & Legal Intelligence.

AN INVENTOR'S BANKRUPTCY.—At Chelmsford Bankruptcy Court last week the Official Receiver (Mr. Cecil Mercer) mentioned the case of Mr. Birt Acres, Southend, described as managing director of the Seriken Company, Limited, film manufacturers, and stated that he had no questions to ask, but he thought it only fair to Mr. Acres to say that since the last Court he had had an opportunity of examining Mr. R. A. McQuitty on his sworn proof as secretary of the Seriken Company that debtor owed the company £1,482 17s. 5d., and he found that not only was there no ground for this claim, but he had in his possession a large number of vouchers and receipts, handed to him by Mr. Acres, which showed that the company was heavily in the debtor's debt, and he (the Official Receiver) intended to take the necessary steps to recover this amount from the company.

Debtor made an application in person that an order should be made against Mr. McQuitty for payment of costs.

The Registrar replied that he had no power to make such an order. The examination was then closed.

A SOUTHSEA BANKRUPTCY.—George Richard Knight, 63, Castle Road, Southsea, dealer in photographic apparatus, applied at Portsmouth Bankruptcy Court, on July 8, for his discharge. The receiving order was made on the debtor's own petition in February, 1904; the liabilities being put at £804 and the assets at £210. A dividend of 3s. 1d. in the £1 was paid on proofs for £765. The debtor ascribed his failure to having got into difficulties through paying the debts of near relatives, also to inexperience in the photographic business. The solicitor, on behalf of the debtor, said that he was trying to retrieve his position, and the application for the discharge was granted subject to judgment being entered for £20, to be paid within six months.

A BRIXTON BANKRUPTCY.—At the London Bankruptcy Court on June 9, Walter William Powell, photographer, recently carrying on business at 414, Brixton Road, applied for his discharge. The liabilities amounted to £354 13s. 6d., and the assets, which were put at £27 9s. 8d., only realised £5 1s. 10d. Debtor states that for several years prior to 1890 he was employed in the provision trade, and he afterwards became a jeweller's assistant. He also earned £200 a year as a professional singer and dancer, and dealer in curios. In March, 1897, with £30 of his own money and £50 borrowed from his father, he started business as a photographer at 414, Brixton Road, carrying it on under management, while still continuing in employment as a jeweller's assistant. The business, however, was a failure throughout. In November, 1905, he gave up his employment as a jeweller's assistant in order to devote himself entirely to the photographic business, which nevertheless continued to decline, and early in 1907, realising the hopelessness of his position, he closed the business and has since had no occupation. The Official

Receiver reported that the assets were not equal to 10s. in the £, and that the debtor had not kept proper books, but only a rough cash book. Debtor further states that he was aware that he was insolvent in 1905, and with the exception of £7 9s., he contracted the whole of his liabilities since that date. On this the Official Receiver reported that debtor had traded knowing himself to be insolvent. Debtor, who was present, had no remark to offer, and his discharge was suspended for two years.

LEGAL NOTICES.—The voluntary liquidation of Paris Films, Ltd., 5, Cook Street, Liverpool, is gazetted. Mr. F. H. Thornton, chartered accountant, is to act as liquidator, and he has called a meeting of the creditors for to-day (16th inst.).

Thomas Bromwich, photographer, Bridgnorth, Salop, has been adjudicated bankrupt on his own petition. The first meeting of creditors is to be held at Shrewsbury on the 24th inst, and the public examination is fixed for the 3rd prox.

A first and final dividend of 4s. 10d. in the £1 is to be paid in the bankruptcy of James Harriott, photographer, 10, Chapel Street, and 15, High Street, Warwick.

News and Notes.

MESSRS. HALFTONES, LIMITED, whose photographs and those of photographers whose agents they are frequently appear in the press, have been awarded the Gran Premio, the highest award for "newspaper illustration by photography," at the International Exhibition at Milan.

EASTMAN KODAK COMPANY.—The directors of the Eastman Kodak Company of New Jersey have declared an extra dividend of 5 per cent. upon the Common Stock of the company, payable September 1, 1909, to stockholders of record at the close of business on July 31. The usual quarterly dividends will be paid on October 1.

THE PRELIMINARY PROSPECTUS of the international exhibition of optics, cinematography, photography, and talking machines has just reached us from the organisers, Messrs. Brown and Bernard, Ltd., Westinghouse Buildings, Norfolk Street, Strand, London, W.C. The exhibition is to be divided into sections dealing with cinematography and optics and photography, in which latter classes 3, 4, and 5 are to include photographic apparatus, plates, papers and prints and transparencies, for which latter a series of awards are to be made to professional and amateur workers. Silver cups are also to be offered for the best examples of pictorial photography in landscape and figure study respectively. The entry form gives the particulars for prices for space, lighting, and power, and also the general regulations upon which space is allotted. The exhibition is to open on August 9 and to close on September 4.

HOLIDAYS IN SCOTLAND.—Further additions to the well-known official guides published by the Health Resorts Development Association, 29, John Street, Bedford Row, London, W.C., deal with some of the most interesting places north of the Tweed, namely the towns and surrounding districts of Berwick-on-Tweed, Carnoustie, Duffries, North Berwick, Pitlochry, St. Andrews, and Stirling. These little guides are of convenient size, well illustrated, and contain information useful to the tourist who having but a limited time to spend in any one place wishes to utilise it to the best advantage, and also to the visitor who is making a longer stay. These booklets, like others of the series, may be obtained post free by sending a post-card request to the respective Town Clerks, and a complete list of the guides already published may be obtained on application to the Health Resorts Association at the above address.

"KINEMACOLOR" BEFORE THE KING.—At Knowsley, Lord Derby's historic seat, on Tuesday evening, following the Royal review of the Lancashire Territorials, Mr. Charles Urban had the honour of submitting to the inspection of their Majesties the King and Queen, the Princess Victoria, and the distinguished company constituting the house party, "Kinemacolor," the Urban-Smith animated pictures in the actual tints of nature, the exhibition being identical with that given in London at the Palace Theatre. There was also shown to their Majesties a complete pictorial record of the inspection of the

Territorial troops, the presentation to them of colours, the march-past of the whole force in quarter column with the King and Queen standing to receive the salute. The pictures were taken by a special staff of Urban operators at the express direction of the Earl of Derby, and they will be forthwith included in the "Urbanora" section of the Palace Theatre programme.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.—The committee of the above association announce that August the 16th has been fixed as the last date for the receiving of papers in the Henderson award competition, for the year ending June, 1909. Papers submitted must have been read either before another society during the twelve months ending as above or published in one of the various photographic journals, and be of the nature as stated below. The award is one of the value of £5, and is given for the best paper read or published during the year, of a photo-chemical or kindred subject, and at the will of the recipient may take either the form of £5 cash, or a gold medal, or a silver or bronze medal and cash, or apparatus to value. It is the wish of the committee to remove the somewhat prevalent idea that this award is only open to the members of the L. and P. It is open to the world, and is given for the best paper no matter from what source it comes. All papers for competition should be in the hands of the Hon. Secretary, 43, Whitta Road, Manor Park, E., on or before the above-named date, and full particulars will be freely sent to all who write enclosing a stamped envelope for reply.

THE GENIUS OF THE STUDIO.—A Boston photographer (writes the "Photo Era") has recently fitted up his studio and reception-room in Oriental style, a unique Japanese portière, with its long beaded strands, being a particularly beautiful feature. One gloomy day he was gladdened by the unexpected arrival of his favourite little five-year-old niece, who was left in his care by her mamma while she did several errands. His fondness for the child was very marked; for, in amusing her, he quite forgot the work he had planned to do that morning. Suddenly remembering, he tore himself away from the small siren, telling her, at the same time, that he loved her very much. Poking her curly head through the Japanese portière she called after him in her own roguish way, "I don't believe you do, uncle!" He had been in the dark-room for only a short time, and was engrossed in the development of a plate, when he heard the voice of the tiny maid, soliloquising in regular, measured cadences, the words accompanied by a rattling sound as of objects falling on the hardwood floor. As this continued for some little time, his curiosity was aroused; he listened and finally became alarmed. He hastily covered the developing-tray, and hurried out of the dark-room towards the scene of disturbance. To his great amazement he saw his small niece standing with her back towards him saying, "He loves me, he loves me not," and then, with a joyous, triumphant cry, she pulled down the last remaining strand of his precious portière with a jubilant "HE LOVES ME!"

BRITISH PHOTOGRAPHIC TRADE ON THE CONTINENT.—A small impromptu meeting of those persons interested in photographic manufacture and trade who happened to be at the Photographic Convention was called by Sir E. Cecil Hertslet, H.B.M. Consul-General for Belgium, and was attended by Messrs. E. J. Humphery (the Platino-type Co.), A. W. Green (J. J. Griffin and Sons, Ltd.), R. R. Beard, P. R. Salmon, Godfrey Bingley (President-elect of the Convention), F. J. Mortimer ("The Amateur Photographer"), Thomas Manly (the Ozotype Co.), J. B. B. Wellington (Wellington and Ward), F. W. Hindley (Jonathan Fallowfield), W. S. Hobson (Taylor, Taylor, and Hobson), Alfred Watkins (Watkins Meter Co.), F. A. Bridge (Hon. Sec. of the Convention), H. Snowden Ward (President of the Convention), and Charles Winter (Imperial Dry Plate Co.).

After discussion of the details put forward by Sir E. Cecil Hertslet, it was proposed by Mr. F. J. Mortimer, and seconded by Mr. J. B. B. Wellington, that "in the opinion of this meeting it is desirable that the British photographic industries be worthily represented at the International Exhibition to be held in Belgium in 1910, and that Mr. H. Snowden Ward be asked to convene a meeting of the photographic trade at an early date."

A meeting of those manufacturers and dealers interested in the matter will be held on Thursday, July 22, at 4 p.m., at 22, Bloomsbury Street, London, by kind permission of Mr. E. J. Humphery. Those who intend to be present are requested to write for parti-

culars of the Belgian Exhibition to Mr. W. F. Wintour, Exhibitions Branch of the Board of Trade, Queen Anne's Chambers, London, S.W., and to come prepared to make suggestions.

Correspondence.

*• We do not undertake responsibility for the opinions expressed by our correspondents.

*• Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

THIOCARBAMIDE TONING BATHS FOR P.O.P.

To the Editors.

Gentlemen,—With reference to the use of a toning bath for P.O.P. prints containing thiocarbamide and "hypo," I should like to point out that it is quite safe to wash prints toned therein directly in water, provided that the "hypo" is greatly in excess of the thiocarbamide. It is also not necessary for such a bath to contain an acid of any kind. We get silver-sulphide stains, as I was the first to point out, when we wash a print containing either in the gelatine film or the paper any silver-thiocarbamide compound. This is due to the fact that such a compound is only stable in the presence of sufficient acid.

In the case of the solution mentioned in your article of last week, we do not get any silver-thiocarbamide compounds formed at all under normal circumstances. When, however, the bath has taken up much silver the case may be different—I have not tested this. I experimented with a solution very similar to Dr. Arnold's about five or six years ago, and published my results in "Photography." I did not, however, think much of the tones obtained, and I should never recommend such a toning bath. I have never been successful with any thiocarbamide formulæ, except those I have hit on myself. I certainly consider that the want of popularity of thiocarbamide for toning P.O.P. prints is due to the fact that the formulæ generally given will not, as a rule, give satisfactory tones. I have published formulæ which I can strongly recommend in the "B.J." and "Photography." I cannot help thinking that any who have reason to feel dissatisfied with the results they obtain when using P.O.P. will do well to give some of my formulæ a trial.—Yours truly,

R. E. BLAKE SMITH.

31, St. John's Road, Putney, S.W.

July 9, 1909.

INTENSIFICATION MARKINGS.

To the Editors.

Gentlemen,—In reply to "Prof." *re* above, which seems to him a real trouble, not imaginary, as some replies seem to point out, I can make no boast of having intensified hundreds of negatives, but I have had no failures by the following methods, which may be of use.

Thoroughly wash the negatives, whether new or old, and then give them a few minutes in an acid-alum bath:—

Alum	1 ounce.
Hydrochloric acid	50 to 100 drops.
Water	20 to 25 ounces.

Then wash free from above and bleach in

Mercury bichloride	10 grains.
Hydrochloric acid	10 drops.
Water	1 ounce.

Wash again and give a bath of dilute hydrochloric acid before complete washing, and darken in ammonia solution, which should not be stronger than 1 in 30 and thoroughly well mixed before applying. The use of only one acid is apparent, and each step is a check on any previous cause of failure.

For the removal of stains already experienced, re-fix in strong hypo, wash, and apply Schlippe's salt, 10 grains; ammonia (fort), 10 drops; water, 1 ounce. On intensify in uranium till shadows appear green, wash till greasy appearance disappears, and clear off in weak ammonia. This can be repeated if necessary.

Wishaw.

WM. M.

Answers to Correspondents.

All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.

For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

C. Wilken, Photographer, South Street, Elgin. Photograph of Colour Party, 11th Batt. Queen's Own Cameron Highlanders; Photograph of Colour Party and Escort.

A. Stelling, 60, Peckham Road, London, S.E. Two Photographs of the Rev. J. W. Ewing, and Photograph of the Rev. and Mrs. Ewing.

S. Peace, Inganess Cottage, by Kirkwall, County Orkney. Photograph: Ships of H.M. Navy in Scapa Flow, Orkney, Dressed with Flags and Firing a Royal Salute in Honour of the King's Birthday, June 25, 1909.

P. Cameron, 1, Eyre Place, Edinburgh. Photograph: Caledonian Hotel, Princes Street, Edinburgh.

A. Dean, 14, High Street, Rugby, Warwickshire. Five Photographs: His Majesty Planting Tree in School Close, Rugby; His Majesty leaving New Speech Room, Rugby School; His Majesty leaving New Speech Room accompanied by Mr. Arthur James; His Majesty and Rev. Dr. James walking on School Close, and House Party at Coton House, Rugby.

DRAWING REGISTERED:—

A. Dean, 14, High Street, Rugby, Warwickshire. Drawing Depicting His Majesty Opening the New Speech Room, Rugby.

UTOCHROME PROCESS.—Will you be good enough to tell me the most up-to-date books or articles, etc., on colour photography? I want a work dealing with the Lumière process and which describes that fully.—KAZE.

Messrs. Houghtons Ltd. publish a booklet (price 3d.) on the process.

INSTANTANEOUS.—We should select 2 or 3. The former is much used for press work.

A. ARNOLD.—The best answer we can give you is that you purchase "Photography for the Press," advertised in our pages last week.

ITAL.—We believe the book is not sold here, but you might apply to Messrs. Dawbarn and Ward, Ltd., 6, Farringdon Avenue, E.C.

COLLODION EMULSION.—I will deem it a great favour if you can give me an easy and reliable formula for ferrotype dry plate work, similar in speed and character to — brand. I have made up Beechey's unwashed formula, but find it too slow with me, requiring two seconds in bright light, $f/4$. Have already made a rapid wash emulsion, given in the "Almanac." I would be much obliged if the formula given could be developed with hydroquinone, as I find pyro-ammonia so waxy.—C. JAMES.

The makers of the brand of plates named do not publish the formula by which they are made, so we cannot give it. On pages 795-6 of the "Almanac" you will find formula for collodion emulsions and developers suitable for them. You must not expect collodio-bromide plates to be anything like so rapid as gelatine ones.

ENLARGEMENTS, ETC.—(1) In the production of cheap bromide enlargements I have heard that no negative is taken of the subject sent, the enlargement being made direct from the copy by a method of reflection. If so, how is it possible to produce a positive from a positive without a negative intervening, or is the reversal brought about in the developing? Will you please give me the method of doing this, if such a method exists? (2) As a constant user of a hand-spraying device, I inhale a considerable quantity of lamp-black. Have you heard of this being detrimental to the health? Is there any method of carrying the spray away other than the

fan draught? (3) Is it possible to fully protect a patent in this country for £1? (4) In working up B. and W. prints, where black spots and patches occur, is it possible to take these out chemically without using the knife?—ARTIST.

(1) We are not aware that this method is commercially used. It is usual to make a "copy" negative and enlarge that, but the process given by Mr. Carnegie last week may be used with bromide paper. (2) It certainly would be. None that we know of. (3) Yes, provisional protection for nine months is obtained for this sum. (4) The print can be reduced with a mixture of iodine and cyanide, as given in the "Almanac" on page 787, but such reducer requires to be used before the working-up is taken in hand.

ARTICLES IN "B.J."—Would you kindly let me know if I could obtain in book form a series of articles which appeared some weeks ago in your journal, entitled "How to Build a Photographic Studio Business?"—C. V.

The articles in our pages are not re-published in book form except in cases where the author makes special arrangements to this end. Your only course is to purchase the back issues.

W. SULLIVAN.—There is no fault whatever with the cards, as shown by some portions being as good as could be desired. The fault is due to the manipulation, and that alone. The prints have not been kept moving while they were in the fixing bath, and as a consequence they have stuck together, so that the hypo has not had equal action all over the pictures. Where it has had free action those portions are as could be desired. More care in the fixing and after washing will avoid the trouble—more particularly in the fixing.

STUDIO QUERY.—I have recently taken over a studio, in which I find it extremely difficult to obtain satisfactory results, I should therefore be greatly obliged if you could suggest any alteration that would improve matters. I place the background at the north end, about the spot marked in red, for single figure, and at the south end for subjects that there is not enough room to take at the north. The lighting is, of course, not at all good at the south end, particularly when the sun is shining. I usually use a lens of 11.5in. focus. I am prepared to spend up to about £20 on alterations, but of course the less the cost the better. Enclosed is a rough plan of the studio, which I trust you will be able to understand.—J. W. WATSON.

So far as one can judge from the sketches, the studio is too small for general professional work. The only suggestion we can make is to extend the glass at the north end, so that the sitter can be placed further back than at present; that will give you greater length between sitter and camera than you get at present. This is the best suggestion we can make from the sketches.

ARRESTING TONING.—Kindly inform me the most sure way of stopping prints, etc., from further toning immediately after being removed from the toning bath, especially with reference to a combined toning and fixing bath.—TONING TROUBLES.

Plenty of water, or immerse in a weak solution (five grains per ounce) of soda sulphite.

COMBINED BATH FOR ALBUMEN.—Can you give me a formula for combined toning and fixing bath for albumenised paper that you can recommend? And if so, please state if prints require washing previously.—EN AVANT.

Such a formula was given in our last issue (see page 528). If the prints are made on ready sensitised paper which contains an acid as a preservative, they should certainly be washed before they are put into the bath. This is necessary more to get rid of the acid in the paper than the free nitrate of silver. If any of the former remained in the prints it would be liable to set up a sulphurating action, which would jeopardise the stability of the pictures.

CELLULOID VARNISH.—I am making celluloid varnish. I got some celluloid shavings and put in amyl acetate, well covering. The celluloid will not dissolve (after a week), but remains a gelatinous mass at bottom of bottle, with some of the amyl above. I added more amyl acetate, but the mass remains the same. What must I do? At present it is, of course, too thick for use in flowing over a plate, and it doesn't seem to thin out in the amyl acetate. I cannot use spirit, as it is intended for Autochromes.—S. H. C.

Most samples of celluloid dissolve freely in amyl acetate. Pos-

sibly if the chippings you have got are from photographic films from which the gelatine has not been completely removed, we should advise you to try the addition of acetone to the amyl acetate, as that may bring about a perfect solution.

ENLARGEMENTS DIRECT.—I wish to make enlargements from small P.O.P. untuned prints by photographing them. My camera has an extension of 36in., and I wish to make 15 x 12 negatives from $\frac{1}{2}$ -plate prints. What would be the cheapest form of lens to use? The exposure is to be made by means of magnesium ribbon.—A. M.

Your lens should not exceed 7in. focus. A good R.R. of 5in. focal length would answer well.

REGISTERING TRADE MARK.—I have sketched a very good device which will make an excellent trade mark, and which I should like to submit to my employers, feeling confident that they will use same, but would like to previously protect myself in respect to this, giving me the best idea how to proceed without incurring much expense, also stating if same can be sold to the firm and under what conditions.—B. E.

If the device is unmistakably an original drawing we should say it will be sufficient protection to register it at Stationers' Hall as an artistic work. This would cost you only 1s., whereas to register it as a trade mark will cost you £1. In the latter case you should apply to the Registrar of Trade Marks and Designs, 25, Southampton Buildings, Chancery Lane, London, E.C.

VARIOUS.—"B.J." for June 11, page 456, article by G. Watmough Webster, F.C.S., on "Cementium," kindly say who are the makers, and where can it be obtained? 2. "B.J." for July 2, page 510, short par. by yourselves re drying negatives. I have no stove, could I dry mine on the top of a small paraffin stove like you do, with the sheet of asbestos and a wire plate-rack?—OLD KROW.

1. Cementium is now sold by nearly all stationers and ironmongers and you should be able to obtain it quite easily. It is made by The Cementium (Patent) Company, Ltd., Tanner Street, Bermondsey, S.E. 2. Certainly, if you do not let the asbestos get too hot. Put it at such a height from the flame that it never gets too hot to touch.

T. E. CAWTHORN.—If you are quite certain your procedure is not at fault, while the makers are certain the plates are all right, it is a little difficult for us to offer any advice. The spots, however, certainly look to us as if due to partly dissolved developer. If this is not the cause we cannot suggest anything else. Solutions that are not quite clear are very common causes of spots.

LANTERN SLIDES.—We enclose for your inspection some lantern slides, upon which you will notice peculiar spots, etc., which our lantern-slide maker seems quite unable to account for. They occur both on varnished and unvarnished slides. We should be greatly obliged if you would kindly tell us, if possible, what the cause may be, as we cannot account for it in any way, our operator being a skilled man and a conscientious worker, who would be unlikely to curtail the washing of slides, etc.—R.I.P.

The slides sent to us appear all to be varnished, and in some of them dust seems to be imbedded in the varnish. In one the varnish has crackled, owing, no doubt, to its having been applied to a film that was not quite dry. In another it has run into streaks, which show stains. These effects we attribute to heat in the lantern, though you do not say if the slides have been used or not. We are inclined to think that in all cases the fault is in the varnishing, and would suggest that the slides should be more perfectly dried before varnishing, and that celluloid should be used instead of lac. Apparently you have not sent any unvarnished slides, so we cannot say anything with regard to those.

PORTRAIT LENS FOR FOCAL-PLANE WORK.—(1) I have a cabinet portrait lens ("Optimus"), which I wish to use for high-speed focal-plane work. I am told that I shall greatly improve the power of the lens in covering the plate by inserting a spectacle lens between the glasses of the back combination. Is this so? And if so, will you kindly say what focus the spectacle lens should be. The "Optimus" is about 8ins. (2) Would such a lens, with addition as suggested, be suitable for sporting and football subjects used on a reflector camera?—ADDER.

(1) An 8in. portrait lens should cover a $\frac{1}{2}$ -plate well enough without the addition of any supplementary lens, which will be likely

to disturb the focus. If you think of adding such a lens you might try a very weak negative lens, but we doubt if it is worth while. (2) We doubt if you could fit the lens to a $\frac{1}{2}$ -plate reflex, but you might be able to utilise it on a 5 x 4 camera. It should serve fairly well, though an anastigmat would be preferable.

INSOLUBLE GELATINE FILM.—I want to get a very hard and thick film of gelatine on paper. I have tried mixing with the gelatine both alun and formalin before coating the paper, but still the film softens when soaked for a time in water. It still seems to absorb the water, and that is the thing that I want especially to avoid. Can you tell me of anything that will answer better than what I have tried.—C. CONNELLEY.

We should advise your trying a hard sample of gelatine, such as Coignet's Gold Label, to a strong solution of which some bichromate of potash has been added. When the coating is dry, expose to a strong light, preferably sunlight, for a day or two.

LENS QUERY.—I have two rapid rectilinear lenses which I use for outdoor work. I can use either the back or the front combination of them as a single lens by employing a small stop. I have recently bought a portrait lens, whole plate size, the front combination of which, when stopped down, works admirably as a single lens for large work. But the back one I can do nothing with in this direction. It will not give a sharp image, however much it is stopped down. It seems to be of longer focus than the front, and if I could get a sharp picture it would be of great use to me. Can you enlighten me in the matter?—T. BORNER.

You will not succeed in getting a sharp picture with the back combination of a portrait lens. The function of the back combination of a Petzval lens is to correct aberrations of the front one, and that alone. It is only the front combination of a portrait lens that can be employed as a single one.

MOUNTING LARGE CARBON PICTURES.—Will you be good enough to tell us the best thing to mount large (12 x 10) carbon pictures with that will have no injurious action on the print so as to cause it to fade in after years? The prints are mostly on thick rough paper. W. AND Co.

Almost any adhesive may be used for mounting carbon prints with as, unlike silver ones, the mountant will not affect them, even if it contains substances that would act deleteriously on a silver image. Dextrine, flour, or starch paste, are quite suitable. The last-named is what is usually employed. It is made very thick and is best applied with a piece of sponge. In applying, it should be well rubbed into the paper so as to break up all clots. If the paper is very thick, and the prints large, it is well to coat the back twice before putting it on the mount.

TINTING MATT BROMIDES.—Can you kindly tell me of an aniline dye that I could use for matt bromides and platinotypes to give them the appearance of old engravings—I mean something that I could soak the prints in after drying to stain the paper the same pale yellow brown tone that old engravings have. I know there is something that will do it, because many photographers produce such pictures.—T. N. SELL.

We do not know of any aniline dye that will give the tint you desire. A weak infusion of coffee, however, will, and that is what is very generally used for the purpose.

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SUMMARY.

An exhibition of the results obtainable by the latest method in the mounting of photographic prints will open at the house of the "B.J." on Tuesday, August 3.

A French worker, M. G. Underberg, has recently given formulæ for the use of diamidophenol in the development of negative plates the exposure of which may or may not have been correct. He employs a minute quantity of hydroquinone as a preservative of the sodium sulphite solution. (P. 570.)

In an article on page 567 on the relation between the exposure when copying, the extension of the camera, and the distance of the source of light, some calculations are given with a view to systematising such work.

A new description of printing paper, just placed upon the market, is reviewed on page 578.

The opportunities for photographic trade in Turkey are the subject of an article on page 568 by Mr. Richard Thirsk.

A correspondent, Mr. H. Nolan, of Cairo, writes on page 583 outlining the various methods which may be adopted in the photography of finger-prints.

In "Wilson's Magazine" a writer describes a variation of the sulphide toning process, using a mixture of ammonium sulphocyanide and sodium sulphide as a toning-bath for developed bromide and gas-light prints. (P. 571.)

The first portion of a paper describing experiments on colour-sensitising gelatine emulsions with mixtures of dyes appears on page 572.

The use of the Metzograph screen, scum in the enameline process, non-warping mounting wood, and the rubbing-off of ink from proofs are topics dealt with under "Photo-Mechanical Notes." (P. 575.)

The old-established business of Shew and Co. has been taken over by Mr. W. J. Ramsey. (P. 569.)

Developing tanks for plates and roll-films figure under patents of the week. (P. 576.)

Some further notes on the practice of the albumen process are given in an editorial article on page 566.

EX CATHEDRA.

An Exhibition at the "B.J." House. Professional photographers in the neighbourhood of London, and those visiting the metropolis early in August, will, we

hope, make a note of the fact that from Tuesday, August 3, to Saturday, August 14, an exhibition will be held at the house of the "British Journal" of the results obtainable by the new method of mounting, embossing, and blocking in one operation, recently worked out by the late Mr. G. W. Morgan, of Aberdeen, and described on two occasions recently in our pages. Mr. John Morgan, a son of the deceased inventor, will also have a complete equipment for the process in working, and will demonstrate the manipulation and the methods of obtaining the great variety of results to visitors. The Morgan process representing the latest facility placed at the disposal of photographers in the way of mounting, it is thought that this convenient opportunity of examining the results and seeing the actual working will be taken by many of our professional readers, who will thus be able to secure full technical information at first hand. In addition, there will be on view during the fortnight an outfit of the mercury-vapour lamp for studio use, and those who may be interested in this form of studio light, and care to bring their own plates with them, may make and develop an exposure with the lamp.

* * *

Trade Journal Advertising. The current issue of "Printers' Ink," the journal of advertising issued by

Messrs. S. H. Benson, Limited, devotes much space to the use of trade journals by advertising firms. To it, Mr. W. J. Casey, the manager of the well-known enlarging and printing firm of Raines and Co., contributes an article recording the satisfactory results achieved by constantly changing announcements in the "British Journal of Photography." The optimistic terms in which the attraction of business by this means is described may be said to justify the heading to the article—"Raines and Co.'s trade-paper advertising brought results through painstaking and distinctiveness." We ought to say, in justice to Messrs. Raines, that these qualities in their advertising are quite part and parcel of their technical work for their customers. Were this not the case, we are sure that their weekly address to photographers from the pages of the "B.J." would not have led them to eulogise the results of their advertising in the way in which they have done.

* * *

Paris Hats in the Studio. In a recent article in the "Daily Chronicle" Mr. Elwin Neame has

declared that the tonic which he administers to a feminine sitter who "feels a fright" is not the illustrated papers, nor even a cup of tea, but the suggestion that she might care to try on one or two of the latest creations in hats. The pure joy of observing the latest Paris fashions crown-

ing her own figure is found to dispel the self-consciousness of the sitter as nothing else could do, and the photographer, according to the newspaper article, sees "a depressed and 'wooden' sitter rapidly transfigured into a radiant vision of ecstatic happiness."

* * *

Marking the Focussing Screen.

When a camera is used for a variety of work the advantage of changing the focussing screen is often very great. If, for example, we are making negatives from which lantern slides are to be made by contact, it is of very great service to use a screen upon which the exact size of a lantern plate is marked. Or, again, if we are reducing on a particular scale, it is very convenient to have a scale of inches marked on the screen. When a half-plate camera is used for stereo work a specially marked screen is practically essential, and we find it best for this purpose to block out all parts of the screen beyond the margins of a stereoscopic size plate. Such a screen is, of course, useless for ordinary half-plate work, and therefore it is essential to be able to change it readily. For general work, perhaps, the best kind of ruling is the simple division of the screen into squares of about one-quarter or three-eighths of an inch side. For copying purposes we can also mark on the screen in bolder lines the size of a lantern plate, but in practice we find this method rather unsatisfactory if the camera is over the quarter-plate size. We find it far better to mark out the area of the lantern plate with lantern binding strips stuck on the glass, and to keep this special screen for the purpose of lantern-slide making only. In general it is best to rule all screens in squares to facilitate the squaring up of the image on the plate, and to avoid any specially complicated ruling that is liable to be mistaken when focussing. If a whole plate screen is ruled so as to show various smaller standard sizes, it is extremely difficult at times to tell which are the right boundaries for the image, and any mistake is not detected until the plate is developed. In all such cases we prefer to mark the boundaries with broad lines of black paper blocking out the corners and sides, and to keep a separate screen for such sizes as are required.

* * *

Focussing Screens.

When using an anastigmat of an aperture under $f/7$ focussing is by no means as easy a proceeding as it is generally assumed to be, and, if tests are made on objects that will reveal lack of perfect focus, most people will be surprised at the poorness of the result. One cause of the trouble is the use of coarse ground glass focussing screens, many substitutes for which have been recommended from time to time in our pages. A very common cause is, however, want of register between screen and plate, and this is sometimes due, not to incorrect building of the camera and dark slides, but to the loose fitting of the ground glass. We have often been surprised to find new cameras fitted with screens that were so loose as to actually rattle when the camera was moved. In some cases the glass is kept up to the rebates by rubber pads inserted under the brass plates which hold it in place. This makes a rigid setting, but, unfortunately, a permanent one, and, as it may be necessary to remove the screen and reverse it for Autochrome work, or to change it for a fine grain screen, anything in the way of a permanent fixing is objectionable. It is rather curious that no camera makers seem to have yet realised the desirability of making the ground glass removable, nor the possibility of so fixing it by spring clips as to render it both removable and also rigidly in register. All our own cameras have had to be altered in this respect,

as we frequently require them for Autochrome work, and also very often want to change the screen, either for one with a different surface or one with a different ruling.

* * *

Photography and Libel. This week's Australian mail brings particulars of a novel action for libel which was heard at Melbourne recently. In March of the present year a fireman of the Melbourne Fire Brigade, and a labourer, were charged at the Police Court with having stolen goods from a place where a fire had been. The proceedings were reported at some length in the "Herald," an evening paper, and in addition the portraits of the two men were published in the midst of the report. They objected to this, and each claimed damages to the amount of £500, upon the ground that, although the "Herald" was within its rights in reporting the case, it was not protected by law when it went so far as to publish the photographs. The plaintiffs further claimed that they had a copyright in the photographs, inasmuch as they had paid a professional photographer for same, and nobody had a right to reproduce them without their permission. For the defence it was contended that the photographs were not defamatory—they were, in fact, excellent likenesses of the men. In regard to the copyright, the newspaper had obtained the photographs from the photographer, and it was argued that the plaintiffs had no copyright in them, even although they had paid for them. In the result the Judge held that the portraits were good ones, and that it was not libellous to publish same. With regard to the question of copyright, that claim would also fail, as the photographs had not been registered. The jury accordingly by direction found the verdict for the defendant newspaper as regards both men.

PRACTICAL NOTES ON ALBUMEN PAPER PRINTING.—III.

In the last article special attention was directed to the hygroscopic conditions of the paper at the time of printing, and the effect which this sometimes has on the resulting prints. We will add another note on this point, as it may be useful to those who have to work the albumen process in hot and dry climates. In America, where the atmosphere, as a rule, is much drier than here, most printers make it a practice to expose the paper, after sensitising and drying, to the fumes of ammonia before printing, as it is found that, thus treated, the paper tones better and with less tendency to mealiness. This method was tried by many workers in this country when it was first published now many years ago, and the general opinion was that no advantage was gained, and the results did not repay the extra trouble involved. It is quite conceivable that the fuming really has the effect of introducing a certain amount of moisture in the albumen, and in this way brings it more into the condition which would be the normal if it were dried in our more moist atmosphere. The fuming however, may be a distinct advantage when working in exceptionally hot and dry climates. It is a simple operation, and involves but little trouble. A cupboard with a well-fitting door, or a box large enough to allow of the sheets of paper to be suspended some distance apart so as to permit the fumes of ammonia to act uniformly on all answers the purpose quite well. When the sheets are all hung up, a dish or saucer containing three or four ounces of liquor ammonia is placed at the bottom. About a quarter of an hour suffices for the fuming. Under any circumstances, paper containing an acid as a preservative will be benefited by the fuming, as then there will be less difficulty in obtaining the deeper tones.

In the previous article formulæ were given for some of the more generally used toning baths. We will, however, repeat one that was given a few months back, as it is one

that will yield purple or black tones, and is very convenient in use. It stands thus:—

Chloride of gold	15 grs.
Water, distilled	15 oz.
Lime water	q.s.
Chloride of calcium (pure)	120 grs.

The solution is prepared as follows:—The chloride of gold is dissolved in three or four ounces of the water. A strip of blue litmus paper is then dropped in, and is reddened by the acid in the gold. Lime water is then added by degrees until the blue colour of the paper is just restored. The chloride of calcium is next added, and the bulk made up to 15 oz. Each ounce of this stock solution contains one grain of chloride of gold. For use, one ounce is taken and diluted with eight or ten ounces of water. This will be sufficient to tone a full sheet of paper (22 in. by 17 in.) to a good purple. One of the advantages of this bath is that it can be kept as a stock solution, if preserved from light, for many weeks. Another is that more stock solution may, if required, be added direct to the bath while in use, without fear of mealiness, as in the case of the acetate bath.

We shall now proceed with the work of toning. The best light for the purpose is subdued daylight, but it must be very subdued at this time of year, otherwise the lights of the pictures may be degraded. A professional of our acquaintance who daily produces large numbers of albumen prints always tones by the light of a large paraffin lamp with an Argand burner, since he finds that after practice he can get more uniform tones than by daylight. The free nitrate of silver having been washed out of the prints, the toning solution is poured into a chemically clean dish, which, by the way, should be kept exclusively for toning purposes. If a large number of prints have to be toned it is well to use a bath a little more dilute than is given in the formulæ, as then uniform tones throughout the batch will the more easily be secured. The prints should be introduced into the bath one by one, keeping them in motion by continually turning them over and over. It is well not to put in more than ten or a dozen at the commencement, as with them the toning will proceed rapidly. As soon as, or a little before, the desired tone is obtained, the prints are transferred one by one to a dish of water under a running tap, in order to stop the toning. As just remarked, the first lot of prints will tone quickly, and the one must be judged by looking down on the print, and not through it. The prints, particularly the earlier ones, should be removed a little before they have got to the required tone, for it must be borne in mind that they dry up somewhat darker than they appear in the toning solution; also, that the toning goes on, more or less, in the washing water, so long as any trace of the bath remains in the paper. This continuing action may be arrested by first rinsing and then putting the prints into a dilute solution of salt and water, in which they may remain until they are transferred to the fixing solution.

As the bath becomes reduced in gold its action becomes slower, consequently more prints may be dealt with at a time—say, a couple of dozen or more in experienced hands. Should a variety of tones be required to suit different customers, the prints should be sorted out, and those that are required to be the most purple should be the first toned, for the reason that with a bath rich in gold the purples are more easily obtained. A long immersion in a weakened toning bath does not give the same results as those produced by a short time in a bath containing the full strength of gold. Hence when warm browns are necessary those prints are the last that should be dealt with. Such tones will then be the more satisfactorily ob-

tained than if the prints were the first to be put into the solution.

Something should be said with reference to the temperature of the toning bath; the best is from 60 deg. to 70 deg. F. If it is much below the former, the toning will be slow, and if much above the latter it will be more or less rapid, but the results in the end will not be the same. A print that is toned in a bath at high temperature will quickly colour on the surface, but when the picture is finished it is often found to be of a warmer tint than was expected, whereas one that has been toned at a low temperature will take a longer time in the bath, but when it is finished it will probably be of a darker tone than was anticipated.

In the foregoing articles various formulæ have been given for toning baths which, within certain limits, will yield different tones. But we may here reiterate what has frequently been said in these columns, namely, that the tone and character of the print depend more upon the negative from which it is made than upon the formula by which the toning bath is compounded. With negatives of a feeble character it is impossible to obtain rich purple or black tones, whatever toning bath we may employ; but with those of the opposite type it is easy to obtain such tones with almost any of the baths of the formulæ given in this and previous articles, while at the same time any of them will give warm or reddish browns, whatever be the character of the negative, provided that it is not an exceptionally feeble one. Therefore, when rich and strong tones are not obtained, the negative is most probably the reason. In connection with the colours obtainable on albumen paper, it may further be said that with most of the highly glossy ones—such as the double albuminised—it is next to impossible to obtain the same deep purple or black tones as are to be got on less glossy varieties, no matter what may be the formula used for the toning solution.

EXPOSURE IN COPYING.

A LETTER by Mr. Douglas Carnegie in this issue, while correcting a statement in his article on "The Preparation of Lantern Slides Direct in the Camera," also draws attention to some points concerning exposure in copying that are certainly worth further consideration. It is customary always to consider the illumination of the copy to be a constant quantity, but when working by artificial light it is, of course, not so unless the distance between copy and light is always the same. If we focus by adjusting camera only, leaving the copy and easel stationary, then the illumination is constant, in which case exposure is always proportional to the square of the distance between plate and lens. In these circumstances the smaller the scale of reduction the shorter is the exposure. Therefore if we move the light farther back from the copy, and so reduce the illumination upon it, we can arrange matters so that the exposure required for one scale is precisely the same as that required for another. It is fairly obvious that if with constant illumination exposure is always proportional to the square of the distance between plate and lens, then exposure must become constant if we vary the distance between light and copy in inverse proportion. This, of course, means that the distance between light and copy must be varied for every change of scale. The problem of how the apparatus should be adjusted so as to preserve constant exposure is interesting, but the solution adopted by Mr. Carnegie does not strike us as sufficiently exact to be generally useful, excepting, perhaps, in the preparation of negatives of black and white diagrams.

The figures that he gives show that the plate is over-

exposed for scales of half and one-third full size, and slightly under-exposed for a scale of one-fifth full size, the nearest approach to accuracy being obtained with the scale of one-quarter full size. His figures show the relative degrees of over- and under-exposure, but perhaps the facts involved will become clearer if we note the true exposures required in each case to produce equivalent results in all when the light is arranged by his method. These are given in the following table, where 10 seconds is assumed to be the correct exposure for a scale of full size:—

Scale.	Exposure required.
Full size	10 seconds.
$\frac{1}{2}$	7.1 "
$\frac{1}{3}$	7.7 "
$\frac{1}{4}$	9.53 "
1-5	11.65 "

The inequality of these exposures is due to the fact that the light is only at the right distance (as determined by the rule given) in the one case when the scale is $\frac{1}{4}$. In the two preceding cases the light is too near, and in the last it is too far away. The following table shows the actual distances of light from copy, and also the distances at which it should be to secure constant exposure, assuming a 10in. lens to be used:—

Scale.	Light from copy		Percentage error.
	(actual distance). Inches.	(proper distance). Inches.	
full size	40	40	—
$\frac{1}{2}$	45	$53\frac{1}{3}$	—15
$\frac{1}{3}$	53	60	—11.6
$\frac{1}{4}$	$62\frac{1}{2}$	64	— 2.34
1-5	72	$66\frac{2}{3}$	+ 8

The last column gives an idea of the amount of the error

in each case from the true distance that will give equivalence of exposure.

If we bear in mind the fundamental rule that exposure is constant so long as the distance of the light from copy varies in inverse proportion to the distance of plate from lens, it is easy to draw up a table of the adjustments required to always preserve constant exposure for a given lens and stop. In general it will be convenient to consider the position of the light to be fixed, and the extra adjustment for any particular scale will then only involve a shift of the easel carrying the copy.

Suppose, for example, our standard exposure is ascertained for a full-size reproduction, with light 5ft. from the subject. To copy on any smaller scale we must first run the easel back for the distance given in the following table, and then adjust camera to give the right-size image:—

Scale.	Movement of easel. Inches.
Full size	—
$\frac{1}{2}$	20
$\frac{1}{3}$	30
$\frac{1}{4}$	36
1-5	40

It will be noticed that as the reduction becomes greater the alteration in position of screen becomes less. A range of 49in. will just be enough to enable us to preserve constant exposure for a series of scales from full size down to one-tenth full size. The calculations are very simple. The distance of the light is in all cases inversely proportional to distance of lens from screen, the latter distance being two focal lengths when copying full size. To copy, say, one-eighth full size the distance from lens to screen must be $1\frac{1}{8}$ focal lengths, which is 9-16ths of two focal lengths. Therefore, the distance of the light from copy must be increased by multiplying it by 1 7-9. Assuming the original distance to be 5ft., then the easel must be moved back 7-9ths of 60in., or 47in.

BETTER PROSPECTS FOR PHOTOGRAPHIC GOODS IN TURKEY.

THERE are various signs and indications that Turkey is at last beginning to settle down after the troublous experiences through which it has passed during the last few months. In the course of this time it has passed through a revolution in more senses than one. Its business methods, influenced most probably by the forward action in Government circles, have undergone a radical change. This has been accomplished silently, yet none the less effectively. The commercial men of the country have been roused out of their proverbial lethargy, and are beginning to realise more keenly than ever before the prospects which lie before them. They now see that even in the Levant the old conditions are no longer possible, and the various influences that are being brought to bear upon them on all sides make it no longer possible for them to exist, if they persist in adhering to their old custom of doing business in a half-hearted manner, as though it made no difference to them whether or not they bought and sold. The importation of Western methods has taught them a valuable lesson, so that they are now taking a leaf out of the book of their more successful neighbours, and are introducing more up-to-date and progressive methods. The various changes taking place in the life of the waking Near East have also their accompanying good influence on the trade of the various countries, and it is just possible that the recent boycott of Austrian goods has not been without its good effect for the other nations.

One of the most hopeful signs of this awakening is the spirit of enterprise which is increasingly shown among the native agents and dealers. Many of them have the ambition to make themselves more independent, and are desirous of extending their capacities and energies. They are much more liberal than formerly, being more willing to listen to the foreigner who brings to them what they want; and what is of infinitely more importance is that they are showing a growing tendency to invest their money in such articles. That this struggle for independence, and with it the courage to launch out upon new enterprises, is becoming general, is proved by the fact that many genuinely Oriental houses, which were at one time in the habit of conducting all their transactions with European markets exclusively through the large European houses already established in the Orient, are now departing from this rule, and are finding it much more to their advantage to deal with the manufacturers or exporters direct. Those who are best acquainted with the situation are of opinion that Turkey is now on the threshold of a period of progress and of commercial activity, to which it will settle down in earnest as soon as the Powers have agreed among themselves to clear up the political situation in the Near East, settling for the time being the rumours of war.

There can be little doubt that the imports of photographic goods into Turkey will enjoy a fair share of this increasing

prosperity, and manufacturers desirous of extending their trade to that country would be well advised to take advantage of the present opportunity, and lose no time in getting into the field. Foreign manufacturers, especially Germans, are anxiously watching the situation, and are already making preparations to carry on an extensive propaganda, from which they expect to reap rich rewards. America is also well represented, and the competition promises to be so keen that British manufacturers cannot afford to be idle if they are to hold their own. Happily British goods are already widely known, and have always enjoyed a good reputation in Turkey. Manufacturers should not fail to take every advantage of this circumstance, sparing no pains to improve on the lead which they have thus secured for themselves. The fact that Turkey is not likely to undertake the manufacture of her own photographic goods for many years to come should prove a still greater incentive to the immediate opening up of business relations with her agents and dealers. There is every probability that those who succeed in getting a hold of the markets now will contrive to keep them for a considerable time to come.

Another happy augury for business with Turkey is the promise that in the near future something is to be done towards simplifying the customs arrangements of the country, and to place these on a more reasonable footing. It is almost certain that before long the stupid conditions will be abolished which made possible the comic-opera incident to which we gave publicity in these columns some time ago, when the Customs officials, disregarding instructions, ruined a whole consignment of plates and films by examining them in the sunlight!

While encouraging British manufacturers and exporters to take full advantage of the more favourable conditions obtaining in Turkey, it may be as well at the same time to warn them of the danger of neglecting the customary business precautions before opening new accounts. In a land where the import trade is conducted mostly by Armenians, Syrians, Arabs, and Greeks, as well as by the native Turks, it is probable that some unscrupulous dealers may not be strictly honest in their transactions, and at any rate, little harm can be done by practising the old proverb and take every man for a rogue until you find him out to be otherwise. It is this feeling of uncertainty that has caused most manufacturers and exporters to limit their business relations with the Orient to dealings with the European houses already established there. But this is a mistake, since most of these houses have their old-established sources of supply, and are generally so conservative that it is no easy matter to persuade them to change these. Besides, it is the object of this article to show that the Turkish trade is now flowing into other channels, and that exporters are likely to gain more by avoiding these middle-men and dealing direct with the smaller traders.

In order to accomplish this it is necessary to study the markets, and to master their peculiarities. This presents few difficulties, for the importer is assisted and advised by the well-arranged and splendidly organised Consular Service. Importers do not always take advantage of the information which may be had on application to the Consul, who is generally so well instructed concerning the financial position of the traders that he can at once tell whether or not the latter is safe, so that importers need not run any undue risks. In no other country does the Consul exercise so much power as in Turkey, and

because of this it is certainly the safest country in the Orient with which to do business. The Consul's help is invaluable, especially as he acts on occasion as a sort of intermediary between the exporter and the importer. If the latter has any doubt concerning the honesty of a firm ordering goods from him he need only put this to the test by making it a condition of delivery that the goods must be first paid for, the money being handed over to the nearest British Consul. At the same time the Consul should be advised of this condition so that he may know how to act in the circumstances. Most honest firms are glad to take advantage of this easy method of settling their accounts, while the firms which may not be altogether straightforward find themselves in an extremely awkward position, since, because of the extraordinary power which the Government of the country permits him to exercise, the Consul is greatly feared because of the damage he can do such firms.

It is the duty of Consuls to collect such information as may lead to advantageous trading relations between their respective countries, and the home authorities are yearly bringing more pressure to bear upon British Consuls to do their utmost in this respect. Because of the difficulties arising out of the difference between Western and Oriental business methods, and because of the changing financial condition, the Consuls are instructed to keep a sharp eye on all the business done within their districts. It is also one of their duties to investigate the condition of all importing houses, work in which they not only have great experience, but also have at their command invaluable sources of trustworthy information from which private persons and even the information offices are excluded. Consequently one is always safe in applying to the Consul for addresses of reliable houses, and as it lies in his interest to assist and increase the commerce between Turkey and his own country he may be trusted to do his best to prevent losses or swindles. It is of the greatest importance when making application to the Consul to state clearly to him that what is wanted is the addresses of reliable native traders, and not those of British firms, which latter may be found in any trustworthy commercial directory. Those manufacturers intending to do business with Turkey, and it is hoped that many will be encouraged to do so, may gather from these addresses some idea of possibilities of doing business. The next step is to visit prospective customers. Trade with the Orient by means of correspondence is now practically impossible since so many commercial travellers have come into the field, and the sending of catalogues or samples merely represents so much wasted money, as even if these do bring in replies, they seldom lead to business. Most trade is done by personal representation, and the representative need not necessarily be a man who speaks the language of the country, though that is a decided advantage, and has a magic effect in encouraging confidence in him. As a rule, the Consul has the names of suitable interpreters whom he can recommend for the special work they are required to do. Another thing of the very greatest importance is to quote the prices in Turkish money, as the Oriental does not care to worry himself over equivalent values. Any drawback there may be in this is more than compensated for by the fact that in the end it generally works out to the advantage of the exporter. Bill-headings should be printed in Turkish as well as in English, and it is strongly advisable to follow the same rule in regard to price-lists.

RICHARD THIRSK.

SHEW AND Co.—This old-established business, which for many years past has made a specialty of the manufacture of reflex and other hand cameras, has just been taken over by Mr. W. J. Ramsey, known no doubt to many of our readers as a former manager of the photographic department of the Army and Navy Stores. A recent call paid by a representative of the "B.J." to

88, Newman Street showed us that those requiring any photographic apparatus, and particularly advice and assistance as to the choice of a hand camera, will receive every attention and courtesy from Mr. Ramsey, whose intimate knowledge of the photographic trade is willingly placed at the disposal of his customers.

FURTHER NOTES ON ACID DIAMIDOPHENOL DEVELOPER.

[In a series of articles appearing in the "Photo-Revue," the diamidophenol developer, attention to which has been drawn chiefly in France by M. G. Balagny. We give below a translation of portions of M. Underberg's communication, and would refer those who would compare the present formulæ with those previously given to the abstract of M. Balagny's paper given in the current "B.J. Almanac," page 573.—Eds. "B.J."]

THE chief ways in which contrast may be obtained with the acid diamidophenol developer are by addition of sodium bisulphite; by increase of the diamidophenol, or, which comes to the same thing, by decrease of the proportion of sodium sulphite; by the addition of potass. bromide, and by employing a stronger developing solution. The normal formula for diamidophenol developer is as follows:—

Diamidophenol .....	.5 gm.
Sodium sulphite, anhydrous	3 gms.
Water to make	100 ccs.

The action of bisulphite is a restraining one; it increases the time of development, and, moreover, destroys part of the colour-sensitiveness of orthochromatic plates, so that a more comfortable light may be used towards the end of development: it also has a beneficial action on the gelatine of the plate. Those who are unable to obtain bisulphite conveniently may use in place of it a mixture of sulphite and sulphuric acid, adding 5 drops of strong acid to 1 gm. of anhydrous sulphite of soda dissolved in water. This will be approximately equal to 2 ccs. of 40 per cent. commercial bisulphite solution.

Reduction of the quantity of sulphite of soda reduces the energy of the developer. Potass. bromide only makes its influence felt when used in comparatively large quantities; when used in small doses it acts simply as a preventive of fog.

Developers for Contrast and Softness.

Upon these facts may be based the formulæ for two-solution development. In order to simplify this latter I have taken as the standard quantity of diamidophenol a $\frac{1}{2}$ gm. ($7\frac{1}{2}$ grs.), corresponding to a mustardspoonful of the compound, and sufficing for the development of a dozen quarter-plates. A series of trials has resulted in a bath which gives the maximum of contrast. For $\frac{1}{2}$ gm. of diamidophenol a maximum quantity of bromide, which has no injurious effect, is $\frac{1}{2}$ gm.: the minimum quantity of sulphite which, according to MM. Lumière, does not give rise to dichroic fog, is 2 gms. I have found that when using bisulphite this quantity can be further reduced to 1.6 gm. Lastly, the quantity of bisulphite liquor which may be introduced to restrain the action of the developer and to avoid dichroic fog is 10 ccs. The maximum concentration of developer is 100 ccs., and we thus get the following formula when contrast is required or when dealing with over-exposed plates:—

Soda sulphite	1.6 gm.
Diamidophenol .....	.5 gm.
Bisulphite liquor	10 ccs.
Potass. bromide .....	.5 gm.
Water	1,000 ccs.

In compounding a bath to give the maximum of softness, one is wanted containing a full proportion of sulphite, no bromide (or enough only to avoid veil), no bisulphite (or very little, enough only to restrain the action of the bath), and, finally, a greater degree of dilution. On this basis the following formula may be used for obtaining very soft results:—

Soda sulphite, anhydrous	6 gms.
Diamidophenol	$\frac{1}{2}$ gm.
Bisulphite liquor	16 drops.
Potass. bromide, 10 per cent. solution	8 drops.
Water	250 ccs.

Moreover, in the normal formula, which answers very well for bromide and chloro-bromide papers, enough bisulphite is

given to restrain the speed of development, but the small proportion of bromide necessary for avoiding veil is not enough to lead to hardness of the results. Thus the normal acid formula is:—

Sodium sulphite, anhydrous	3 gms.
Diamidophenol	$\frac{1}{2}$ gm.
Potass. bromide, 10 per cent. solution	2.7 ccs.
Bisulphite liquor	5.3 ccs.
Water	100 ccs.

Preserving Stock Solutions.

Having worked out these formulæ, means were taken to obtain solutions which remain in good working condition for a long time. M. Papazoglou, in a recent issue of the "Photo-Revue," has already recommended sugar and alcohol in addition to bisulphite; but I have found that sugar is of no use for this purpose. Acid diamidophenol keeps very well in normal solution; the more concentrated baths do not keep as well, as will be seen from the following experiment with bottles of developer numbered 1 to 4.

Solution.	Kept in corked bottle partly filled.	Kept in full corked bottle.
Normal solution of acid diamidophenol	1	2
Normal diamidophenol solution to which was added 10 ccs. of 90 p.c. alcohol	3	4

At the end of fifteen days' exposure to light and sun bath No. 1 had a strong yellow colour, but could still be used. Bath No. 2 was yellow, but of less depth. Bath No. 3 was almost colourless, and No. 4 absolutely so. The baths were made up with the greatest care, water freed from air by boiling being employed. From this it will be seen that if it is wished to prepare the solutions a considerable time in advance it is sufficient to add 10 ccs. of 90 per cent. alcohol to each 100 ccs. of the bath. But since the working solutions themselves may be so readily made up by the method given below, there would seem to be no great reason for going to the expense of the alcohol. Still, any method of securing the good keeping qualities of the bath deserves to be mentioned—namely, that discovered by MM. Lumière, and consisting in the addition to the sulphite solution of a small quantity of hydroquinone. This latter mixture forms a practically permanent solution.

The following are the stock solutions to be made up:—

B.—Boiled water	100 ccs.
Potass. bromide	10 gms.

This 10 per cent. solution of bromide keeps indefinitely without spécial precautions.

BB.—Solution B	50 ccs.
Bisulphite liquor	100 ccs.

This keeps well for several months in closed bottles, but there is no object in preparing more than 150 ccs. at a time.

S.—Soda sulphite, pure, anhydrous	20 gms.
Hydroquinone .....	.1 gm.
Water, boiled, hot	100 ccs.

Add the sulphite to the freshly boiled water, stirring well; then add the hydroquinone, filter, and keep in stoppered bottles of 100 ccs. capacity. I find it convenient to make up 300 ccs. altogether (3 bottles), which quantity will keep for, at any rate, three months in regular use without appreciable alteration.

Development of Plates and Films.

Diamidophenol made up with acid sulphite is a perfect developer of all brands of plates, both extra rapid and orthochro-

natic. It is a developer which never gives fog nor stain, and possesses great latitude in use as regards the degree of contrast or softness which may be obtained with it, always assuming that development is thorough. This latter is an absolute essential in the use of the developer; and those who have not obtained satisfaction in the use of diamidophenol may be pretty certain that their failure has arisen from negligence in this matter. With almost all the brands of plates the image should appear quite distinctly on the back of the plate. Developing in this thorough way, up to the point when the image commences to veil over, there are obtained excellent negatives, the slight veil which appears towards the latter part of development completely disappearing in the fixing bath. The tendency when commencing the use of the developer is to stop development too soon. In the case of those who employ the two-solution method given below, over-development will not do any harm, whilst curtailed development leaves the negative without its full detail and brilliancy. The following is the method of working the two-solution system. Two developing baths are prepared as follows:—

- A.—For over-exposure: gives hardness.
- | | |
|---------------------|----------|
| Solution S | 8 ccs. |
| Diamidophenol | .5 gm. |
| Solution BB | 15 ccs. |
| Water | 100 ccs. |
- B.—For under-exposure: gives softness.
- | | |
|---------------------|-----------|
| Solution S | 30 ccs. |
| Diamidophenol | .5 gm. |
| Solution BB | 24 drops. |
| Water | 250 ccs. |

The negative is first placed in A. If at the end of 3 to 5 minutes no image has appeared, it is placed in bath B, and carefully watched. If the image on its first appearance shows a tendency to flatness and insufficient contrast, it is at once placed in bath A. If, on the other hand, it appears vigorous without detail, it should be left in B until it has acquired the necessary

softness. The plate is thus transferred from A to B, and inversely, according to the result desired, in either case being developed through to the back. Care is necessary to work in a perfectly safe light, and to avoid removing the plate too frequently from the developer: with some practice it is quite easy to judge of the thoroughness of development by reflected light whilst the plate is lying in the dish. After development the plate is given a good rinse and fixed in a bath of hypo made up as follows:—

Hypo	250 gms.
Bisulphite liquor	30 ccs.
Salt	20 gms.
Water	1,000 ccs.

It is well to keep two baths going, allowing the plate to remain in the first until all the white silver bromide has disappeared, and then to give a further five minutes in the second solution.

Stand Development.

Although the present writer is not particularly in favour of stand development with the plates in a vertical tank, for the reason that a developer which acts too slowly is inferior in its results, stand development in which the time does not exceed from twenty-five to fifty minutes gives the best results, and though the two-solution method given above is recommended in preference to any other, the following procedure may be of advantage when a large number of plates are to be developed. The bath A given above is made up, and water added to make a litre altogether. The negatives are placed in this weak bath, and at the end of five minutes one or two plates taken out and developed by the two-solution method already given. By the time these two plates are developed others will commence to appear in the stand solution. A second two, those which have come up the most, are then taken and developed in the two solutions, this method being followed until the whole batch has been got through.

G. UNDERBERG.

TONING DEVELOPED PRINTS.

[In a recent issue of "Wilson's Magazine," the following modifications of the familiar method of sulphide toning are recommended by an anonymous writer.—Eds. "B.J."]

THE desire to obtain colours other than those given by developing *per se* has led the manufacturers and users of bromide and so-called gaslight papers to resort to different methods. Of the many methods used, the one that has found the greatest application is the so-called sulphide method, of which the Velox developer may be taken as a good example. Sulphide tones properly made are permanent. Sufficient time has elapsed since their introduction to thoroughly prove this. Facility of production is also in their favour. The tones are, however, not very varied, nearly always being some shade of sepia. Experiments to obtain some other permanent sulphide tone were made by the writer with what appeared to him to be a fair degree of success. It was found when finished prints made on Velox and Lepera bromide paper (I mention these papers because my experiments were confined to them) were immersed in a solution of ammonium sulphocyanide and sodium sulphide a good purplish tone, very often equal to a gold tone on printing-out paper, was obtained.

The following formula has proved the most satisfactory of any tried:—

- A.—Ammonium sulphocyanide
- | | |
|---------------------|---------------|
| ..... | 8 ozs. |
| Water to make | 16 fluid ozs. |
- B.—Sodium sulphide (crystals)
- | | |
|-------------|-------------------|
| ..... | $\frac{1}{2}$ oz. |
| Water | 3 ozs. |

Following are condensed instructions for its use:—

BATH No. 1.

Solution A	1 oz.
Water	3 ozs.
Solution B	1 dr.

Mix just before toning.

Immerse the fixed and washed (and perfectly dried) print. The toning action begins almost immediately, ranging through the purple tones first and then into the sepias.

Allow the print to remain in the toner until the desired colour is reached, then wash fifteen minutes in running water and dry as usual. With the bath at 70 deg. to 80 deg. F., prints will tone in from fifteen to forty minutes; at 90 deg. to 100 deg. F., five to fifteen minutes will suffice; but it is not advisable to use the bath at a higher temperature than 100 deg. F., owing to its softening action on the film. Prints developed with Velox N. A. developer tone quicker than prints developed with ordinary developer.

The rapidity of the toning may also be increased by adding more of solution B, but not more than 1 drachm should be added to the original solution at one time, as this would render the bath too alkaline, and soften the film. It works best when freshly mixed, and after forty minutes or so more B solution may be added. The old bath may be kept for future toning, but before use it should be filtered or decanted to remove the

white precipitate formed, and fresh B solution added, but it should be discarded when it becomes so alkaline as to affect the film.

It will be found that the toning is influenced somewhat by the character of the negative used, different degrees of density in the negative affecting the silver deposit on the print and the subsequent action of the toning solution. It will also appear that matt papers tone more readily than the glossy, and that purple tones are easiest secured on glossy papers. It must be confessed that the laws governing the action of this bath are not as thoroughly known as could be desired. Sometimes it will work quite rapidly, and again, under apparently the same conditions, it works much slower.

An Alternative Formula.

Further experiments have shown that its certainty of action could be greatly improved by mixing with it hypo alum toning solution, made according to the following formula:—

C.—Hypo	10 ozs.
Water	50 ozs.

Heat to boiling, and add

Powdered common alum	2 ozs.
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Allow to stand until cold. It improves by standing.

BATH No. 2.

A	$\frac{1}{2}$ oz.
C	$\frac{1}{2}$ oz.
Water	3 ozs.
B	1 dr.

When B is added the solution is clouded by the precipitate aluminium hydroxide. This precipitate does not interfere with the toning action.

This latter bath (No. 2) yields tones equal to, and quite often superior to, the former bath (No. 1).

It also smells more strongly of hydrogen sulphide, and it is not advisable to use it where the ventilation is poor. As its action ceases more of B can be added. The latter bath has also better lasting qualities. I have known it to tone without adding an additional quantity of B after it has stood over-night.

An Improvement to Sulphide Tones.

Prints from some negatives when bleached and redeveloped with sulphide solution sometimes incline more to the yellow

than is desirable. Having ascertained this fact, colder tones can be obtained on subsequent prints to be toned by using bath No. 1 as a preliminary bath. How long the print should remain in bath No. 1 cannot be stated with exactness, as there are several factors to be taken into consideration; chief among these are (1) how much the colour given by the bleach and redeveloping method differs from the desired colour; (2) how fresh bath No. 1 is. The fresher the bath the quicker it works. Other things being equal, the longer the print remains in bath No. 1 the colder the tone. In a freshly prepared bath at the ordinary temperature even fifteen seconds is enough to effect a change in colour in the finished print.

As a general thing, any immersion—even one falling far short of the time necessary to produce a visible effect—is quickly made apparent by the print refusing to bleach as much as it would have done were it untreated when placed in the bleaching solution. Prints should be well washed before placing in bleaching solution, and should remain in it from five to ten minutes, or until it is certain that the bleaching is completed. After bleaching, prints should be rinsed free from bleaching solution, and redeveloped as recommended in the Velox developer instructions.

What chemical reactions take place in what I would call the sulphide sulphocyanide method of toning I have not investigated far enough to state.

However, hydrogen sulphide is released, and this in its nascent condition no doubt has power enough to attack the silver of the image. It is also certain that other reactions have an effect, for if the ammonium sulphocyanide is replaced by an equal weight of the potassium salt the toning action is very much slower.

To the question, Why does this method give a different colour from that obtained by simple bleaching and redeveloping with sulphide solution? it might be answered: Because the conversion of the silver is not so complete as in the latter process. In reply I would say that it would be hard to imagine the colours obtained on some prints as resulting from a combination of sepia and black.

As they are, the processes described are practical, but there is room for improvement.

MIXTURES OF DYES AS SENSITISERS OF GELATINE PLATES.

[The following is an abridged translation of a thesis by Guido Daur, presented for the degree of Doctor of Philosophy at the Münster University. The experimental work was done on the suggestion of Professor Miethe, to whose colleague, Dr. E. Stenger, the author of the papers renders his thanks for much advice and assistance. The full text of the paper occupies a book of 105 pages, published by E. Grieser, Frankfurt a/M.—Eds. "B.J."]

In making the following experiments as to the mutual action of dyes when used in admixture for the colour sensitising of gelatine plates or emulsion, it was suggested by Professor Miethe that the experiments should be made with a view of deciding the following points:—

1. The mutual influence upon each other of two dyes when used in solution as a sensitising bath for gelatine dry plates.
2. Is this influence completely regular or does a given dye, when in combination with another of the same class, follow a distinct rule?
3. If so, can this rule be held to apply for mixtures of dyes of different classes?
4. Or do variations occur which are not observable when dyes of the same class are being used?

The following dyes were selected for the experiments:—

- Group I., Eosines.—(a) Aureosin = Dichlorfluoresceïn.
 (b) Eosine = Tetrabromfluoresceïn (Eosine A).
 (c) Erythrosine = Tetraiodofluoresceïn.
 (d) Rose Bengale = Dichlortetraiodofluoresceïn.
- Group II., Isocyanines.—(a) Ethyl red nitrate = Chinolinlepidin-ethylcyaninenitrate.
 (b) Pinaverdol = *p*-Toluchinaldinchinolinmethylcyaninebromide.
 (c) Pinachrome = *p*-Ethoxychinaldin - *p* - methoxychinolinaethylcyaninebromide.

(d) Isocol, a mixture of different isocyanines, the composition of which has not been published.

(e) Pinacyanol is not a genuine isocyanine, but, according to the patent specification of the Hoechst Dye Works, results from the action of alkali on a solution of chinaldinium salts to which formaldehyde has been added.

Group III.—Cyanines.—Dicyanine obtained by the action of caustic alkalies on an alcoholic solution of dimethylchinolinium.

Finally, three further representatives of the dyes hitherto regarded as of service only for very weak sensitising were examined in admixture with a dye possessed of normal sensitising powers. The cyanines are:—

1. Isochinoline-red.
2. Glycin-red, sodium salt of benzidindisazo, α naphthylglycin-*i*-naphthylamin-4-sulfonic acid.
3. Formyl-violet, sodium salt of tetraethyl-dibenzyl-*p*-rosanilindisulfonic acid.

Method of Working.

The spectrographs were taken with a Thorpe replica of a Rowland grating of 15,000 lines per inch, provided with an opening of 50 mm. The first order spectrum had a length of 29 mm. for 100 $\mu\mu$ —that is to say, 3.5 $\mu\mu$ occupying 1 mm., or 1 $\mu\mu$ = .29 mm. The apparatus

as so arranged that the whole visible spectrum from 350 to 750 would act on the plate. The width of the slit was .06 mm., and the distance from the light to the slit 10 cm.

The apparatus was prepared for the plotting of the spectrum by taking photographs on a panchromatic plate of the spectra of mercury (with a mercury-vapour lamp), of magnesium (by burning magnesium ribbon), and of sodium (by means of a Bunsen flame, coloured with lit). The following lines were thus registered on the plate:—

Na	Hg	Hg	Mg	Mg	Hg	Hg	Mg.
589	579	546	518	500	436	408	405

The positive transparency having been made, the divisions corresponding to wave-lengths, from 10 to 10 μμ, were ruled on one side of the plate, and those from 25 to 25 μμ on the other side by means of a dividing engine.

Densities were measured with the Marten's polarisation photometer, in using which a small piece from the edge of each plate to be measured was cut off and introduced into the direct beam of light. This plan thus gave a means of reading the absolute densities.

The light-source used was a Nernst lamp, placed on a circuit of 110 volts, with the filaments parallel to the slit of the spectrograph, and at a constant distance of 10 cm. therefrom. Plates 9 x 12 in. were used, 16 spectra being taken on the one plate. Of these sixteen were of the same spectrum, produced with different times of exposure. The top and bottom spaces were used for recording the magnesium spectrum on which, by means of the above described wave-length plate, the wave-lengths for each plate exposed could be scratched with a fine needle. Within the region 350 to 500 the density was measured every 25 μμ; from 500 onwards every 10 μμ the region required for the measurement of the density covered only 7 μμ. In all the experiments the plates used were the Perutz, of sensitiveness 11 Scheiner.

Sensitising was done in complete darkness, at a temperature of 66 F. As a rule, the plates were bathed for three minutes, being kept in constant motion; in cases where a different time of sensitising was adopted a note is made to the effect. The plates were dried at a temperature of 82 F. in an apparatus arranged as follows:—

A current of air was first led through a refrigerator at freezing point, thus depositing its moisture. It was then drawn through heating tubes entering the drying cupboard at a temperature of 82 F. This arrangement allowed of plates drying in half an hour.

The developer used throughout was edinol, prepared according to the following formula:—

A. Edinol	25 gms.
Sodium sulphite	250 gms.
Water	2,500 gms.
B. Potass carbonate, dry	300 gms.
Water	600 gms.

A and B were mixed shortly before use, and used at a temperature of 66 F., the time of development being 150 seconds. After a short time the plates were fixed for ten minutes in an acid bath.

Sensitising Experiments.

Sensitising in every case was done in baths, which contained as much of the dye solutions of each sensitiser employed as would have been necessary had each dye been employed alone. In most cases the composition of the bath was fixed quite empirically.

Whilst the eosine dyes, when in admixture, gave practical results, such was not the case with the isocyanines. Since good success had been obtained with pinacyanol and dicyanine, combined with homocol, according to Monpillard's formula, an attempt was made to combine the still better sensitiser, isocol, with these two dyes. However, isocol and dicyanine used together gave fogged plates. The bath used had the composition:—

Dicyanine solution 1:1,000 alcohol	3 ccs.
Isocol solution 1:1,000 alcohol	2 ccs.
Alcohol	50 ccs.
Water	100 ccs.

After three minutes' bathing the plates were washed, also for three minutes, in running water and put to dry. The developed and fixed

plate showed dense uniform fog. The following sensitising in separate baths was then tried:—

A. Isocol solution 1:1,000 alcohol	2.5 ccs.
Ethyl-alcohol	2.5 ccs.
Water	1,000 ccs.
Ammonia	1 cc.
B. Dicyanine solution	3 ccs.
Alcohol	50 ccs.
Water	100 ccs.

These formulæ are those found suitable for the respective dyes. A plate was given three minutes in A, two minutes in running water, three minutes in B, and, after two minutes' washing, dried. At the same time a second plate was sensitised with the same dyes, but using them in the reverse order. The two plates were clearer than those sensitised in the mixed bath, the maxima and minima being plainly distinguishable.

A series of experiments were now undertaken, varying the times of bathing, but no difference in sensitising action was noticed, and fog remained the same. The mottling or marking which occurs when the two baths are used is due to the repulsion of the liquid when a gelatine film is brought from an alcoholic into a watery solution. A wash bath of alcohol was therefore used, and gave distinctly better plates. After further experiments a completely satisfactory and fogless plate was obtained as follows:—Two and a half minutes in isocol solution; two minutes in a bath containing the same proportion of alcohol as the bath B (dicyanine); two and a half minutes in bath B; five minutes in 96 per cent. alcohol. A further experiment, omitting the alcohol wash-bath, gave a successful result; which was also obtained when using a bath containing the two dyes, but washing in alcohol for five minutes after sensitising. These methods were therefore employed when making the trials of mixed dyes, recorded below whenever a fogged or mottled plate resulted from a washing in water after sensitising. One advantage of the alcohol method is the rapid drying of the plate, which is of influence on the cleanness with which the sensitised emulsion works.

The only cases in which variations were made in sensitising are when using the glycin-red and pinacyanol together, and glycin-red and dicyanine. These combinations gave quite different curves, according to whether sensitising was done in solutions made up with water or alcohol.

Mixtures of the Eosine Dyes.

The strength of the sensitising bath was such that each dye was used at a solution of 1:7,500. A little ammonia was added to all the baths.

1. *Eosine-aureosine*.—On shorter exposure the maximum in the blue sensitiveness was at 450 to 460, the density at 550 being somewhat less than at 450; this was the case also on longer exposure. In this respect the mixture of the two dyes is better than that of either

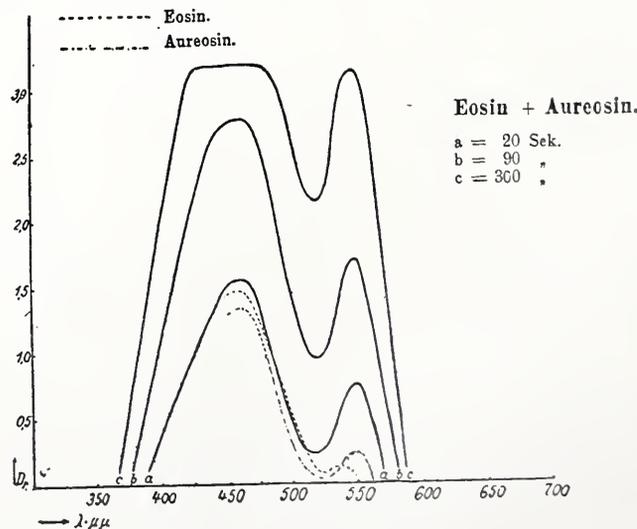


Fig. 1.

alone. Fig. 1 shows the curves for 20, 90, and 300 seconds, that for aureosine alone being for 20 seconds. There is a general rise in sensitiveness and in green sensitiveness. The curve for eosine alone, taken from Dr. Stenger's tables, could not be exactly compared with the others, as it was obtained under different conditions. As the

ratio of maximum sensitising to the blue maximum is very bad with eosine the mixture may be called good. The maximum of the two dyes being at 540 and 550, there is even sensitiveness in this portion, but the aureosine maximum at 550 is the more pronounced.

2. *Erythroline-aureosine* (Fig. 2).—The maximum is at 560, whence it would seem that the erythroline gives the curve its character. The ratio of maximum sensitising to the blue maximum is quite the normal, exceeding the general sensitiveness even at the shortest exposures, and, better still, on longer exposure. The question whether the increase of sensitising action is due to the aureosine or to a

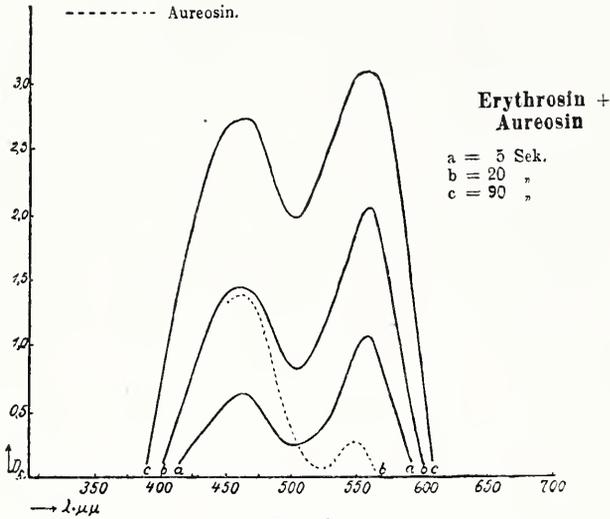


Fig. 2.

screening action dye to dyeing of the gelatine film must be answered by noting that there is no reduction of sensitiveness at 450 by screening, but that actually there is increase of sensitiveness at 560. Comparing the height of the curves for the same degree of exposure at wave-length 450, it is seen that the height for the mixture is the same as for aureosine alone.

3. *Rose-Bengal-aureosine*.—Fig. 3 shows the curves for exposures of 30, 90, and 300 seconds those for rose-Bengal and aureosine alone are for the same degree of exposure. The characteristic of the rose-Bengal curve is seen, its maximum being shifted about 10 μ towards

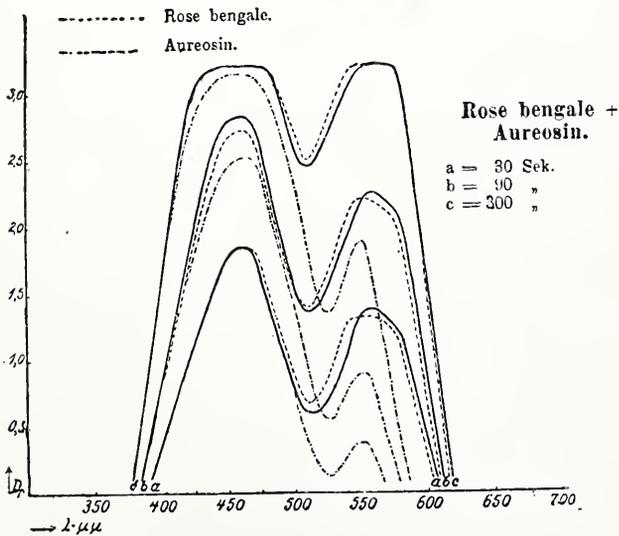


Fig. 3.

the right hand of the spectrum. An expected increase of the maximum at 550 is not observable. The aureosine, with maximum at 550, does not seem to have produced its effect. Also the sensitiveness curve in the blue 450 is that of rose-Bengal alone.

Eosine-erythroline.—This mixture showed the same ratios as No. 2. There is good action in the blue portion of the spectrum, and still better in the green at 560. Fig. 4 gives the curves for 5, 20, and 90 seconds. Comparing it with the curves for the same three times when using erythroline-aureosine, it is seen that the latter is inferior to the present mixture. For the same blue sensitiveness the maximum at 560 is better than the No. 2 formula, and better still on

longer exposure. The maximum action is reached with 60 seconds exposure, the curve flattening out at 90 seconds exposure.

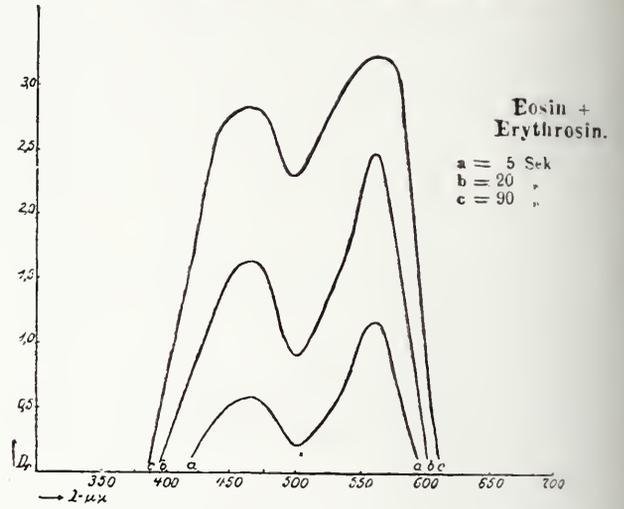


Fig. 4.

5. *Rose-Bengal-eosine*.—The general character of the curves, of which Fig. 5 gives those for 20, 90, and 300 seconds, is that of rose-Bengal. There is scarcely a sign of the influence of the eosine (maximum 450), nor is the rose-Bengal maximum shifted, as in

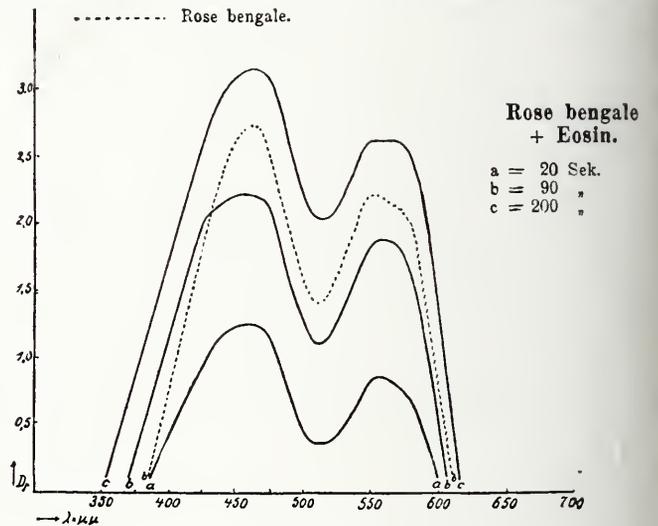


Fig. 5.

formula No. 3. The ratio of sensitiveness at 550 to blue sensitiveness is almost exactly those of rose-Bengal alone; only the general sensitiveness has suffered, as seen by comparing the two curves corresponding to 90 seconds exposure.

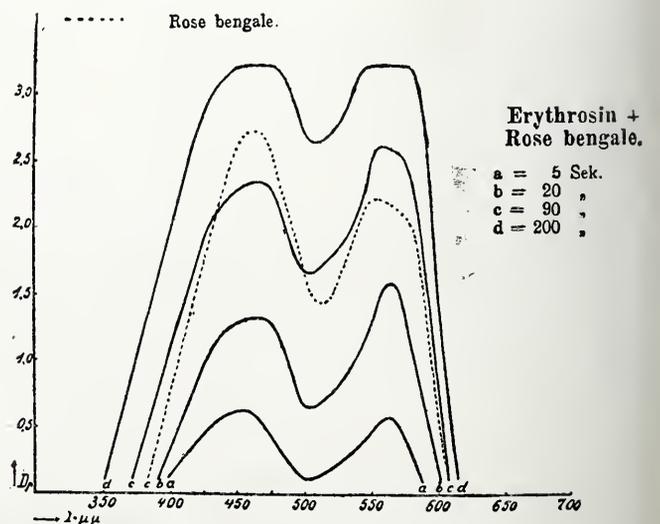


Fig. 6.

6. *Erythroline-Rose-Bengal*.—This mixture presents special interesting features. On short exposures there is a maximum sensitive

ness at 560, shown as about equal to that in the blue (curve *a* in Fig. 6). On longer exposure than 560 maximum increases much quicker than the blue maximum (curve *b*). It would appear that in the short and medium exposures the erythrosine curve is in evidence, the rose-Bengal affecting the curve more on the longer exposures. An exposure of forty seconds gave a curve almost exactly that of rose-Bengal, the maximum being at 550, and extending almost to 570. From this point the curve drops and does not extend beyond 600. The ratio of maximum sensitiveness to the blue maximum is much better than with rose-Bengal alone; compare the two curves for ninety seconds in Fig. 6.

As the result of experiments on dyes in this section it is shown that combinations with eosine have not produced very great variations—one or other of the dyes fix the character of the curve. The maxima remain for the most part at the same place, or are shifted about $10\ \mu$; the gaps in the blue-green at 500 remain, as was to be expected, unfilled. There is an appreciable difference in the ratio of colour-sensitiveness to blue-sensitiveness, the most favourable action being that with erythrosine-aureosine, which combination actually gives an increase in colour-sensitiveness.

G. DAUR.

(To be continued.)

Photo-Mechanical Notes.

Improvements Relating to Colour Photography.

In R. Merkel's patent (No. 8949 of 1908) the two claims are:—

(1) Method for the photographic and photo-mechanical reproduction of three or more coloured pictures. Monochrome positives or negatives are employed, which are retouched by covering the parts corresponding with the original with a layer which is unaffected by the material used for bleaching or colouring the said monochrome positives or negatives, so that from these positives or negatives "formes" are obtained which do not require retouching.

(2) Method for chemically retouching photographic monochrome-positives or negatives used for the production of "formes" for colour printing, consisting therein that the parts of the several positives or negatives which are correctly coloured are covered by a layer which is unaffected by the bleaching or colouring medium employed to correct the rest of the positive or negative.

The method described is one that could be used for retouching stained gelatine prints, and consists in covering any part that is correct with some unaffected material, such as shellac varnish, while further staining or reducing other parts. What possible advantage there is in this for photo-mechanical printing it is difficult to see, for the method is practically the same as fine-etching as practised at present. The patentee may mean that coloured gelatine prints should be made from the negatives. This would give a clue to how much the actual negatives might be reduced before proceeding to make the block, in the manner suggested. We can only say that this would require as much skill as fine-etching does at present, and there would be the added expense of first making the gelatine prints. Further, as the dyes used in staining seldom correspond with the inks used in printing there would probably still remain considerable fine-etching to do on the blocks themselves. We may be misunderstanding the patent altogether, but that is not our fault, as the wording certainly does not give one a clear idea as to how the improvement is applicable to photo-mechanical work, though that is one of the claims made. We have never before heard of the use of coloured negatives, unless to show the complementary colours, as for instance, in fixing a Lumière Autochrome before reversing.

The Removal of Scum.

One of the difficulties in connection with the enamel process of preparing the acid resistant print on metal is the frequent occurrence of "scum," i.e., an insoluble film of colloid which is not removed on development from the places between the dots which should be bare metal. There are many causes of this. Perhaps the chief is the fact that the dots on the negative are not opaque enough, and so light penetrates and renders the underlying film insoluble. Over-exposure when printing will, of course, give it; some samples of glue are very prone to be more or less undevelopable, especially if chromic acid is used in the formula. Insufficient development

of the print in cold water before placing in the dye solution, stale dye solution, and imperfect washing out after the dye, are also apt to show as scum. Naturally, it is better to have a print absolutely free from scum, which, by the way, is seldom discovered until after the enamelling, but it is quite possible to remove scum in most cases without detriment to the print if due care is taken. There are many formulæ for this; for example, acetic acid and salt, solution of chromic acid, a mixture of the latter and other acids, weak perchloride of iron, and finally a 5 per cent. solution of cyanide of potassium. The plate is either placed in one or other of these solutions and rocked for a few seconds, or obstinate cases are rubbed with a wad of cotton wool moistened with the liquid. The best of the solutions is, perhaps, the cyanide of potassium; it seems to effect the removal of scum in very severe cases without attacking the dot proper. Next to this is the weak perchloride of iron, say a solution at 25 deg. Baumé; in very bad cases this can be applied warm, and is generally found satisfactory.

Non-Warping Mounting Wood.

The patent mounting board to which we referred some time ago is now being supplied by the makers, Green and Sons, Mildmay Avenue, London, N., in lengths of about 30 in. of various widths, so that it may be sawn off as required, and the mount will always be clamped on both sides. The price is one shilling per square foot, which is about twice the cost of ordinary mounting wood; but then everyone knows the costliness of the troubles to which ordinary mounting wood gives rise.

Ink Rubbing off Proofs.

We have been asked as to the cause of inks sometimes rubbing away from the proofs directly they are touched. Unless the prover has been tampering with the inks, complaint should be made to the ink-maker, as the fault is entirely due to the ink containing either too little varnish or varnish of quite inferior character. But before blaming the ink-maker it should be made quite certain that the ink has been used exactly as supplied by him.

The Metzograph Screen.

In the current issue of "Le Procédé" MM. H. Calmels and L. P. Clerc describe a modification in the Metzograph screen, allowing of this latter being used in the ordinary carrier of the half-tone screen so as to bring the Metzograph screen into the necessary closeness of contact with the sensitive plate. As will be seen from the two illustrations the device simply consists in providing the Metzograph screen with a recessed border along each

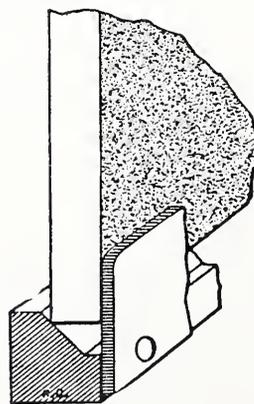


Fig. 1.

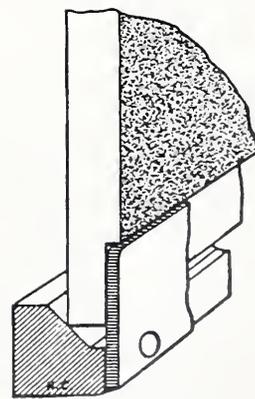


Fig. 2.

of two edges, so that the screen itself falls flush with the stops which keep it in place (fig. 2.). It has been found that this simple modification has led to much better results being obtained with the screens, particularly with Nos. 4, 5, and 6. Screens of this pattern have been placed on the market by the firm of H. Calmels, 150, Boulevard du Montparnasse, Paris, and it is further mentioned that three new varieties of the screen have been introduced, namely, an 00 for poster work, 0 for newspaper blocks, and a No. 7 for extra fine photogravure.

PHOTO-MECHANICAL PATENTS.

The following patent has been applied for:—
ENGRAVING.—No. 15,894. Photo-mechanical process of engraving printed surfaces. Henry Lewis Reckard, 65, Chancery Lane, London.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents were made between July 5 to 10:—

WASHING.—No. 15,591. Contrivance for causing the pulsation of water for photographic and other purposes. Arthur Burchett and Arthur Harold White, 6, Granville Road, Littlehampton.

CINEMATOGRAPHS.—No. 15,693. Improved mechanism for the feeding of cinematograph films. Oscar Messter, 100, Wellington Street, Glasgow.

CINEMATOGRAPHS.—No. 15,841. Improvements in cinematograph films and process for the preservation of the photographic emulsion on such films. Ramee Donovan Dockree, 98, Station Road, New Southgate, London.

CINEMATOGRAPHS.—15,859. New or improved cinematograph display apparatus. George Percy Kent, 38, Chancery Lane, London.

CAMERAS.—No. 15,902. Improvements in photographic cameras. Fritz Levie, 31, Bedford Street, Strand, London.

PHOTO-TELEGRAPHY.—No. 15,918. Improvements in or relating to what is known as photo-telegraphy. Thomas Thorne Baker, and Pictorial Newspaper Co., Ltd., 7, Southampton Buildings, London.

CINEMATOGRAPHS.—No. 16,129. Improvements connection with cinematograph display apparatus. George Percy Kent, 38, Chancery Lane, London.

ARC LAMPS.—No. 16,134. Improvements in electric arc lamps of the enclosed type, whereby they are made suitable for use in photography, when a non-fluctuating light is required in one direction and a limited space only is available. Westminster Engineering Co., Ltd., and Arthur George Way, Victoria Road, Willesden Junction, London.

PHOTO-TELEGRAPHY.—No. 16,175. Improvements in or relating to what is known as photo-telegraphy. Pictorial Newspaper Co., Ltd., and Thomas Thorne Baker, 7, Southampton Buildings, London.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

DEVELOPING TANKS.—No. 20,092, 1908 (September 24, 1908). The invention relates to the development of photographic plates or flat films, in apparatus consisting of an outer tank and an inner container provided with vertical grooves and lids furnished with masked or light-trapped openings.

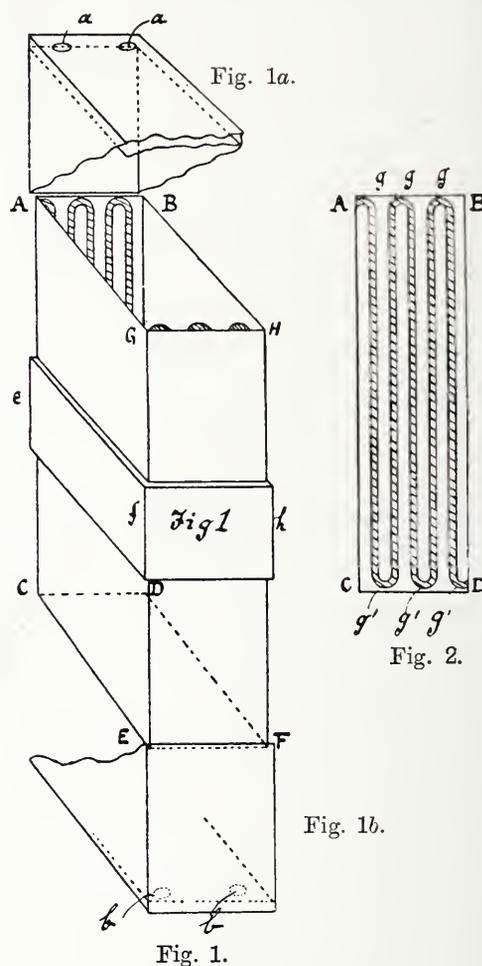
Fig. 1 with its subsidiary figures 1a and 1b is a perspective view of the inner container, with its top and bottom lids. Fig. 2 is an elevation of one side of the container showing the grooves.

There is a suitable outer tank for holding the developing solutions into which the inner container, with its lids figure in Figs. 1, 1a, and 1b, can be placed. It is convenient to provide a handle (not shown) by means of which the inner container can be lowered into and lifted out of the outer tank. The handle is preferably a wire loop pivoted at two points on opposite side of a central projection on the inner container (two sides of which are shown in Fig. 1 as *e f*, *f h*), against which the lids when closed abut so as to exclude light. The handle should be long enough when rotated about these pivots to clear the top and bottom of the inner container when the lids are closed.

The container A B C D E F G H (Fig. 1) is open, top and bottom, and is provided with grooves shown in detail in Fig. 2. These grooves are alternately open and closed at the top and bottom, the tops and bottoms of the closed grooves being of a curved or arched shape as shown in the figures at *g g'*, in order to facilitate the insertion of the plates or films in a dim light or in total darkness and by touch only. Instead of being arched or curved, the tops of the grooves may be pointed after the fashion of an inverted capital letter V, but the form shown in the drawings is preferable. The grooves may be formed of one continuous strip of metal or suit-

able material, by bending the same, or in any other convenient method.

The lids represented in Figs. 1a and 1b are provided with light-trapped openings, shown as *a a*, *b b*, whereby when the lids are



closed fluids can freely enter and pass out of the container, but light is excluded. A simple and well-known form of light-trap consisting of perforations masked by a false lid is shown in the drawings, but any suitable form may be adopted. The apparatus is adapted to hold six plates or films (or twelve if two plates or films are placed in each groove, back to back), but the apparatus may be constructed to hold any required number by increasing or diminishing the number of grooves.

The method of use is as follows:—In a dark-room, or by means of a changing bag, one half of the total number of plates or films (in the apparatus shown three plates or six arranged back to back in pairs) are slid into the open grooves at the top. The lid shown in Fig. 1 is then put on and pushed down till it meets the central projection *e f h*. The apparatus is then turned over, the tightly fitting lid retaining the plates just inserted, and the remaining plates (three or six as before) are inserted in the same manner as before, and the lid 1b is also put on and pushed down in the same manner as before. If necessary, the lids may be secured to the central projection by suitable catches, but in practice, if they fit tightly, this is not necessary.

The inner container with the enclosed plates or films is now lowered into the outer tank containing the developer, and development carried on in the usual manner. The plates may afterwards be fixed and washed in the same manner as they were developed, all these operations, subsequent to the insertion of the plates in container, being capable of being carried out in full daylight. It is generally considered necessary, in order to avoid streaks or markings, either to agitate the inner container while in the developer or to reverse it once or twice. These operations, owing to the construction of the apparatus, may be easily performed, especially if the inner container is provided with a reversible handle, as previously described. Horace Handley O'Farrell, 61, The Avenue, Kew Gardens, London, S.W.

DEVELOPING APPARATUS FOR ROLL-FILM.—No. 18,570, 1908 (September 4, 1908). The apparatus consists of a perforated disc or plate A, having in the centre a stem or handle B, which is preferably made detachable by a screw device. Encircling the base of this stem or handle B, with its lower edge resting on and attached to the disc or plate A, as a ribbon or band C, so coiled that a space is left between the coils and the ends D, D¹ are open. Suitable devices are provided at or upon the ends to hold the film in its place. This ribbon or band C (henceforth referred to as the "coil") may be plain or perforated as preferred, and it may be of a width corresponding with the width of the film to be developed

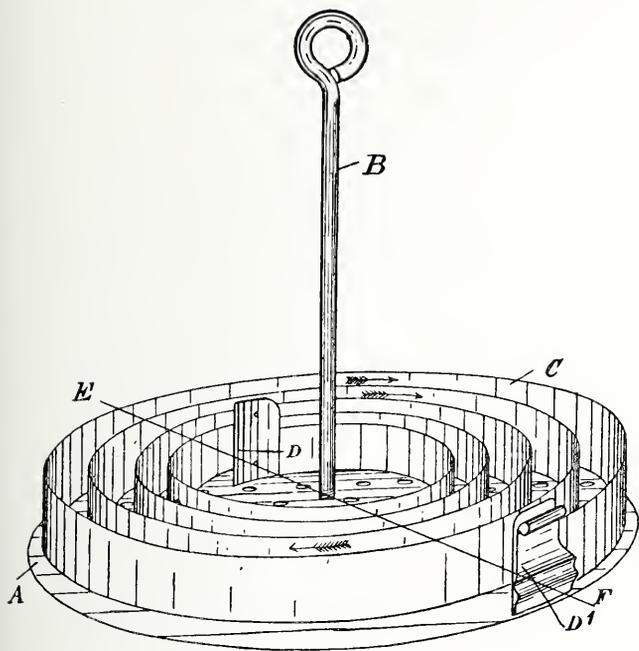


Fig. 1.

upon it, or it may be of a lesser width as may be found most convenient, and at either or both of the ends D, D¹, the width may be increased so as to afford additional support to the film at those points. Likewise the length of the coil may also vary to correspond with the varying lengths of the films in use.

In practice a loop is formed at one end of the strip of film to be developed through which the stem or handle B is passed, and being screwed into the disc or plate A forms a support for the end of the film and holds it in its place. The film is then passed in at the open end D, and wound upon and along the convolutions of the coil C as indicated by the direction of the arrows, in such a way that the back of the film lies against the coil and the face or

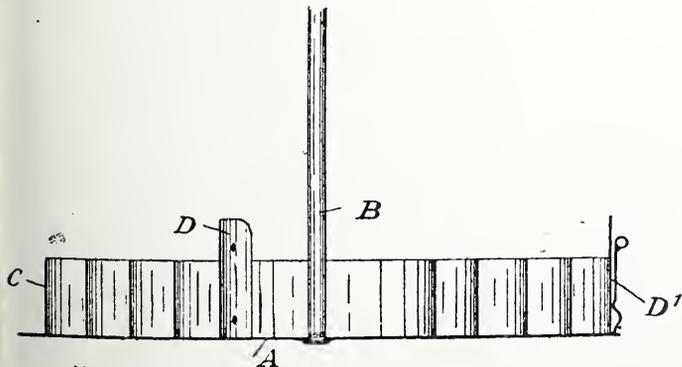


Fig. 2.

sensitised side is turned outwards. The entire length of the film having been wound on the coil is held in place by being passed through the divided outer end of the coil at D¹. The apparatus is then immersed in a suitable vessel containing the developer, and allowed to remain until the allotted time of development has expired, when it is removed for washing and fixing. James Jerome McGhee, 65, South Side, Clapham Common, London, S.W.

CINEMATOGRAPH MECHANISM.—No. 9,864, 1909 (April 26, 1909). The claim is for a film-gate for bioscopes constructed with adjustable runners, which are backed by springs interposed between the runners and bearing pins resting against a bearing plate which is adjustable by a fine screw. Frank Porter and The British Bioscope Manufacturing Company, Limited, 11, Long Acre, London, W.C.

New Trade Names.

LE FILM D'ART (DEVICE).—No. 310,918. Cinematograph films bearing taken photographs. Société Le Film D'Art, 4, Rue Charras, Paris, France, Manufacturers. March 1, 1909.

NOCTONA.—No. 312,015. Photographic paper. John J. Griffin and Sons, Ltd., Kingsway, London, W.C., manufacturers. April 5, 1909.

NOXONA.—No. 312,017. Photographic paper. John J. Griffin and Sons, Ltd., Kingsway, London, W.C., manufacturers. April 5, 1909.

Analecta.

Extracts from our weekly and monthly contemporaries.

Photography for Decorative Purposes.

A form of decorative photography (writes Mr. M. Earle in "Photography and Focus" for July 20) which has produced some very charming results is the making of Christmas and other greeting cards. A series of dinner menus which I made last winter, however, may be worth mention, as the process was not the ordinary one. A little still-life group, kept as simple as possible on account of the reduction, was made right down in one corner of a half-plate. It was taken against a white background, or rather some distance in front of a white background, and so it was easy to vignette it on to one corner of a piece of platinum paper, leaving the whole of the rest white. The menu was printed on to the paper from a separate negative with a mask, so that the lettering appeared on a slightly tinted patch on the menu. The little still-life group was brush vignettied by means of the glycerine process, the whole of the paper being covered with glycerine, the wording developed, and the development of the vignette made the last operation. It took a little trouble and designing, though I think the result in the end was one that was worth it, but it would not be suitable where there were many to be done, as each print required separate treatment.

New Books.

"The Photographic Annual, 1909." Edited by H. Snowden Ward. London: Dawbarn and Ward, Ltd. 1s. net.

This volume constitutes the second annual issue as a periodical publication, and the fifth edition of the "Figures, Facts, and Formulæ" under which title it originally appeared. Mr. Snowden Ward has retained the general arrangement, but has added to and revised the matter so that Vol. II. of the "Photographic Annual" is quite a distinct work from Vol. I., and contains an immense amount of further information. The section "Orthochromatics" contains the formulæ for Autochrome, Thames, and Omnicolore transparencies, in addition to numerous useful prescriptions for sensitisers, light filters, and safe lights. "Artificial Light" for portraiture and printing occupies four pages. The section on "Developers" and "Development" is one of the largest in the book, and contains an immense number of prescriptions for time, stand, and fractional development. In the section on self-toning papers a useful epitome is given of the directions for the use of the papers on the market.

Prominence is given to the modern printing processes, oil, bromoil, and gum, for which the necessary formulæ are given, although curiously enough, not that of Mr. Welborne Piper, which is probably as much used as any other. Optical and chemical

facts and tables, facts of copyright, and process formulæ conclude a volume which is a veritable mine of information. Under "Toilet and Hygiene," a human touch is given to the compilation by the inclusion of recipes for eye-lotions, skin emollients, etc., though why among these it should be thought useful to include remedies for cinders in the eye, tests of death, and measures to be taken in the event of bites from a snake and mad dog, we confess to being at a loss to understand. But the compilers have succeeded in compressing an enormous amount of information into the 287 pages of the book.

"PHOTOGRAPHIC PROGRESS."—Under this title a new photographic monthly publication is issued by the Rittenhouse Press Inc., Lafayette Building, Philadelphia. Its declared policy is the advancement of professional photography in America, in pursuance of which it quotes (with acknowledgment, we hasten to say) from the "British Journal of Photography." Its get-up as regards printing and illustration is of the best, and its matter to the point. The personnel of its editorial staff will be noted with interest by readers of the "B.J." It is: Managing editor, A. K. Boursault; technical and scientific editor, Thomas Bedding, F.R.P.S.; editor, J. Nilsen Laurvik.

STEREOSCOPIC PHOTOGRAPHY (No. 98 of the "Photo-Miniature").—Popular as stereoscopic photography is rapidly once again becoming, there has hitherto been no convenient manual on the subject which is reasonably up to date. This breach in photographic literature is now filled by the current issue of our New York contemporary, obtainable in America from Tennant and Ward, 122, East 25th Street, New York, and in London from Dawbarn and Ward, Limited. The author, Mr. Nathan T. Beers, makes a point of the usefulness of the quite small stereoscopic cameras, such as the "Verascope" of Richard, the "Stéréophoscope" of Voigtlander, and the "Stereo-Tenax" of Goerz, referring his readers for other instruments on the English market to the "British Journal Almanac." But he gives particulars also of the larger stereo cameras, has strong recommendations to make on behalf of the stereo-reflex cameras (the "Challenge" instrument made by Lizars is recommended), and he approves also of the duplicating attachment devised by Mr. Theodore Brown for stereoscopic work with an ordinary camera and a single lens. The suggestions as to choice of subject, development, lighting, printing, and mounting are concisely put, and afford in a few words the information which the amateur worker in stereoscopy needs to have. We may not agree with the writer's statement that the method of printing direct from the negatives, followed by cutting and transposing the print, is now obsolete. It is a method which is probably more largely practised in this country than any other, as time is saved in printing, and it is easier to obtain a pair of prints of equal depth. It is satisfactory to find that the author advises the lens separation of $3\frac{1}{4}$ in. for general work. This is no doubt the best distance when a fixed separation is necessary, and its use would minimise the number of badly trimmed slides which are frequently to be seen. Clear and explicit as the "Photo-Miniature" succeeds in being, we may, perhaps, be allowed to suggest that in a reprint of the present monograph the sentence on p. 55, that "the left-hand picture must be printed in the right-hand position, and *vice versa*," might be freed from ambiguity, although the writer's meaning is quite clear on p. 81, where it is explained that the right-hand picture formed in the camera is, of course, still the right-hand picture in the finished slide.

MR. DEAKIN, the Prime Minister of Australia, has accepted a unique gift for the Commonwealth from Messrs. Pathé Frères. The firm named took a cinematograph record of the landing at Sydney of Lord Dudley, the new Governor-General. Only one film was in existence, and this was presented to Mr. Deakin.

HOLIDAY BOOKLETS.—Recent additions to the series of guides published by the Health Resorts Development Association, of 29, John Street, Bedford Row, London, W.C., relate to the districts of Basingstoke, Egham, Esher, Reigate, Richmond, and Poole. These are similar, both in general appearance and also in the method of treating the particular places dealt with, to those previously mentioned in our columns, and copies may be obtained by addressing a written request to the respective Town Clerks.

New Materials, &c.

"Wisto" (Sepia) Paper. Made by the "Wisto" Works, Hayes, Middlesex.

A distinct departure from the ordinary methods of photographic printing on development papers is embodied in a new paper, opportunities for a trial of which we have had within the last few days. The paper, which is the invention of Mr. B. J. Edwards, serves for the making of sepia and other warm-tone prints by direct development with normal exposure. The paper, as manufactured at the "Wisto" Works, is of the gaslight variety, allowing of development by ordinary gaslight (not incandescent) or electric light, although, of course, if the simple precaution be taken to handle the paper within the shade of a screen—that is to say from direct light—the paper can be readily manipulated in a stronger illumination. The exposure to daylight is very short, a second or so, and therefore the most convenient method of exposure is to artificial light. An idea of the sensitiveness of the paper it may be said that, using a plucky but quick-printing negative, $1\frac{1}{2}$ to 2 inches of magnesium ribbon burnt at a distance of 18 inches from the negative gave a correctly exposed print. The colour is to a certain extent dependent upon the exposure; that is to say, that the very best results from the negative, as regards gradation and detail, are obtained for a given colour with a certain correct exposure. On development the print first appears of a pale lavender grey, which quickly turns to red, the print then gaining in vigour until it reaches its full strength, when the colour quickly changes to sepia, which sepia becomes colder the longer the development is continued. It will thus be understood that if the print is under-timed the details may not all be fully out at the stage of development giving the warmest sepia, and the result, therefore, of further continuing development is to give a somewhat colder sepia. It may thus be taken as a general rule that for cold sepia the exposure may be a little under, and for warm sepia to red a little over, the normal time. Still these differences are not very great, and, except in the case of negatives, parts of which are of such density that the print requires forcing, the normal exposure will allow of a satisfactory picture being obtained through a considerable range of tone, the exact point at which to stop development being very plainly seen, whilst, so far as the prints which we have made go, the alteration of colour on drying is practically nil. The print gains in depth a tone or two, and that is all.

Even in the case of prints which owing to over-exposure are of too great intensity by the time the desired sepia tone has been reached in development, it is quite easy to bring back the depth to the required degree by the use of a very weak bath of Farmer's reducer, prepared according to the following formula given in the instructions for the "Wisto" paper:—

A. Potass. ferricyanide	60 grs.
Common salt	120 grs.
Water	20 ozs.

This solution keeps well and is always ready for use.

B. Hyposulphite of soda	2 ozs.
Water	20 ozs.

To make the reducer add, just before use, four or five drops of A to each ounce of B.

The prints are fixed in a bath of hypo of 2 ozs. to the pint, with or without the addition of soda or potash metabisulphite. Plain hypo answers quite well, although it soon becomes discoloured. When the acid formula is used it is recommended that a fresh batch of bath, say 6 ozs., should be taken for each dozen prints. The time of fixation is two minutes only, after which the washing of the prints for half an hour completes the process. The makers have found that prints treated in this way are absolutely permanent. The developer is supplied in powder form at a cost of 2d., sufficient to make 6 ozs., 4d. for 20 ozs., or 2s. to make one gallon. The paper itself is made in three grades—smooth-white, rough-cream, and glossy, the smooth-white having a semi-matt surface of the kind which is frequently described as "carbon"; whilst the rough-cream is a tinted paper of not a very great degree of roughness and very suitable for all kind of negatives.

The tone given by the papers is a most pleasing sepia, and quite distinct from the brown and reddish-brown tones which are frequent

the result of sulphide-toning. Tones more akin to these latter are just as easily obtained in the earlier stages of development, but the makers, rightly we think, emphasise the excellence of the true sepia in preference to the brownish-reds and reddish-browns which frequently pass by that name in photographic printing. Although a gaslight paper, "Wisto" may be used under favourable conditions for the making of enlargements, but it is primarily manufactured for contact printing, and is undoubtedly a most valuable addition to the printing media at the photographer's disposal. The readiness and certainty with which a whole series of sepia prints may be rapidly turned out is its distinguishing feature, whilst the other qualities of the paper—such as permanency and range of gradation—are excellent. Both professional and amateur workers, we anticipate, will be anxious to investigate the properties of the new paper, which is issued at prices based on 1s. for a sheet 24½ x 17, or 12 quarter-plate pieces at 6d., 12 half-plate 1s., and six pieces 10 x 8 for 1s. 6d.

"Challenge" Self-Toning P.O.P. and Cream-Crayon Bromide Papers. Made by the Challenge Works, Macclesfield, Cheshire.

Samples of these materials, just added by the Challenge Works to the list of printing papers manufactured by them, have come under our notice. The self-toning paper is a gelatine emulsion, the prints on which tone to a very good purplish-brown in a bath of hypo only, 3 oz. per 20 oz. of water. Six minutes' immersion in this solution suffices for the toning and fixation of the print, the surface of which is a very pleasant semi-matt.

The "cream-crayon" bromide is a semi-rough paper, which we found to yield enlargements of first-rate quality, toning well in the sulphide bath and yielding results which harmonise well with the cream tint of the paper. The two materials fully maintain the high standard of quality which we have invariably found to characterise the "Challenge" papers.

Dew Apparatus, &c.

The "Ensign" Development Tank. Made by Houghtons Ltd., 88 and 89, High Holborn, London, W.C.

Several good features are embodied in this piece of development apparatus which Messrs. Houghtons have just placed upon the market. For both professional and amateur use the services of some form of tank are now requisitioned, perhaps almost as generally as the old-fashioned dish. The saving both of space and of time in the dark-room is one paramount reason for adopting a tank

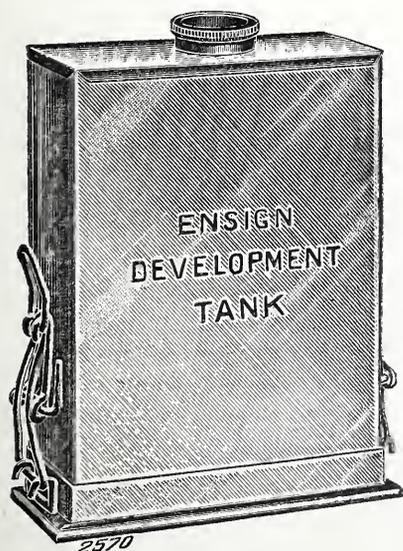


Fig. 1.

method of development. All may not elect to develop by time, and all may not wish to avail themselves of the opportunity of dispensing with the dark-room, but apart from this consideration the use of a tank possesses undoubted advantages whenever any considerable number of plates have to be developed, or even, in the case of some patterns of tank, when only two or three have to

be treated. In the tank now used by Messrs. Houghtons, the rack, constructed of lacquered brass, is made separate and thus allows of the plates being more readily inserted. The plates in the rack are put in at one end of the tank, whilst the developer is inserted at the other through an aperture one inch in diameter, which is closed by a screw stopper. The other end of the tank is likewise closed by a full-size lid provided with a rubber washer, the lid being fixed forming a water-tight joint with the top of the tank by means of the strong wire springs. One advantage of this latter mode of securing the lid is that if the spring should chance to become slightly weaker with use, it is only necessary to bend one of the pieces somewhat in order to secure the firm adhesion of the lid. It will thus be seen that, if desired, the rack and tank can be placed in a changing bag with the exposed plates, the latter placed in the rack and the whole removed with the plates perfectly protected from light into the daylight. The developer is then applied through the circular aperture, the cap screwed on, and development allowed to proceed.

The greatest point of advantage in our judgment of the apparatus is that it can be used in either position, with the result that mark-

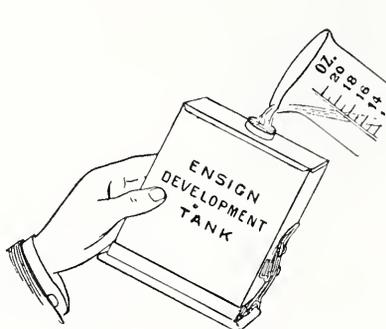


Fig. 2.



Fig. 3.

ings which occasionally result from allowing the plates to remain in one position throughout the whole time of development are avoided; all that is necessary being to quietly reverse the position of the tank, allowing it to stand upon the lid for part of the time, and for another period on the screw cap. The apparatus is very strongly made in nickelled brass, and the only caution which perhaps needs to be given in connection with its use is that the tank should not be put away with the lid clamped down, otherwise the pressure of the metal on the rubber is apt to cause the latter to perish and to lose its power to make a water-tight joint. The tank may be used for both developing and fixing, but practical

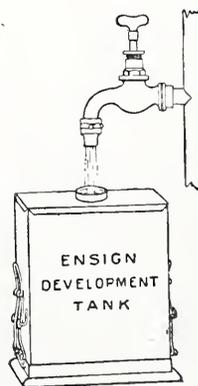


Fig. 4.

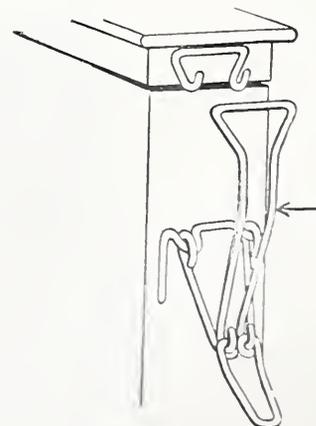
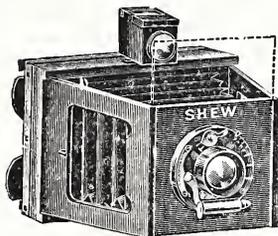


Fig. 5.

photographers will agree with the makers' recommendation that the plates after the developer has been poured off, as in fig. 3, should be set to wash for a short time as in fig. 4, and the rack then quickly removed and placed in a second tank containing the fixing bath. The price of the tank in quarter-plate size is 7s. 6d., in 5 by 4 or postcard (5½ by 3½), 10s. 6d., and in half-plate, 12s. 6d. The brass racks are supplied in these four sizes at 2s., 2s. 6d., and 3s. 6d., whilst brass tanks, complete with racks, but without the other fittings, are sold at 4s., 5s., and 7s., respectively.

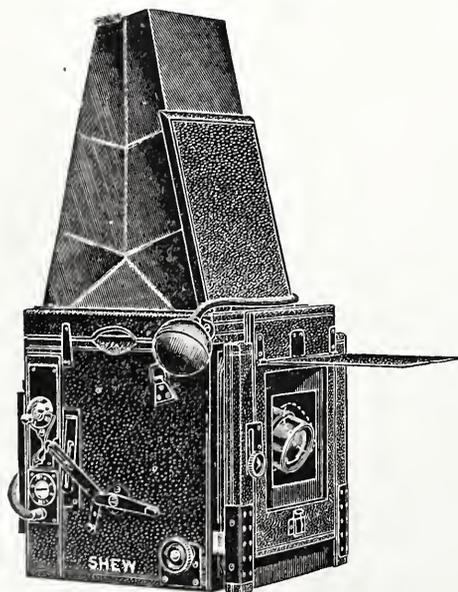
The "Euxit" pocket camera. Made by J. F. Shew and Co., 88, Newman Street, Oxford Street, London, W.

Pronounced "Use It" in reference to its response to all kinds of practical requirements, this new pocket camera is an addition to the large family of "Xit" cameras made for many years past by Messrs. Shew, and rightly esteemed for their working qualities. The "Euxit" embodies the same system of side flaps employed in other models of the "Xit" cameras. It is made to take a plate $3\frac{1}{2}$ by $2\frac{1}{2}$ inches, being fitted with a Cooke focussing lens of 4.4 inches focal length mounted in the well-known "Compound" shutter. The lens mount thus provides the necessary focussing for objects within 9 feet of the camera, and the lens itself affords a rise of one inch the landscape way of the plate, together with a cross front movement which is available as rise when the camera is held the upright way of the plate. The finder is of the "Iconometer" type, a sliding rod being used in conjunction with a wire frame the full size of the plate. This very simple device has the further advantage that the frame moves up along with the lens, and there-



fore gives a correct idea of the amount of picture included on the plate, provided that care is taken to hold the camera level. The "Euxit" is fitted with focussing screen which instantly clamps into the back of the camera, and with six single metal dark-slides which are similarly placed quickly in position. The apparatus is very strongly made in mahogany, aluminium bound, and is an actual pocket instrument, the total dimensions of the camera with dark-slide ready for exposure being $4\frac{3}{4}$ by $3\frac{3}{8}$ by 1 3-5 inches. The price complete with the Cooke lens, series III f/6.5, and with purse for the six metal slides, being £9 9s. The instrument is strongly made, and may be recommended for withstanding a great deal of hard usage. It should be added that it is fitted with bushes for attachment to a tripod.

THE SHEW REFLECTOR CAMERA.—"Shew me a Shew" is a phrase coined by Mr. W. J. Ramsey on taking over the business of Messrs. J. F. Shew and Co., and particularly in reference to the "Press" reflex cameras, which have been made by Messrs. Shew and largely



used by press photographers for years past. The latest model of the press reflector, shown to us on a recent visit to Newman Street, is fitted with a swing front allowing of the lens being pointed upwards or downwards through a considerable angle. The movement

is obtained by mounting the lens on the hinder of two frames made something like the swing-back of old-fashioned cameras, the two frames being connected by flexible cloth. The position is fixed by means of a short lever having a series of slots in it, any one of which catch on a pin placed in the main front of the camera. In this way the lens may be fixed at any one of several inclinations up or down, or may be similarly placed "square" to the plate. The movement is not illustrated in Messrs. Shew's latest list, so that we reproduce here an electro showing the arrangement. For other details of the forms in which the "Press" reflector is made, and the prices of them and of the smaller models of Shew reflex cameras, the full list obtainable on application to 88, Newman Street should be consulted.

1,000 CANDLE-POWER GAS LAMP.—The announcement is made of the introduction within the course of the next few weeks of a new self-intensive incandescent gas lamp of the great power of 1,000 candles. The lamp is the invention of Mr. Paul Lucas, already known as the inventor of a lamp of this pattern giving 700 candle-power, and also of the "Thermopile" high-power lamp of 1,200 candle-power, which perhaps represents the most intense and economical light in existence. The new lamp, therefore, which it is expected will be placed upon the market by Messrs. Moffat, Ltd., 13, Farringdon Road, during September, is on the same principle as the previous Lucas self-intensive lamp, but is of the inverted mantle pattern, and possesses other improvements. It is quite free from working parts, it calls for no extra pressure of gas, only one mantle is used, gauze is dispensed with in the construction of the burner, and by an ingenious device that back lighting of the gas, it is stated, is entirely got over. These advantages are obtained within a smaller lamp than the previous model, and it would seem that a gas lamp of this power, although manufactured primarily for outdoor lighting, possesses applications for photographic portraiture, printing and enlarging, which should interest those engaged in these occupations.

CATALOGUES AND TRADE NOTICES.

FINE CHEMICALS.—Messrs. Harrington Bros., 4, Oliver's Yard, 53, City Road, E.C., send us their current price-list of photographic and other chemicals.

LIESEGGANG CINEMATOGRAPH APPARATUS.—The catalogue for the current year reaches us from Ed. Liesegang of Düsseldorf. It contains particulars of the firm's latest apparatus for taking and projecting animated photographs.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

SATURDAY, JULY 24.

Southend-on-Sea Photographic Society. Outing to West Tilbury.
Birmingham Photographic Society. Excursion to Ombersley.
South London Photographic Society. Excursion to Oxford.
South Suburban Photographic Society. Excursion to Bexley.

TUESDAY, JULY 27.

Hackney Photographic Society. "Masking and Binding Lantern Slides." W. I. Witts.
"Stereoscopic Photography." S. W. Shore.
Birmingham Photographic Society. Ramble to Coleshill.

WEDNESDAY, JULY 28.

Manchester Amateur Photographic Society. Ramble to Dovedale.
Sale Photographic Society. Print Selection for Folio.

UNDER THE SKYLIGHT.—"He's not what you call strictly handsome," muttered the photographer from under his focussing cloth while sharpening on a homely baby that lay howling in its mother's arms; "but it's the kind of face that grows on you."
"It's not the kind of face that ever grew on you!" was the indignant and unexpected reply of the maternal being.

Commercial & Legal Intelligence.

THE NORTHERN PHOTOGRAPHIC COMPANY.—In the Carlisle County Court last week Mr. Crute applied for an order for the winding up of the Northern Photographic Company, on the ground that it was unable to pay its debts. He said the company was incorporated in May, 1906, and had its registered office at 18, Bank Street, Carlisle. The object for which the company was established was to acquire and carry on the photographic business of Thomas Maitland Laws, and to take over all his assets and liabilities. The company was indebted to the creditors, who had presented their petition for its winding up in the sum of £325, and although the creditors had repeatedly rendered an account, they had not been able to obtain payment. The company also had premises at Workington, as well as Carlisle, but both places of business had been closed for some time. There was no opposition to the application, and his Honour made an order for the winding up of the company.

LEGAL NOTICES.—A dividend is to be paid in the bankrupt estate of Henry Morton Pearce, carrying on business at 26 and 28, County Arcade, Leeds, under the style of Morton's Star Photo Company. Mr. John Bowling, Official Receiver, 24, Bond Street, Leeds, will receive proofs up to the 30th inst.

In the bankruptcy of Frederick Hartmann and Christian Linck, carrying on the business of fine art publishers under the name of F. Hartmann at 45, Farringdon Street, E.C., a dividend is to be paid. Proofs will be received by Mr. C. J. M. W. S. Gilchrist, 23, Queen Victoria Street, E.C., up to the 24th inst.

A first and final dividend of 3s. 1½d. has been declared in the bankrupt estate of Joseph Sharples (trading as the Romanus Publishing Company), photographer and publisher, 54, Church Lane, Marple, Cheshire, formerly of Hollinside, Stockport Road, Marple.

NEW COMPANIES.

SARONY AND Co., LTD.—Capital £2,000, in £1 shares. Objects: To take over the business carried on at Scarborough and Harrogate by a company of the same name; to acquire the leases of 17, Nicholas Street, Scarborough, and the tenancies of 52-54, Parliament Street, Harrogate, and to carry on the business of photographers, painters, artists, designers, picture dealers, publishers, carvers, gilders, frame makers, dealers in Photographic requisites, etc. Private company. Registered office, 54, Parliament Street, Harrogate.

News and Notes.

SHEFFIELD PHOTOGRAPHIC SOCIETY.—At the annual meeting, held on July 13, the reports of treasurer and secretary showed the affairs of the society to be in a satisfactory condition, both financially and in regard to the number of members and their work. Many of the officers were re-elected, among them being the president, Mr. J. W. Wright; the treasurer, Mr. T. G. Hibbert; and the hon. secretary, Mr. H. Merrill, 22, Harbord Road, Norton Woodseats, Sheffield, who will be pleased to give information respecting the society to any wishing to join it.

THE R.P.S. FELLOWSHIP.—For some time past it has been felt that the regulations under which the Fellowship is awarded have not been sufficiently elastic to meet the conditions now existing, and that the division of qualifications into "Pictorial" and "Scientific" might deter some members who are well qualified for the Fellowship by expert knowledge, from making application. It was found impossible to specify every branch of photographic and allied subjects, proficiency in which would warrant application for the Fellowship being made, but the Council have now arranged the bases for application in a way which will preclude no one worthy of the Fellowship from obtaining it.

PHOTOGRAPHIC TRADE IN BERLIN.—The annual British Consular report on the trade of Berlin, which has just been issued, says the manufacture of photographic paper was especially unfavourably

influenced during 1908 by the circumstance that the exports, on which this branch of industry largely depends, showed a marked falling off. Italy, which formerly covered its requirements in Germany, had developed a very flourishing photographic industry which manufactured in particular sensitised papers. The United Kingdom and America, the best buyers of German photographic articles, also diminished their purchases. The share of these two countries in the export of sensitised paper from Germany was approximately as follows:—1907, total exports 1,149 tons, valued at £574,119. Of the foregoing 540 tons went to the United Kingdom, and the value was £269,679. To the United States 115 tons went, valued at £57,525. In 1908 the total exports amounted to 1,061 tons, valued at £530,361. Of the foregoing 480 tons went to the United Kingdom, the value being £240,031. Forty tons, valued at £20,158, went to the United States. The home trade was likewise unsatisfactory, as demand increased, and resulted in an over-production and a consequent limitation of the output. In the course of the year a convention between manufacturers and dealers was successfully formed, which is expected to put an end to the cutting of prices.

PORTRAITS OF L.C.C.'S.—The Records Committee of the L.C.C. have had under consideration a suggestion that photographs of members of the Council should be preserved in the Council's library, and they are of opinion that such a collection is desirable. The committee have accordingly requested the clerk of the Council to communicate with past and present members of the Council, informing them of the proposal, and asking them whether they have photographs, preferably of cabinet size, which they will present to the Council. The photographs will be kept in suitable albums in the Council's library, and the collection will be kept up-to-date as far as possible.

THE RESOLVING POWER OF LENSES.—Mr. P. G. Nutting, in a paper presented at the Washington meeting of the Physical Society, states that with a half-tone screen of about 200 lines to the inch illuminated with monochromatic light as object, the resolving power of a $f/3$ to $f/20$ lens may be determined with considerable precision. Theory gives

$$\phi = a \frac{\lambda}{h}$$

as the least angular separation between two objects just resolvable by a lens of diameter $2h$ used in light of wave-length λ . Viewing two stars, the image of either is calculated to lie at the centre of the first dark diffraction ring surrounding the other when $a=0.61$.

With the half-tone screen the following determinations of a were made:—

All structure leaves image when	$a=0.48$
Nature of object apparent when	$a=0.54$
Image shows proper form but lacks contrast when	$a=0.65$
Shadows just perceptibly hazy when	$a=0.95$

Hence the theoretical value of a assumes an image agreeing in form with the object but greatly lacking in contrast and without clear shadows.

THE DALLMEYER BEANFEAST was held this year at Southend, where a pleasant time was spent. The weather was fortunately fine and tempted many of the party to make the journey by water. A Dallmeyer cricket club has just been formed among the firm's employees and expects to turn out a fine team for next season. The president is Mr. Cyril F. Lan-Davis, the vice-president Mr. L. B. Booth, and the hon. secretary, Mr. John H. Sims, 107, Denzil Road, Neasden, N.W., to whom all communications should be addressed. This is not the first Dallmeyer cricket club, as some years ago there was an energetic eleven, for which on occasion the late Mr. T. R. Dallmeyer played.

THE COLLECTION OF PHOTOGRAPHS.—At the annual conference of the Museums Association, held at Maidstone last week, Sir Martin Conway read a paper on "General and Local Photographs in Museums." He said he had for many years bought photographs right and left, but the result was confusion. Then he stopped for some years. Seven years ago he began collecting on another method—gathering not only photographs, but prints of all kinds and on all subjects, but specially on art. He kept one unit of size, cutting down the illustrations if necessary, placing them all on suitable

mounts. In this way he had got together over 60,000 photographs, etc., which were all classified and formed the nucleus of an illustrated card catalogue to knowledge chronologically arranged. He found it a great saving in many ways. People carried about an enormous amount of unnecessary learning in their heads, which was one of the things that made them so stupid. He thought the collection of photographs might very well take the place of the hobby of collecting postage stamps. He cut up magazines, and even books, to get the desired illustrations. He commended the suggestion to museum authorities.

Mr. Henry D. Roberts (Brighton) suggested that the collecting of local photographs and prints might be left to the county photographic record societies which were springing up all over the country. That relating to Sussex, he said, had its headquarters at the Brighton Library and Museum. The arrangement of the material was geographical, based on the ordnance survey maps.

MESSRS. T. ILLINGWORTH AND Co.'s ANNUAL OUTING.—On Saturday last the staff of the famous Willesden Photographic Works, together with a number of friends, held their annual outing, Chertsey being the spot selected for this year's visit, and the journey performed by rail to Richmond and thence by steam launch. The weather, which has been exceedingly capricious of late, suddenly changed, and the party were favoured with a day of steady sunshine and heat, which added not a little to the enjoyment and success of the excursion. The afternoon was chiefly devoted to sports of

Correspondence.

- *• We do not undertake responsibility for the opinions expressed by our correspondents.
- *• Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

LANTERN SLIDES DIRECT.—A CORRECTION.

To the Editors.

Gentlemen,—In the article on the above subject in your issue of July 9 I am responsible for the following statement:—"I have nevertheless never seen any specific allusion to the following simple deduction from the law of conjugate planes, taken in conjunction with the law of inverse squares, viz., that if the source of illumination is at the anterior focal point of the lens and the time of exposure kept constant, the plate must always receive the same effective exposure per unit area, whatever the scale of reproduction may be."

Mr. Welborne Piper has very cogently suggested that the absence



various kinds, including some races of a novel character, all of which were entered into with enthusiasm and keenly contested, and one of the most popular features in the evening's entertainment on board the launch was the distribution of prizes to the successful competitors. The visitors included, among a large number of others whose names are too numerous to mention individually, Mr. and Mrs. Birnie and Mr. Fryer of Glasgow, Mr. and Mrs. Percy Wright and Mr. Smith of Houghtons Limited, Mr. and Mrs. Mallabar, Mr. Dahl, Mr. Edwards, and Mr. Jack Lewis. The party, which started some where about the early hour of 7 a.m., reached their homes again shortly before midnight, for the firm of Illingworth plays with the same amount of zest and energy as that with which it works. The accompanying reproduction of a photograph taken on the occasion of the outing will give an idea of the number of those who availed themselves of this occasion of spending a pleasant day up the river.

ROYAL PHOTOGRAPHIC SOCIETY.—The Council is pushing forward with all possible speed the completion of the society's new premises at 35, Russell Square, but as difficulties have been met by the builders in connection with the new structural work, it is improbable that the house will be ready for occupation until the end of the first or possibly the second, week in August. Ample locker accommodation will be provided at a rental of 2s. 6d. and 5s. per annum for each locker, according to size. Applications for lockers may be made to the secretary at once, and should be accompanied by postal orders for 2s. deposit upon the key, and for an amount equal to one-third of the annual rent.

of specific allusion referred to may probably be accounted for by the fact that the relationship alleged does not exist. The relationship would hold only in the event of the whole light diffused by the object (or a constant fraction thereof) contributing to the image formation. In other words, I have omitted to take into account in my calculations the variation of the solid angle subtended by the lens aperture at the varying distances of the object plane. I find that when allowance is made for this variable factor the statement quoted is practically valid if instead of "anterior focal point" we read "back working focus." The distances of the back working focus from the object for various scales of reproduction is quoted in the annexed table under Column II. If the radiant be located at these distances then with constant exposure time the relative exposures the plate receives are as quoted under Column III.

I. Scale of reproduction.	II. Back focus.	III. Relative exposures.
Full size	4 f	1
$\frac{1}{2}$ "	$4\frac{1}{2}$ f	1.4
$\frac{1}{3}$ "	$5\frac{1}{3}$ f	1.29
$\frac{1}{4}$ "	$6\frac{1}{4}$ f	1.03
$\frac{1}{5}$ "	$7\frac{1}{5}$ f	.9

The values in Column III. are not absolutely constant, but the deviations from the mean value are not great enough to be of importance in practice.

In my experiments the radiant was always placed well behind the lens to prevent all possibility of flare, and hence the constant

ime exposures for all scales gave negatives of practically constant density. In fact, empiricism was my friend, not theory.

I might add that in order to get crisp negatives the light should not fall perpendicularly (or nearly so) on the diagram. If the light be incident at an angle of 45 deg.—i.e., if the radiant is always placed in the same plane as the focussing screen, and as distant from it as the screen itself is from the object plane, the values quoted in Column III. for relative exposures still holds good, and all possibility of degradation from regular reflections from the blacks of the picture into the lens are avoided.

Apropos binding-strips. Since writing the article I have learned that the Lumière company have placed a dry adhesive binding strip in the market. On trial, I find it to be admirable in every way. For myself, at any rate, the gummed strip is henceforward obsolete.
-Yours faithfully,
Blackheath, S.E.

DOUGLAS CARNEGIE.

PHOTOGRAPHING FINGER-PRINTS.

To the Editors.

Gentlemen,—In a comparatively recent number you replied to a correspondent who sought information about photographing finger-prints. You recommended him to trust to colour-sensitive plates and appropriate screens. Well and good; but in practice these will often fail. It is better to have a variety of resources at one's command, and to adapt the method to the circumstances.

For example:—

1. Finger-prints in dust.
 - (a) On colourless glass; illuminate by transparence with oblique light; dark background.
 - (b) On dark surfaces (a very easy subject); illuminate by direct light.
2. Fingerprints in grease (ordinary finger prints).
 - (a) On light surfaces such as china plates; dust on dry, very fine graphite powder; blow off with bellows, etc., *not with breath*. The "dusting on" is best effected by charging a heavy flat-ended camel-hair brush with the powder, holding it near the surface and jerking it by a blow on the hand holding it.
 - (b) On dark surfaces, such as the black or green paint of a safe,



Door of safe with finger-prints. Stamp included to control reduction.

mahogany furniture, etc.; treat similarly, using fine, dry white-lead powder.

- (c) "Invisible" finger-prints on paper. Develop with aqueous solution of silver nitrate (5 to 8 per cent.).

Finger-prints in blood on dark surfaces (e.g., black bottles). In dark-room illuminate by direct rays of arc or magnesium light, preferably concentrated. You may get reflections, but the pattern of the papillary ridges will stand out clearly.

I am sending you three photographs that I happen to have by which your correspondent might care to have. They illustrate 1), 2 (b), and 3.

They are far from beautiful, nor are they even the best I possess, but they happen to be spare copies, and have the merit of—(1) Being genuine cases, and not academically prepared specimens; (2) being made with materials and apparatus found at hand and used in emergencies.

Should your correspondent desire further information on this



Finger-prints in blood on a dark-blue bottle.

subject, or on the application in other ways of photography to criminal investigation I should be happy to afford any that I possess, and for this purpose enclose my card.—Yours truly,

Ministère de l'Intérieur, Cairo. H. NOLAN, Controller.
July 10, 1909.

[We reproduce two of the photographs sent by Mr. Nolan, but it should be said that the subjects do not lend themselves to reproduction, and scarcely give an adequate idea of the success with which these difficult subjects have been photographed. The print referred to in the last line of the previous column, 1 (a), as illustrating the photography of a finger-print in dust, could not be given even this degree of reproduction by the half-tone process.—Eds. "B.J."]

PHOTOGRAPHY AND ART—A MORAL.

To the Editors.

Gentlemen,—There is no doubt that many of those present on the occasion of the opening of the Convention at Canterbury were very favourably impressed by Mr. H. Snowden Ward's well-written address, and although some of the arguments advanced required several grains of salt before they could be swallowed comfortably, and the names of some of Mr. Ward's apostles of the camera (at whose feet many of the R.A.s ought to think it a privilege to be allowed to sit) caused many a quiet smile, still, on the whole, the address was considered one of the best with which a Convention had been favoured, and commendation was general.

But on the Thursday evening, "Oh, what a falling off was there!" Then, to ram his arguments home, Mr. Ward elected to exhibit some lantern slides. They were mostly shown in pairs. First, the unpromising subject, and then the "work of art" which had been evolved from it. In each case the result was the same—viz., the unpromising subject was, to say the least of it, a fairly good photograph; while the "work of art" appeared as a flat, faked-up fraud—a veritable lamb in a lion's skin.

The moral of all this seems to be that the makers of patchwork productions (such as were shown on this occasion), which have been glorified as works of art at exhibitions, would do well not to have lantern slides made from them, or the pictures which have, at the hands of good-natured and sympathetic judges, been awarded medals may, as lantern slides, only provoke ridicule.—Yours truly,

DROP-SHUTTER.

Answers to Correspondents.

- *• All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- *• Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- *• Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
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PHOTOGRAPHS REGISTERED:—

- F. W. Fielder, 26, Broadway, Maidstone. Photograph of the Very Rev. the Bishop of Lewes (L. H. Burrows.)
- H. M. Veale & Co., 98, Victoria Street, Bristol. Two Photographs of Winner (Miss Annie Massey) of Empire First Grand Beauty Competition, Bristol, July 2, 1909.
- J. Mills, 11, Gold Street, Northampton. Photograph of J. G. Shipman, M.P.
- M. Lautenberg, 56, Waterloo Road, Widnes. Three Photographs: Waterloo Road, Widnes, showing Gossages Soap Works. West Bank, Widnes, showing Transporter Bridge and Runcorn Bridge, and Runcorn in the Distance. West Bank, Widnes, showing Transporter Bridge and Runcorn in the Distance.
- Rawlinson Brothers, Albion House, High Street, Llanhilleth, Monmouthshire. Eight Photographs: Glandore, Welsh Baptist Chapel, Llanhilleth; Llanhilleth English Baptist Chapel; Pleasant View, Llanhilleth; St. Mark's Church, Llanhilleth; Wesleyan Church and Commercial Road, Llanhilleth; Llanhilleth Institute and Station; High Street, Llanhilleth; New Parish Church, Aberbeeg, Monmouthshire.

ANILINE DYES.—Would you kindly let me know of a book dealing with aniline and other dyes or chemicals used for the preparation of filters and the sensitising of plates, and also dealing with the manner of testing and proportions for making up for use with spectroscope?—A. H. L.

There is no book which deals with the most recent and really useful dyes. We believe an atlas of such dyes is in preparation by Dr. Mees; but meanwhile the latter's papers, notably those in our issues of May 21 and 28 of this year, may be referred to.

COPYRIGHT.—If a photographer has a print registered, but does not mark on the prints sold afterwards the words "Copyright" or "Registered," and another man copies same and sells them, not knowing they are copyright, is this man liable for damages?—**QUERY.**

Yes, he is. There is no need to mark a print "Copyright," and ignorance is not held by the Act as any excuse for infringement.

DEVELOPER.—Can you tell me of a good developer—not metol-hydroquinone, which affects my skin, or diamidophenol—suitable for bromide or gaslight postcards in large quantities, and which will work out at a reasonable price, and not upset one's skin?—**DOLPHIN.**

We should advise you to use pyrocatechin, which is very suitable for these classes of work, and is not expensive.

CAST.—Perhaps the lighting is somewhat too much to the back, rather too "Rembrandtesque" for ordinary work, but otherwise shows very careful adjustment of the light. For persons of strong features such a lighting would be very suitable, but we should prefer one of softer character for sitters of less pronounced type of face.

PORTRAIT STYLES.—(1) A few days ago I saw some high-class work which had more the appearance of pen-and-ink photographs or sketches of the persons depicted. They were upon white grounds and mounted upon white cards, and certainly looked exceedingly beautiful. You could, however, see they were photographs, and not pen work. I presume the manner of lighting was the key to the results. I should think they were printed on platinotype. Can you, through your valuable paper, tell me how they are secured? (2) At another place I saw some sepia prints, mostly heads and shoulders, in which just the head alone was prominent, the neck and shoulders being much subdued and fading away to plain white of the background. Is this effect obtained in the camera or by masking during printing, or by both of these means? I am an amateur, and have built a small studio with a north light, in which I experiment a little for a hobby (not for business at all), and would like to try to get similar effects to those mentioned, therefore I ask your advice. I have taken the "B.J." in for some four years regularly, and have picked up much valuable informa-

tion from it. (3) If you could name me some really good books on lighting and posing, with prices and where to be got, I should esteem it a favour.—**PILATUS.**

(1) From your description we should say that the faces in the photographs are printed from the negative and the body and background sketched in by hand on the print. This method is a good deal followed at present. (2) Without seeing the examples we should say that the effect is obtained solely by vignetting during printing, the negative having been taken in the first instance against a very light background. (3) "Artistic Lighting," by Jas. Inglis (2s. 6d.); "Lighting in Photographic Studios," by Duchochois (1s.). You can obtain these from Messrs. Dawbarn and Ward, 6, Farringdon Avenue, London, E.C. "The Photo-Miniature," No. 2, or the "Pose in Portraiture," is now out of print, but if you can by chance obtain it from a dealer, it will give you a number of useful hints on composition in portraiture.

WATER ANALYSIS.—I am wanting to analyse some water. Can you advise me of any book explaining the method?—**J. S.**

Water analysis calls for a good deal of experience and apparatus if the results are to be of any value. If you wish to make test of hardness only you may obtain some useful data. We advise you to apply to a chemical apparatus firm, such as Mr. A. H. Baird, 33-39, Lothian Street, Edinburgh, for prices of an outfit. There are several books on water analysis, but they are of little use to those unprovided with a laboratory.

G. J. P.—Barton's, 38, John Bright Street, Birmingham; Houghton Ltd., 88-89, High Holborn, London; Trapp and Co., 89, Chiswell Street, London, E.C., to name only three of a number of firms.

GRANULATION OF PLATES.—During very hot weather (say more than 90 deg.), after fixing the negative, either with acid fixing bath or with simple one, I often observe the negative, as soon as I put it in washing water, to become very granulated, and after drying the negative remains unchanged. I observed that granulation less on reduced silver, while too much on shadows, therefore I thought that perhaps the cause is air in water, but I have not tried boiled water. The thing which provoked me is that to-day I have developed six plates from the same box with the same developer, the same fixing bath, the same washing water, the same time, and climate, but I found that four of them have been granulated and ruined, while the other two are quite as good as if made in winter.—**TADROUS HANNA (Assiout).**

The granulation is no doubt due to the partial decomposition of the gelatine, and the best way to prevent it would be to use hardening bath. You might try Namias' fixing and hardening bath the formula of which is as follows:—

Chrome alum	24	grs.
Hypo	1 3/4	ozs.
Sodium acetate	80	grs.
Water	7	ozs.

Your last experience is not uncommon. Granulation does not necessarily occur with every plate in similar circumstances. One or two may escape.

J. H.—We have not come across a defect of this kind before. You are inclined to attribute it to exposure of part of the roll to light while in the fixing bath, but we can hardly suppose that this is possible in your case. We will see if we can hear of similar troubles and write you next week.

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SUMMARY.

An exhibition of the results obtainable by the latest method in the mounting of photographs will open at the house of the "B.J." on Tuesday next, August 3, at 10 o'clock.

The oft-condemned plan of washing prints by allowing the tap to run into a dish containing the prints is actually less inefficient than is made out to be if a certain trick be used. A note on this point appears on p. 586.

In washing cut-films by this method damage of the films by one another will be avoided by rounding the corners prior to development. (P. 586.)

Details of the recognised method of washing a batch of prints are given in the article on the albumen process on p. 588.

A paper of gaslight rapidity and P.O.P. effect has just been placed on the market by the Paget Company. (P. 599.)

Some notes suggested by the visit paid by professional photographers last week to the Speaight "Fair Children" Exhibition appear as a leading article on p. 587.

M. G. Underberg, in continuing the notes on the acid diamidophenol developer, strongly commends this reagent as a developer for bromide and gaslight papers. (P. 591.)

Reports of meetings dealing with proposed photographic exhibitions appear on page 601.

A developing tank, with a thermometer as a fixture therein, figures among other patents of the week. (P. 596.)

A hint on framing photographs in passe-partouts, which may perhaps serve further to remind professional photographers of the frequent use to be made of this method, is given on page 586.

"Health Conditions in Engraving Shops," "Transparent Drawing Surfaces," "Collecting Dust," etc., are topics of process interest treated under "Photo-Mechanical Notes." (P. 595.)

"Exposure in Copying," "Direct Positives from Originals," and the "Pepper Process" appear under "Correspondence." (P. 603.)

A graphic method of identifying a series of objects in a landscape by reference to a map of the district has been recommended by a writer in a contemporary. (P. 589.)

EX CATHEDRA.

At the "B.J." House from August 3. We would further draw the attention, particularly of our professional readers, to the exhibition and demonstration which will open at 24, Wellington Street, Strand, W.C., on August 3, and will remain open daily from 10 to 4.30 (Saturdays 10 to 12-30) until August 14. The exhibition will take the form of the results producible in the way of professional mounted portraits, portraits in folders, etc., by means of the method of simultaneous dry-mounting, plate-marking, and blocking done according to the recently invented system of the late Mr. G. W. Morgan. The late Mr. Morgan's son will act as demonstrator, and by means of a complete equipment for the process will show the method of working. As the process has already been taken up by several leading photographers, amongst others, there is little doubt that the convenient opportunity thus afforded will be largely taken, and we would suggest that visitors anxious to have the process demonstrated to them at special length should time their visit as early as possible after the hour of opening. In addition to the mounting demonstration, the visitor can see the working of a mercury-vapour portrait installation, and, if he wishes, actually expose his own plates and develop them upon the spot.

* * *

A Quickly Made Focussing Screen.

The usual directions for making a focussing screen in an emergency are to rub two pieces of glass together with a mixture of flour-emery (knife polish) and water between them. If "Carborundum" powder be used in place of the emery the desired result is obtained in far less time. The "rubber" should be a piece of plate glass of small size (an old c.-de-v. cutting shape does well), so as to get into the slight undulations of the glass to be ground. A half-plate can be nicely "matted" in five minutes by this method. Although the result is not quite so fine as most focussing-screens sold at dealers', the difference is very slight, and the "Carborundum" screen will be found quite good enough for ordinary purposes. The powder can be obtained from any motor-garage, as it is now used instead of emery for grinding in valves. The finest should be asked for, as there are several grades, and a few pence should cover the cost.

* * *

Reversing Portraits.

Probably very few photographers now use the single-transfer carbon process for printing from their portrait negatives, but occasionally it is desired to reverse one of a pair of enlargements to make them "match." This should not be done without showing the customer how the portrait will look when reversed, as, though to the photographer the likeness will appear the same, the near relatives of the subject may find

fault. This is, of course, more likely to happen when the two sides of the face differ greatly. This point was very forcibly brought home to one of our professional readers the other day. He had made an excellent full-face negative of a very near relation, but on bleaching the plate with mercury (to intensify it), there seemed to be something strange about it as a likeness. On examining the back of the plate when bleached, the likeness at once became perfect. It was at once seen what had happened: the two sides of the lady's face were very different, and the reversal of right and left altered her appearance. This last may account for some of the cases when a sitter is dissatisfied with a portrait, while her friends are pleased. To show a customer the difference in appearance that would be caused by reversal, the simplest way is to take two prints, and, holding one opposite a mirror, to place the other with its back flat against the glass, so that it appears at the side of the reversed image.

* * *

Framing in Passe-partouts.

Framing photographs in passe-partouts is sometimes difficult in the case of prints that have been mounted and become even slightly warped. Fortunately, it is quite a simple matter to make them perfectly flat, when binding becomes quite easy. To flatten the mounts, the backs should be well sponged with water, and the harder and thicker the mount the more water should be used. Then the mounts should be laid between two sheets of cardboard and placed under a board and pressed for a few hours. The same procedure is advised in the case of rough-mounted prints to be mounted under "cut-outs." A flat print is infinitely easier to mount neatly than one with a warp in it. A piece of brown paper pasted on the back of a "rough mount" does not entirely counteract the warping, although it is of great assistance. A sheet of "salvage" plate-glass about "Imperial" (32 by 22) size laid on a few sheets of cardboard of the same size is an improvement on the weighted board, and forms a cheap and very efficient press, both for flattening mounted prints and for mounting under cut-outs, which require a flat pressure for some hours to ensure perfect adhesion. The glass is heavy enough to flatten the thickest cardboard in a few hours, and it is not too heavy for convenient handling, besides which it forms a good bench for trimming prints, whether in or out of use as a press.

* * *

Washing Under the Tap.

Photographers are often told that washing prints in a dish into which water is kept running is a very inefficient method of working, nevertheless it is a highly convenient one, and it is very often used, even, we suspect, by those who deprecate it. The alternative method of soaking in frequent changes of water is no doubt very effective and economical as regards water, but it is not so economical in respect to time, and the continued attention required is often shirked. If we use enough water and arrange the dish properly the "running water" method is quite efficient, though it seldom is so as ordinarily conducted. We may say at once that it is quite useless to simply let the tap dribble into a dish crowded with prints; neither is it of any use to get up a violent whirl of water in the centre of which a mass of prints revolves. We have seen water-pipes carefully arranged all round a dish so as to keep up a beautiful whirl, but the only result was that the prints kept together in a mass, and some of them were never properly washed at all. The following, which is the best method we know, requires no extra taps or pipes, one tap to each dish being all that is required. Select a dish in which the sides slope outwards very slightly. The majority of porcelain dishes have the requisite slope, and

the only ones not suitable are those with quite vertical sides. Arrange the dish so that a fairly strong stream of water falls vertically on the centre of one of the shorter sloping sides. If the water in the dish is stained a port wine colour with permanganate, it will be found that the whole of the colour in a 10 x 8 dish will disappear in two minutes or less. This is the test for efficiency in changing the water. Then place twenty or thirty quarter-plate prints in the dish. If the water is running with a sufficient force the whole will keep constantly on the move, each print continually changing its position, and never clinging to any other print.

* * *

Washing Cut Films.

Cut films can be washed in a dish in running water just as well as prints, if we observe the precautions described as necessary in another paragraph, but films are liable to become more or less damaged in the process. As they whirl around, the sharp corner of one film may easily dig into the soft gelatine of another and produce a small triangular tear that requires a lot of spotting out. To prevent this, it is as well to snip the corners off the films before wetting them at all, and an ordinary pair of nail nippers will produce a nicely rounded corner that will not effect much damage. It would be a material advantage if manufacturers would round the corners of their cut films, as the tearing tendency of the sharp angles is often a great nuisance. In addition to snipping off the corners, care should be taken to see that all the films are put the same way up in the dish. Every film has a slight tendency to curl up at the corners on the film side, but if all are either film up or film down the likelihood of damage is much lessened.

* * *

Incongruities in Portrait Photographs.

There is still need to remind photographers of the mistakes which may easily be made in portraits taken with the aid of painted backgrounds. As "Abel's Weekly" (New York) writes in its current issue, "one expected that in the days gone by, when men in walking suits were made to come down the stairs of Arabian Nights palaces, and ladies in fascinating décolleté toilettes were discovered leaning against massive stucco pillars, but we do not look for it to-day, when our photographers have for years been drilled with the motto: "Observe the proprieties." Yet in a current annual we find two of our best photographers committing incongruities which are all the more noticeable because of the names under the pictures. In one otherwise excellent picture the photographer rests the hand of his subject on a little side table with elaborately turned legs, the rear of the table merging into a background of sycamore and fir trees, and appearance of lake and mountain in the midst. There is not even the excuse of the subject being on a porch, for she stands with her back to an enormous tree trunk. How *did* that table get into the scene? In another instance a group is marred by introducing a modern drawing-room chair into the wild background landscape. With the present craze for worked-in landscape backgrounds, are not photographers a little careless in observing the proprieties?"

* * *

Rubber Corks.

Many of the ready-made solutions now on the market are put up in bottles fitted with rubber corks, so this article is becoming a more familiar object in the photographic workshop than used to be. Unfortunately, rubber corks have some peculiarities that greatly perplex those unfamiliar with them, and the better the quality of the cork the more eccentric is its behaviour. One of its most troublesome tricks is that of jumping out of the bottle almost as rapid

s it is put in. Though forced into the neck as far as it will go it is probably right out before the bottle has been replaced upon its shelf. This often happens when both cork and bottle neck are wet with the solution, and an obvious remedy is to wipe both dry. If this fails a certain remedy is to make a few shallow cuts around the cork with a sharp knife. Another trouble is the sticking of the cork to the neck of the bottle. This does not often happen with the cheap hard vulcanised corks, but it frequently does so with the soft and elastic best quality ones, for which reason it is not advisable to use these for general purposes. They are excellent for temporary use as they make a far more airtight plug than any stopper, but they are soon spoilt if used permanently. One of the most efficient and cheapest rubber corks that can be devised is a home-made one, produced with the aid of an ordinary cork, a piece of string, and an old tobacco pouch. Cut a piece of rubber from the pouch and lay it over the neck of the bottle. Then force in a rather small size ordinary cork, and when it is well in gather up the overlapping rubber around the upper part of the cork and fix it by tying the string tightly around. On trimming off the superfluous rubber a cork is obtained that will do good service for several years. Seeing that good rubber corks for pint bottle cost fivepence or sixpence each, and sometimes more, this economical method of producing corks that are just as effective is worth remembering.

MORALS FROM THE SPEAIGHT EXHIBITION.

THE photographers who, as reported on another page, visited the exhibition of photographs of "Fair Children" at Messrs. Speaight's galleries last week are not likely to forget the evening. It is to be hoped that they will not allow themselves to do so, because the occasion, in our judgment, and, we believe, also in theirs, stands for a good deal in professional portrait photography. To begin with, every professional photographer must surely appreciate the great success which has attended the conduct of the Speaight business of late. It goes without saying that such success is necessarily based on photography which is thoroughly good from first to last. At the same time mere technical excellence, of whatever degree, could not have achieved the success except in conjunction with business management of no ordinary kind. Everybody knows that commissions to photograph the children of crowned heads in different capitals of Europe do not come tumbling in to photographers, even in the West End of London, by every post. Messrs. Speaight have worked for the *denouement*, which has taken the form of the exhibition now closing, for years past, not solely by mere solicitation, which probably of itself could have proved futile, but first and foremost by attaching a certain character to their business and to their business methods. They have made themselves known among the classes of people from whom they aim at drawing their custom, not only as photographers, but also as citizens of London, who have manifested their citizenship in a notable way. We should, perhaps, in speaking of this side of their activities write of them in the third person singular, since it is an open secret that Mr. Richard Speaight, the younger brother, confines himself almost altogether to the photographic side of their enterprise, whilst the business—or should we say the "stage"?—management is the work of the elder, F. W. Speaight. The latter's persistent and successful advocacy of alterations in the Marble Arch is only one piece of public work which has made the name of Speaight familiar in newspapers during recent years. The proposition for modification of the Horse Guards' Parade is the subject which

currently absorbs Mr. Speaight's surplus energy. Both, as we know, have brought to the studio many public men and women, who very likely learnt for the first time of the existence of a photographer at 157, Bond Street, on paying a call there for quite another reason. Thus in launching an exhibition such as that which is just closing, the Speaight brothers approached the proposition very fully equipped in the way of prestige and standing, and to that fact undoubtedly—just as much as to the excellence of the photographic work—must be attributed the success with which they have held an exhibition of portraits of Royal and other titled children, which has been largely visited on the same terms as other art exhibitions in Bond Street, namely, payment of one shilling, and has during the past week received the distinction of having been visited by three Royal Princesses—T.R.H. the Princess of Wales, the Crown Princess of Sweden, and Princess Alexandra of Teck. And those who happened to see the daily and weekly Press at the time of the opening of the exhibition in June will call to mind that the little exhibition at Messrs. Speaight's galleries was very largely noticed—in many instances by whole-page or double-page reproductions—in such papers as "The Sphere," "The Ladies' Field," "Black and White," "The Bystander," "The Gentlewoman," not to mention other daily and weekly periodicals.

Let us admit at once that in achieving this success Messrs. Speaight have worked in a field which does not stand open to the great majority of photographers in the provinces, or even in the outskirts of Greater London. We can imagine a reader of the "B.J." in, say, Swindon, Wilts, saying to himself that such enterprise as that we are now alluding to is out of the question for him; but, after all, notability is only a matter of degree, and even when notable personages are as scarce in a district as Grand Dukes in Whitechapel there are still other sections of a photographer's public which may be drawn upon for the purpose of valuable and at the same time inexpensive advertisement. Pretty children—even when their parents have no handles to their names—are a constant attraction to the public; and since we first visited Messrs. Speaight's exhibition we have received one circular from a photographer in Yorkshire advising us of the holding of an exhibition of portraits of beautiful children at his studio, which he tells us he has had in contemplation for a year or two past. And still another instance comes before our notice of a Surrey studio, where a similar exhibition of portraits of local notabilities has been held with considerable success. Our object, therefore, in calling attention to the ways and means by which the Speaight exhibition has come into existence is to suggest to portrait photographers in all kinds of places that a lesson may be learnt in the methods of attracting the public. Yet it must not be supposed that this is a thing which can be done at a fortnight's notice. Steps to securing such a result are painful and slow, and mean diplomacy and taste at every point of contact between the photographer and his clients. In matters of letter writing, even in details of stationery, note headings, and the score of minor matters which are of little importance commercially, but stand for a good deal in showing what manner of man the photographer is—there is an opportunity for persistent discretion, and it would, perhaps, surprise some to know of the pains expended in the Speaight establishment on such things as envelopes and invoice forms.

But we must not dismiss the recent exhibition without a reference to one incident which has been an admirable result of it, namely, the forgathering there on Wednesday in last week of quite a number of professional photographers. To the invitation made through our columns

a large number of photographers responded, and the reception-room and gallery during the two hours which the function occupied was uncomfortably crowded. The visitors included the president and chief officers of the Professional Photographers' Association, in addition to several proprietors of West End studios. It is the first occasion, so far as our knowledge goes, of professional photographers hobnobbing in friendly concourse at a studio which admittedly is in competition with, at any rate, those of a few of the visitors. We have been accustomed to regard such fraternising as the prerogative of the American professional, and have usually ascribed its existence in the United States to the fact of the great distance between the large centres of population in that country. Therefore, the Speaight brothers, we may say, have not only brought to a successful issue a new idea in professional portraiture, but have further applied it to the eminently useful purpose of knitting more closely together the members of the profession—a dual result upon which we believe all those interested in the welfare of portrait photography will offer their congratulations.

PRACTICAL NOTES ON ALBUMEN PAPER PRINTING.—IV.

In the last article the process was brought up to the final stages, namely, the fixing and washing of the pictures. These latter operations are looked upon by not a few as being of quite minor importance, while, as a matter of fact, they are actually the most important of all when the stability of the pictures is a consideration. With respect to the strength of the fixing solution for the prints, some of those given in the text-books are, to our mind, too weak. The formula we always employ for albumen pictures is as follows:—

Hyposulphite of soda	2 lbs.
Water	1 gallon.

To this a few drops of liquid ammonia are added, just enough to give the solution a very slight smell, and no more.

The addition of ammonia is merely to ensure the bath being free from acidity. But with the purer kinds of hypo now on the market this is rarely necessary. The above formula gives us four ounces of hyposulphite to the pint of water.

The prints being ready in the washing water, after toning, the procedure is as follows:—The water is poured off, and the dish reared on end, with the prints left sticking to the bottom to drain; for it is not desirable that they should have much water upon them when put into the fixing solution, as it would tend to dilute it where in contact with the picture. A liberal quantity of fixing solution, according to the number of prints, should be used. It is poured into the fixing dish, which, by the way, should be large, the prints then taken one by one with the left hand, transferred to the right, and by that put, face *downward*, in the hypo solution, in which they should be kept moving about. Care should be taken that no air-bells get imprisoned, as they are certain causes of yellow spots. Minute ones will cause small yellow spots, which, while not showing at once, often make their appearance in a short time after the prints are finished and mounted. With the above method of procedure the left hand is always kept free from contamination with hypo until all the prints are got into the fixing bath. When that is done, the dish is well rocked for a minute or two to keep the prints separated, as on no account should they be allowed to stick together, or to the bottom of the dish. They are then turned over, one by one, so

that they will all then be face upward. Here both hands may be used. When all have been turned over, the operation is repeated with occasional rocking of the dish to prevent any sticking together. This work is continued for not less than a quarter of an hour. It was the custom with some of the older workers, with whom permanence was a great consideration, after the pictures had been in the fixing bath for the usual time, to put them into a fresh solution of hypo for a similar time, with a view to ensure perfect fixation.

At the end of the time, the fixing solution is poured down the sink, and the dish reared on end, leaving the prints adhering to the bottom to drain off the hypo for two or three minutes. While in that position it is a good plan to spray them with a rose attached to the tap with a foot or two of rubber tubing. The dish is then put under the tap and quickly filled with water, and the prints well sluiced about in it, and the water quickly changed—indeed, the tap should be kept running all the while, for the quicker the hypo, in the first instance, is got rid of, the better. The prints, when first put into the fixing bath, will become somewhat of a lighter colour than they were after toning, but they will regain their original tone when dry.

The temperature of the fixing bath is of some importance; the best is from 60 deg. to 65 deg. F.: if it is much lower than the former, allowance must be made for it by allowing the prints a longer time in the solution. When hypo is dissolved in water its temperature falls many degrees, and, unless that be taken into account, the fixing bath may be used at an unsuitable temperature. If the bath has to be used at once, and if, in the solution of the hypo, the temperature has fallen much below 60 deg. F., a little boiling water should be added to bring it up to that heat.

As regards washing, the time of washing depends very much upon the way it is done, for the prints—provided the hypo silver salts are got into a perfectly soluble state (which means full and individual treatment with plenty of fresh hypo)—may be as effectually fixed from the hypo in half an hour as they can be with many hours' soaking even in running water. The plan we prefer is hand-washing in continual changes of water. One method is to have two large dishes of water, and transfer the prints singly from one to the other. When all the prints have been put into the first dish and well rinsed about, they are transferred, one by one, to the other. The first dish is then emptied, refilled, and the prints put back again: these changes are repeated. After half an hour, or three-quarters, the prints may be considered as perfectly washed. Another way of hand-washing is to have a single large dish of water, putting the prints singly into it, and well sluicing them about in it for five or six minutes, pouring the water off and rearing the dish on end, with the prints adhering to the bottom, to drain for two or three minutes. It is then filled up again with water, and the sluicing and draining repeated. With this treatment for three-quarters of an hour or so the prints should be free from hypo. In winter (*i.e.*, if the tap water is very cold) it is a good plan for one or two changes to be made in warm water, since the hypo is then more readily dissolved. Quite hot water may be employed with albumen. Indeed, some older workers, we know, used to make it a rule to use two or three lots of hot water in washing their prints even in summer.

A not unimportant precaution in connection with the fixing and washing the prints is that the temperature of the fixing bath and of the washing waters, at the first stage, should be as nearly as possible the same. With some papers, if the prints are put direct from the fixing bath into water at a quite different temperature, blister

ing is apt to arise, and in the final washing waters the blisters may assume a large size and break. In other instances they may be so small that they can only be detected by the touch; though they may not increase in size, they will usually show as dark spots when viewed by transmitted light, and almost always also when the pictures are mounted. Blisters are chiefly caused by trans-

ferring the prints direct from a medium of one density to that of another, as, for example, from the fixing bath to the washing water. In order to avoid this trouble some workers dilute the hypo bath—after the fixing is done—with an equal bulk of water, and allow the prints to remain in that, with constant turning over for five or six minutes, before putting them in the washing water.

PHOTO-SURVEYING METHODS FOR THE AMATEUR.

[In the current issue of "Photographische Mitteilungen," an article appears by Dr. R. Defregger, which, while addressed to photographers whose work lies amongst mountain ranges, the peaks of which they may wish to have some means of identifying in the negatives, yet conveys an elementary explanation of the principles upon which photo-surveying is based, and may be usefully translated.—Eds. "B.J."]

In the many cases in which photographs of mountainous regions have been photographed, photographers have frequently occasion to value some ready method by which the separate summits in the photograph may be identified by name on reference to a map. A good many mistakes may readily be made if judgment is left to the unaided eye in this matter, and in such cases the method described below has been found to give very useful and accurate results. The problem consists in finding a means whereby the unknown objects in the photograph may be identified on the map. If we represent the view point as A (Fig. 1) and four points seen from A as a, b, c, d , of which a only is known, then the lines Aa, Ab, Ac, Ad , from the view point of the four objects may be called "lines of view." If we could draw these lines accurately on paper identification of the unknown points would offer no further difficulty. The diagram, as shown in Fig. 2, is drawn on a piece of tracing paper and laid on the map so that the point A occupies the position of the standpoint of the observer. The piece of tracing cloth is then turned round A as an axis until the line Aa passes through the known object a on the map. As represented in Fig. 3, we then require to find from the four points of the map only those which lie on the view lines Ab, Ac, Ad , in order to ascertain the three unknown points b, c, d , the names of which are then obtained from the map. We have thus to make a "view-line diagram" (Fig. 2). The surveyor simply takes his theodolite, observes the points one after the other, reads off the corresponding horizontal angle on his divided scale, and makes out the diagram on his return. We are proposing to use the camera for this purpose. We assume that the four points are obtained on one plate. If they are so far apart as to preclude this, several exposures require to be given, on each of which one or two points are included, the process to be described being then applied to each plate. Let o in Fig. 4 be the lens, the viewing lines passing as chief rays through the lens to the plate, a section of which is shown as pp . We there obtain the image of the four points, a^1, b^1, c^1, d^1 . The distances of the points a^1, b^1, c^1, d^1 , from each other are set off with a scale or by means of a transparent print on to the negative. If we know the focus of the lens sufficiently accurately we can then draw mo perpendicular to the centre of the plate pp . We have then in o the perspective central point of our drawing, and we require only to connect o with the image points a^1, b^1, c^1, d^1 , in order to obtain the necessary view line diagram. This is briefly the method employed; in practice there are, however, certain difficulties to be overcome.

The first of these is that in many instances the focal length of the lens is not known with sufficient accuracy. The numbers engraved on the objectives themselves are usually average figures from which the particular lens may to some degree depart. The method for ascertaining the true focal length of a lens requires considerable care and skill. In my experience it is scarcely possible, except by special apparatus, to measure the

focal length correctly within one to two per cent. The most usual method is to focus the camera upon an indefinitely distant object and to know the position of the lens. The camera front is then racked out until some object placed nearer to the camera is recorded on the plate, exactly same scale. The distance which the lens has had to be moved to effect this result is its equivalent focal length. Although it is easy to adjust the focus accurately when focussing on infinity, yet when focussing on the same size object there is a considerable latitude in obtaining the focus, and a number of different observations will give results differing from each other by several per cent. The mean of this separate measurement is obviously preferable to any single value.

However, the trouble of making a determination of the focal length may be obviated, and the errors in the process disposed of, if the line om fixing the construction of the diagram be obtained from the photograph itself. This can readily be done if two points which can be recognised on the map are included in the photograph. An exposure is thus made so that the one point falls in the centre of the horizontal edge of the plate, or near to the centre, as in a^1 , Fig. 4. If b is also known from the map, then by tracing the three places, A, a , and b , or more accurately obtaining these loci by passing a fine needle through the map on to a sheet of writing paper below at the angle baa is obtained. The construction is shown in Fig. 5.* A perpendicular line me is drawn to the view line Aa at any desired spot, but further from A than the approximately known focal length. On this line the distance $a^1 b^1$ obtained from the negative is set off and the point g thus obtained. A parallel line drawn from g to the second view line Ab gives the intersection point with Aa in o , and om is the focal length required. This construction is the easier to make the less acute the angle at A, or, in other words, the further the separation of the two points in the landscape. Care is also taken so to choose the points that one comes as near as possible in the centre and the other at the edges of the field. If the distance, a^1, b^1 , is carefully taken there will be, as already shown, no effect upon the accuracy of the result if a is not quite, but only approximately, in the centre of the field.

The above construction requires amendment in a second direction. Only in a perfectly flat country are there to be obtained two points precisely at the same horizontal level. In the case of a mountain range one of the points may be the peak of a summit, whilst the other may be a church tower lower down. In such cases the two points must be brought to a horizontal level. This is very simply done by drawing in the negative, or on a print on matt paper, a horizontal line

* Or more carefully the distance which is of importance in this exposure, namely, that of the rear chief plane of the lens from the plate. A determination of the focal length on this basis has the same inaccuracy as measurement which depends on sharp focussing on the ground glass. The errors of focussing, however, as will easily be seen, are completely dispensed with for our purpose, the results being quite correctly obtained even if the plate has been focussed by means of a small stop with the lens away from its infinite position.

in the sky, and letting fall from all the points which we wish to include in our measurement perpendicular lines on to this horizontal line, as diagrammatically shown in Fig. 6. The points in which these perpendiculars meet the horizontal line, namely, a^1, b^1, c^1 (Fig. 6), are those to which the process already shown in Fig. 4 is applied. An example will make the use of the method clear. Let us suppose we are making the exposure

in question is covered thereby on the map, we draw a straight line, lay this on the horizontal line in the print, and draw carefully through the points of intersection of the horizontal line and the perpendiculars and also through the previously marked central point in the long side of the plate. From this point, m , on the tracing cloth we then draw a perpendicular of the length of the previously found equivalent focal length,

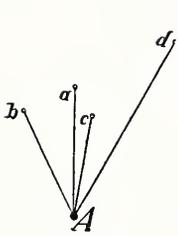


Fig. 1.

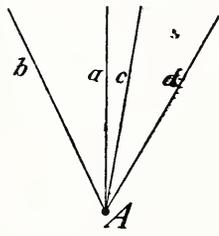


Fig. 2.



Fig. 7.

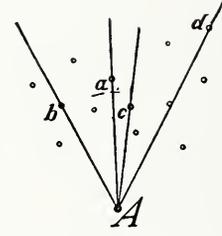


Fig. 3.

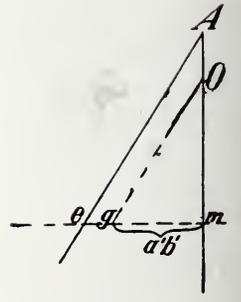


Fig. 5.

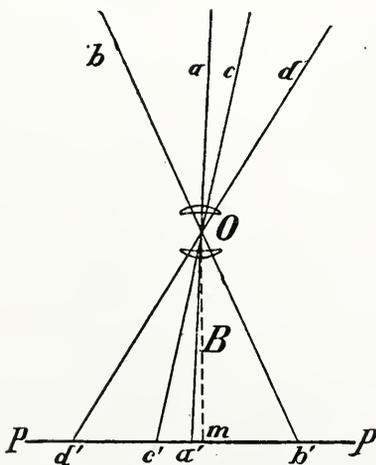


Fig. 4.

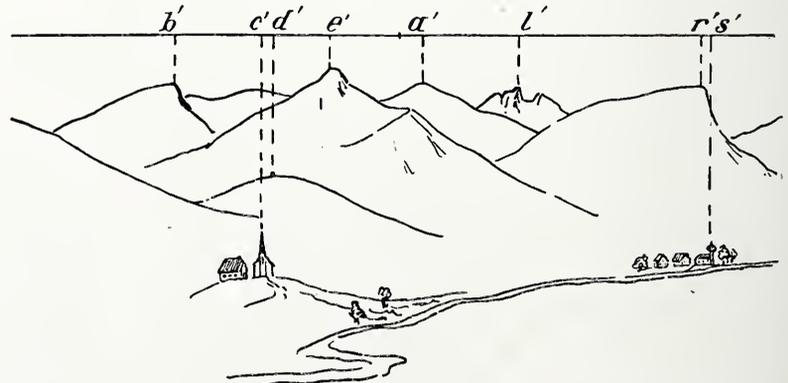


Fig. 6.

of the mountain range shown in Fig. 7, in which the two summits, a and b , are known. We draw the horizontal line and draw from the point to be measured perpendiculars to this horizontal as shown in the dotted lines. By means of the angle taken from the map between the standpoint and the two summits a and b , in conjunction with the distance, a^1 and b^1 , we follow out the construction given in Fig. 5 on a separate sheet of paper. On a sheet of tracing cloth of the size that the area

and thus obtain the point A , which we connect, as shown by the solid lines in Fig. 7, with the various points upon the horizontal. This gives us our view line diagram. It is laid upon the map so that the point A lies upon the standpoint taken by the camera, the two lines Aa^1 and Ab^1 being brought into coincidence with the two points which they represent; the other points of the unknown portions in the view are then identified on the map.

R. DEFREGGER.

FURTHER NOTES ON ACID DIAMIDOPHENOL DEVELOPER.¹

[The conclusion of the notes on the use of diamidophenol, the first portion of which appeared in last week's "B.J.," deals with the use of this developing formula for bromide and gaslight papers, and for the making of direct positives on bromide paper in the camera.—Eds. "B.J."]

If the acid diamidophenol developer is capable of giving remarkable results in the case of negatives, there are yet certain developers which may be said to approach it, such as edinol-hydroquinone and pyrogallic acid. But in the development of bromide prints it remains without a rival, and that whatever the description or brand of paper, whether rapid bromide or one of the gaslight variety. Its superiority consists in the fact that whatever the exposure or the time of development the high-lights of the picture remain pure, the shadows never acquire a greenish colour, there are no stains, and as a result of the slower action it is rarely that any spots, due to air-bells, or any markings occur during development. Granted, of course, that the exposure is reasonably correct, but even if it be half or double the correct time the result is still satisfactory.

The image appears slowly and steadily, and the correct depth desired in the print is obtained without any of the almost frenzied haste which is necessary in the case of the rapid developers employed, particularly for gaslight papers. I am not aware of any developer, not even the much-used metol-hydroquinone, which will give the same results, and one great advantage of the formula employing diamidophenol is that it is suited to every brand of paper and absolves the worker from the necessity of making up a particular maker's formula. And, further than this, a single formula may be used for papers both slow and rapid. My own experiments—which are confirmed by that of numerous friends and correspondents—have led to the following formula:—

Solution S*	$\frac{1}{2}$ oz.	15 ccs.
Diamidophenol ..	8 grs.	5 gm.
Solution BB*	85 to 135 mins.	5 to 8 ccs:
Water to make	3 $\frac{1}{2}$ ozs.	100 ccs.

A greater or less quantity of the bisulphite solution is used according to the slowness with which the developer is desired to work. With 8 ccs. a fairly restrained developer is obtained, and it is this quantity which I invariably employ in summer. In winter, when the lower temperature itself restrains the bath, I employ only 6 to 7 ccs.

The paper is immersed in the developer and the film side gone over with a piece of soft cotton-wool, which removes air-bells. There is no need to place the paper first in water. The acid bath, by its steady action, does not give rise to stains and very rarely to white spots due to minute air-bells. If the image happens to come up too slowly it is well to turn it over face down, by which action the development appears to take place more quickly. The formula given above may be further diluted

* See last week's "B.J.," p. 570; also p. 603 of this issue.

up to 300 ccs., such a dilution being particularly advisable in the case of enlargements where softness is desired, or where it is found necessary to resort to local development. For this latter a camel's-hair brush is dipped in solution BB more or less diluted. A thin image having been developed, the solution is poured off from the paper, and those parts which are to be held back gone over with the brush, after which the developer is reapplied. By repeating this operation several times the desired degree of restraint may be obtained without any fear of yellowness of the high-lights or of unequal action. After development the print is rinsed, fixed for at least fifteen minutes, washed, and put to dry.

Direct Positives.

The acid diamidophenol formula gives quite the best results in this process. Using ordinary bromide paper, it is well, however, to add 10 ccs. of 90 per cent. alcohol to the bath, this addition allowing of a more rapid penetration into the sensitive film, and therefore of development more intensely in the depth of the film. In this process a full exposure is given, the print is fully developed, rinsed, drained, and placed on a piece of black ebonite or on the bottom of a black ebonite dish and exposed to daylight until the high-lights assume a deep lilac colour. The prints should be fully exposed at this stage to daylight. Then, again, in the dark-room the print is placed in water and then immersed in the acid permanganate bath (Lumière formula).

Potass. permanganate	70 grs.	2 gms.
Sulphuric acid	6 $\frac{1}{2}$ drachms.	10 ccs.
Water	80 ozs.	1,000 ccs.

It is rinsed, placed in a bath of bisulphite and alum, in which the brownish image, formed of manganese peroxide, is bleached in two or three minutes. An excellent formula for this bath is that of M. Dillaye:—

Potash alum	$\frac{1}{4}$ oz.	10 gms.
Bisulphite solution ..	5 drachms.	25 ccs.
Water	25 ozs.	1,000 ccs.

Here, again, the acid diamidophenol, with alcohol added, gives an image well fixed in the thickness of the film, and at the same time hardens the gelatine surface. The print is absolutely free from veil (it is preferable to dilute the formula for ordinary bromide papers two or three times).

With acid diamidophenol, as with almost all developers, the temperature should be from 60deg. to 70deg. The developer loses its activity at a low temperature, shadows are not obtained of proper strength, negatives are flat, and positive prints lack vigour and strong blacks.

G. UNDERBERG.

A CAUTION TO THE BENEVOLENT.—About a month ago a man named Alfred Montagu Sims, called at the studio of Mr. Trotman, photographer, of New Road, Chippenham, and said he was a photographer in search of work. He begged Mr. Trotman to give him a job. Mr. Trotman found him clothes, provided him with lodgings and food, and arranged for him to have a bicycle to get about the country. The man worked very well, and was entrusted with the key of the studio, and did various photographic work. Mr. Trotman afterwards found that £8 10s. in gold and between £2 and £3 in silver had been taken away. Sims admitted he took the money, and on being searched at the police station he was found in possession of £1 12s. 10d., a bunch of keys, and a latch-key, the latter being the

property of Mr. Trotman. On the way to Chippenham accused stated that he did not steal £10, it was only £8. Supt. Moore took possession of the keys, and found that one of them fitted the lock of the drawer from which the money had been taken. Charged with the offence, the prisoner at first said he would reserve his defence, but altered his mind and said he wished to state that he had been "on the drink" and did not know what money he had taken, but he did not think it was so much as Mr. Trotman said he had lost.—Supt. Moore informed the magistrate that prisoner was well known at Bristol, and handed in a list of some thirteen previous convictions against him.—Prisoner was committed for trial at the next Quarter Sessions.

MIXTURES OF DYES AS SENSITISERS OF GELATINE PLATES.

II.

[The following is an abridged translation of a thesis by Guido Daur, presented for the degree of Doctor of Philosophy at the Münster University. The experimental work was done on the suggestion of Professor Miethe, to whose colleague, Dr. E. Stenger, the author of the paper, he tenders his thanks for much advice and assistance. The full text of the paper occupies a book of 105 pages, published by E. Grieser, Frankfort a/M.—Eds. "B.J."]

Mixtures of the Isocyanines.

Of the combinations of this class of dye, whether employed in baths or compounded with a proportion of each dye, that adopted was the one found to be the best when the dye was used alone.

7. *Pinaverdol-ethyl-red*.—Two plates were sensitised, one washed in running water for five minutes before drying, and the other for the same time in 96 per cent. alcohol, the further treatment of

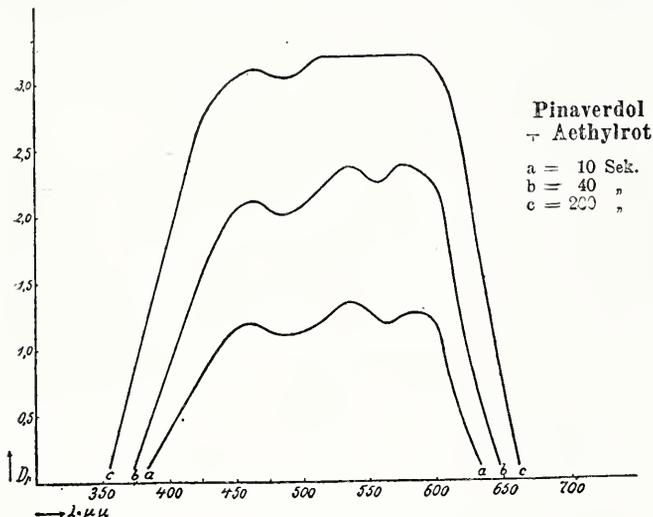


Fig. 7.

each being the same. The alcohol plate was the better, showed less fog, and more pronounced sensitising. As both dyes have their maxima at the same place—530 to 580—and both also show a very slight gap in the green, no pronounced increase of sensitiveness for the blue-green and yellow-green was to be expected. Fig. 7 shows the curves obtained for 10, 40, and 200 seconds exposure, the result not coming up to expectation. There is some increase of

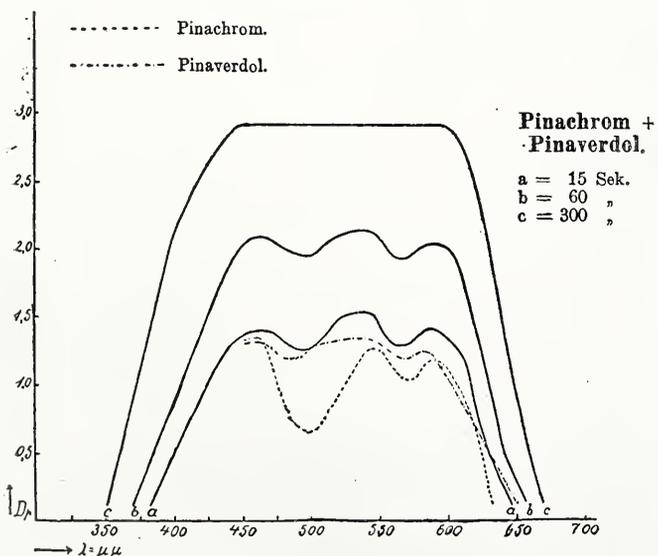


Fig. 8.

colour-sensitiveness over blue-sensitiveness, but the rise of the curve at 530 to 580 is slight. The maxima retain their positions, as does also the minimum between them at 560. At long exposure (see curve for 200 seconds) a spreading action has filled up the gaps at 560. The blue-green gap remains, corresponding to that of pinaverdol, the region of the total sensitiveness is about that obtained from, either constituent, reaching from 350 to 560.

8. *Pinaverdol-pinachrome*.—Two plates were again prepared. The one washed in water after sensitising was useless, whilst that bathed in alcohol showed good sensitiveness. Pinaverdol has its maxima at 530 and 580, and a minimum at 560, the maxima of pinachrome being at 560 and 590, hence the two dyes might be expected to supplement each other, and the pinaverdol to fill up the rather deep gap in the green of the pinachrome. Fig. 8 shows two curves of the constituents for the same blue-sensitiveness, the curve of the mixture is of the pinaverdol type. There are slight gaps in the green, and the two maxima at 540 and 590 have been shifted about 10 μμ towards the right. On shorter and medium exposures the green maximum 590 is prominent, meeting the yellow maximum on longer exposure. The gaps lying between the two at 565 become constantly smaller, disappearing at 200 seconds exposure. On greatly prolonged exposure uniform density is obtained from 450 to 600, the slight gaps at 500 and 565 disappearing completely.

9. *Ethyl-red and pinachrome*.—The curve for this mixture might be expected to resemble No. 8, since ethyl-red resembles pinaverdol in the position of its maxima at 530 and 580. The gap, however, at 500 is somewhat greater in the case of ethyl-red. A water-washed plate did not give quite so good or clear a result as that bathed in alcohol. The curves shown in fig. 9 are for 20, 30, 90, and 300

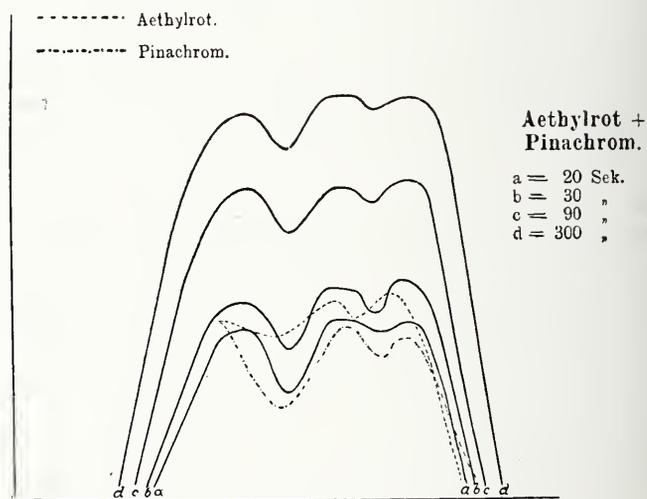


Fig. 9.

seconds exposure. There are also reproduced the curves of the two components for the same height in the blue. The height of the curve from 530 to 550 appears to be the result of fusion of the maxima of the two dyes; the same is the case as regards the second maximum at 580 to 600. There is an appreciable minimum at 500, a negligible one at 565. Whilst in the formula No. 8 the pinaverdol was most marked in its effect, the present curve more resembles pinachrome. The ratio of colour-sensitiveness to blue-sensitiveness is that of pinachrome, and the region of sensitiveness is also the same.

10. *Pinaverdol-isocol*.—The water-washed plate showed fog, whilst that treated in alcohol was completely clear and showed sensitising, commencing gradually at 400 and reaching a maximum at 540. The second maximum was at 590, the curve ending at 660 to 670. The colour-sensitiveness is thus distinctly depressed, a green gap being filled up. Both dyes have a minimum at 530. This is shifted 10 μμ, spreading over the second maximum. The third isocol maximum at 620 does not come up on short exposure, showing plainly at 670 on longer exposure. A plate was exposed on the Hübl colour chart. It reproduced yellow and green very well, over-powering the sensitiveness for blue and violet. A comparative experiment with a "Perchromo" plate showed that the pinaverdol-

isocol, as regards colour-sensitiveness (fig. 10) is only slightly inferior to the "Perchromo." It showed, on the other hand, distinctly

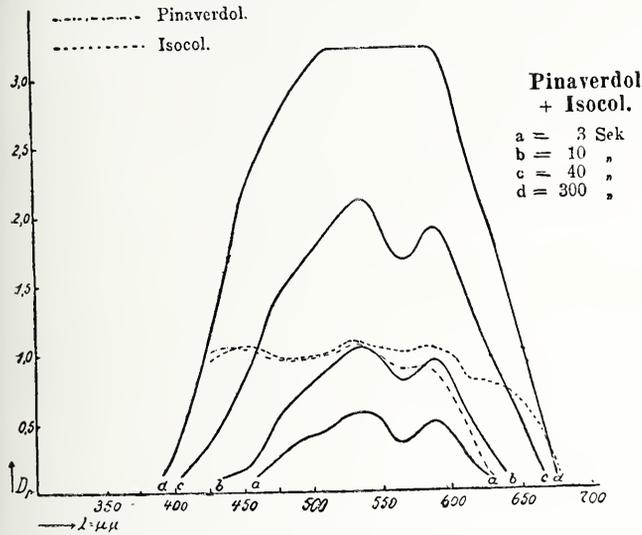


Fig. 10.

greater general sensitiveness. The dye mixture thus allows of a much lighter yellow screen and of shortened exposure (fig. 10).

11. *Ethyl-red-isocol*.—The curve of this mixture, as was to be

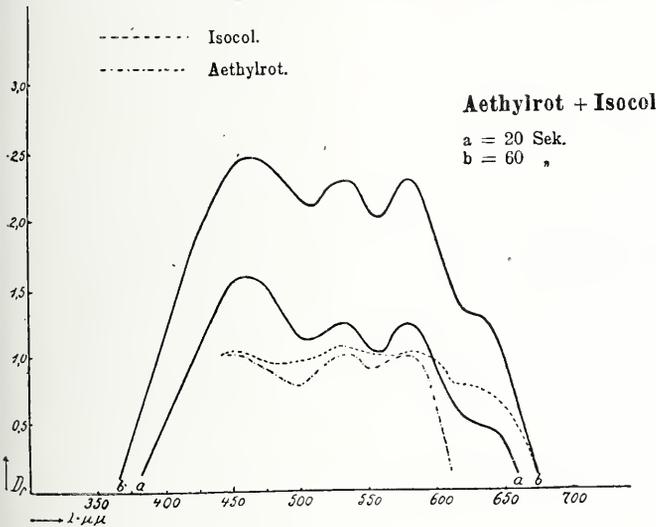


Fig. 11.

expected, is quite different from that of formula No. 10. The curves of the two dyes (fig. 11) show maxima at 530 and 580. The rather big gap in the green and the gaps at 560 belong to the ethyl-red

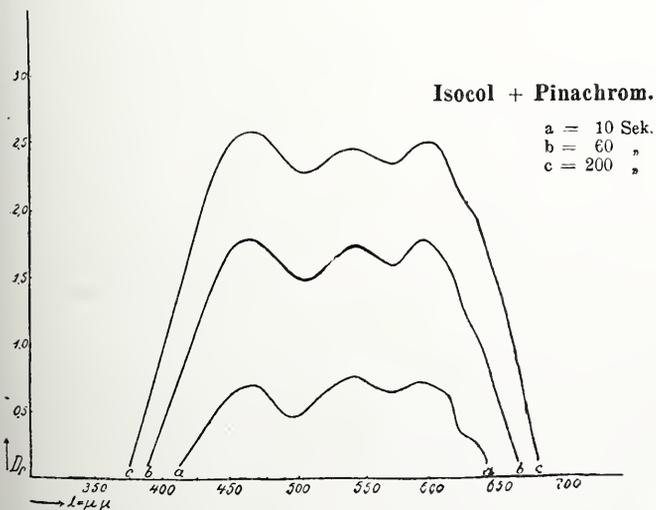


Fig. 12.

curve, the isocol having failed in filling up the gaps at 500 and 560. On the other hand, the third isocol maximum at 620 gave a curve extending further into the red, as shown by the region at

630 and 640. The blue-sensitiveness is seen to predominate both on longer and shorter exposure. The alcohol-washed plate is the better.

12. *Isocol-Pinachrome*.—As anticipated, the character of the curve given by this mixture was that of pinachrome. The influence of isocol is seen in the shifting of the pinachrome maximum 550 $\mu\mu$ towards the blue, and in the only moderate strength of the third isocol maximum at 620, which is shifted to 630. The maxima at 540 and 590 are about equal to the blue maximum, again as with pinachrome alone. The plate bathed in alcohol showed somewhat more fog than that in water, but the latter showed markings, so that the alcohol-washed plate was used for the measurements.

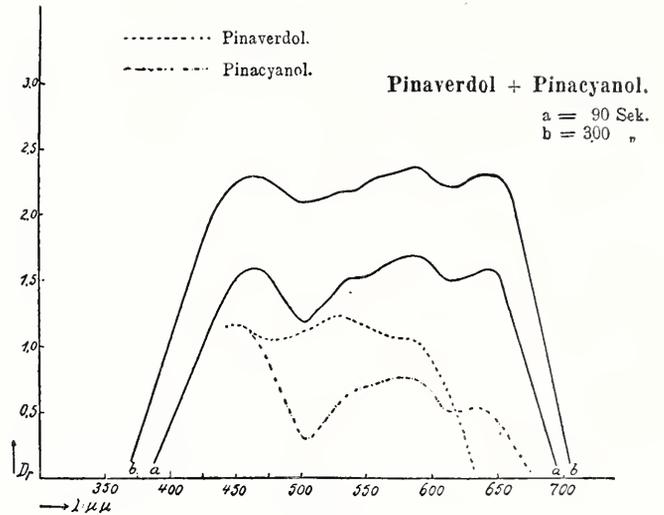


Fig. 13.

13. *Pinacyanol-pinaverdol*.—Fig. 13 gives the sensitiveness curves for 90 and 300 seconds, and indicates either slight general sensitiveness or considerable fog. In the present instance it is the rather strong fog which causes the lesser height of the curves. The general character is that of pinacyanol, the pinachrome has diminished the gap at 500 and its maximum occurs, though not prominently, at 530. The two pinacyanol maxima at 580 and 630 are shifted 10 $\mu\mu$ towards the right. The mixture thus gives a plate of much greater

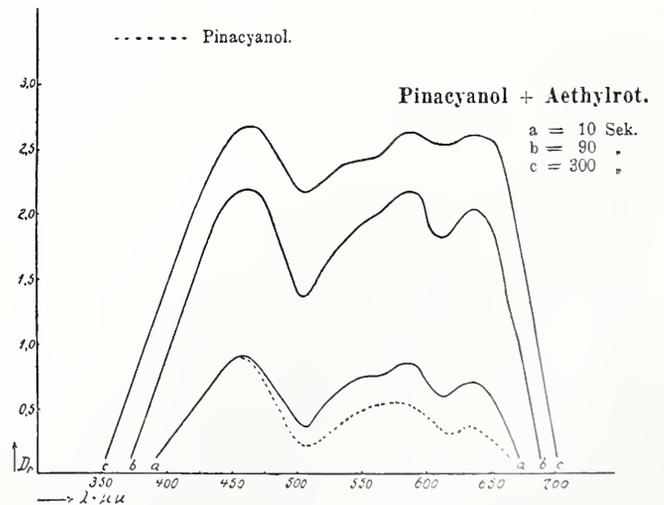


Fig. 14.

red-sensitiveness than pinacyanol alone, and one with the red-sensitiveness extending further. There is also an improvement in the ratio of colour-sensitiveness to blue sensitiveness, due probably in this case to a fogging action causing reduction of action in the blue part of the spectrum. Both plates, one washed in water and the other in alcohol, gave relatively good results; the measurements were made with the water-washed plate.

14. *Pinacyanol ethyl-red*.—The water-washed plate gave more fog than that treated with alcohol, which latter was fairly clear, and was used for the measurements. As ethyl-red shows a stronger gap in the green than pinaverdol, no special improvement in this respect was anticipated. The curves (fig. 14) have the pinacyanol character,

which is here more clearly shown than in formula No. 13. The ethyl-red maximum of 530 is shifted up 15 to 20 $\mu\mu$; that is, to 540 and 550. At the wave length of 580 $\mu\mu$ there is a notable increase in the sensitising, apparently produced by the conjunction of two maxima, one from each of the dyes, at this spot. The second pinacyanol maximum is improved and shifted a little towards the red; moreover, the ratio of colour-sensitiveness to blue-sensitiveness is better.

15. *Pinachrome-pinacyanol*.—The alcohol-bathed plate gave the curve shown in fig 15, having rather deep gaps at 500 $\mu\mu$. The first maximum at 560, obviously that of the pinachrome, shifted 10 $\mu\mu$

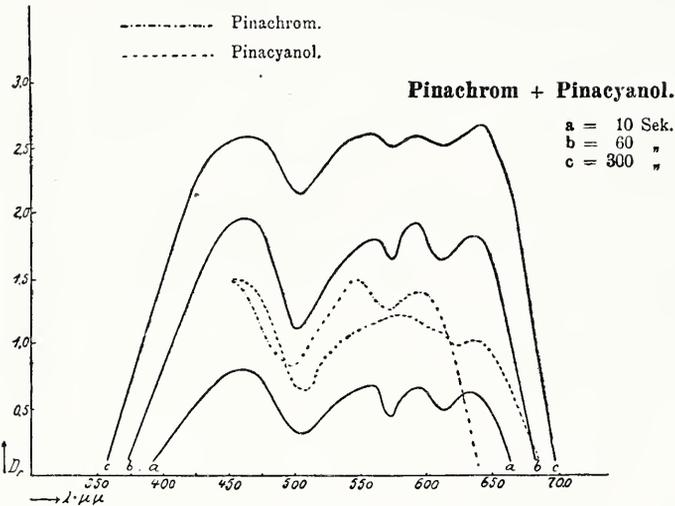


Fig. 15.

towards the red. The second maximum is at 590; this runs into the other, as it is probably the pinachrome maximum of 590 intensified by the pinacyanol maximum of 580. The third maximum at 630 is that of pinacyanol. The colour-sensitiveness is about equal to that of the blue-sensitiveness, and the region sensitised corresponds with that of pinacyanol.

16. *Isocol-pinacyanol*.—The curve (fig. 16) is of the pinacyanol type. The gap in the blue-green has become deeper and a little broader. The first pinacyanol maximum has shifted from 580 to 600, the second from 630 to 640. As in other combinations of pina

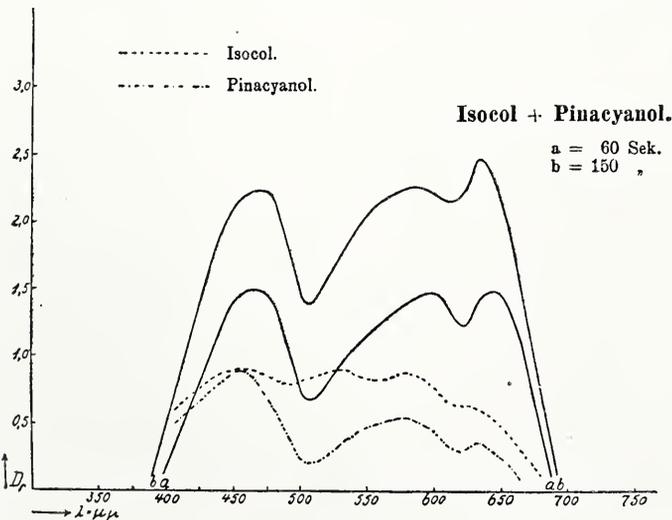


Fig. 16.

cyanol a maximum at 630 is seen. With short and medium exposures the maxima at 600 and 640 are about equal, but that at 640 becomes much more pronounced on longer exposure. This may be due to the influence of the isocol, which has a maximum at 630, otherwise there is not much evidence of the action of isocol, neither as regards bridging the gaps between blue and green, nor in giving its characteristic maximum at 530. The values of the colour maxima are smaller for short exposures than those of the blue, but rapidly increase and exceed the latter on longer exposures to a notable degree.

17. *Dicyanine-pinaverdol*.—The sensitising produced by this mixture is very similar to that of formula No. 16. In both the curve rises slowly to 400; there is no appreciable blue maximum, but a gradual rise of sensitiveness up to 540. There is a slight gap between the maxima at 590, from which point the curves gradually drop. The dicyanine maximum is at 610, causing a small hillock in the curve at 630. There is also a dicyanine maximum at 685, as the result of a shift of 15 $\mu\mu$ towards the blue. The two dyes thus supplement each other excellently, the big gap of the dicyanine with its deepest point at 510 has been completely filled up by the pinaverdol, whilst the latter's maximum at 530 improves the curve.

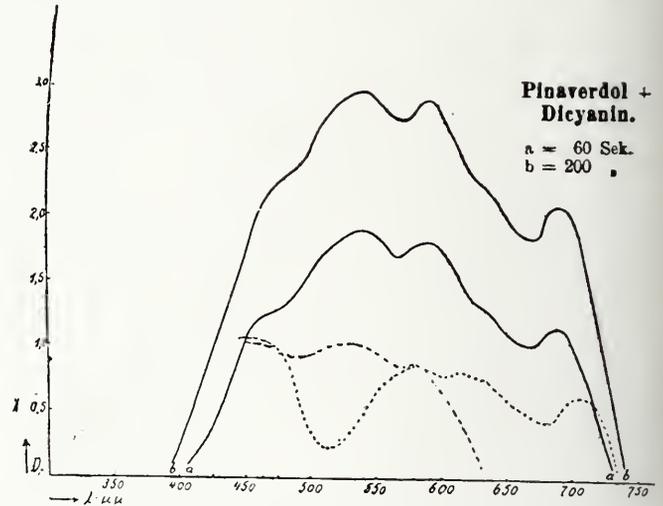


Fig. 17.

Its action at this latter point is better than that of the maximum at 580. The dicyanine maximum at 610 does not show appreciably, though its maximum in the red is strongly developed. No use could be made of the water-washed plate which gave heavy fog, that treated with alcohol gave a very clear negative.

18. *Ethyl-red-dicyanine*.—As shown in fig. 18, the ethyl-red maximum of 530 falls in the dicyanine gap in the blue-green at 540—both dyes have a maximum at 580. The next dicyanine maximum of 620 is prominent at 640, whilst the dye also shows up at 700, the maximum, as in formula No. 17, being shifted about 20 $\mu\mu$

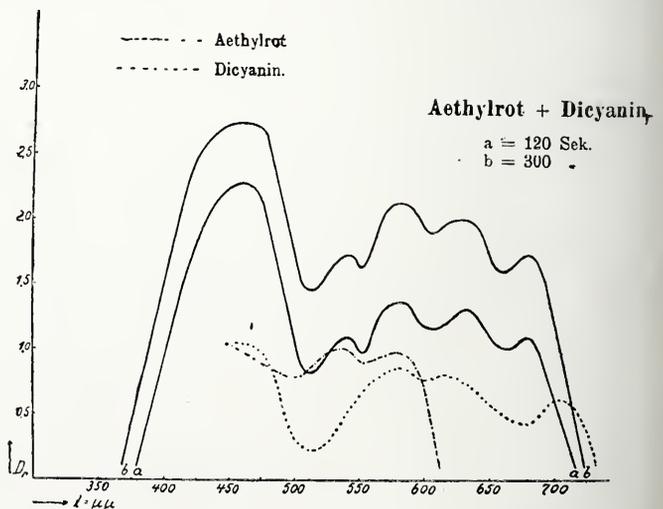


Fig. 18.

towards the blue. The colour-sensitiveness does not come up to the blue-sensitiveness, though the ratio is better with increasing exposure. The water-washed plate was of no use, being marked with fog and mottling over its whole surface, and measurements were made with the alcohol-washed plate.

19. *Pinachrome-dicyanine*.—The first part of the curve (fig. 19) is that of pinachrome with maxima at 550 and 590; only the deepest part of the minimum has been put back from 500 to 510. The dicyanine shows at 600, its maximum at 610 is clearly noticeable at 630, and on longer exposures it is shifted somewhat further

towards the red, and gives slight rise to the curve. The last dicyanine maximum at 700 imparts a strong rise to the curve at 680. The shift of the last dicyanine maximum towards blue to the extent of 20 μ is the characteristic feature of the mixture.

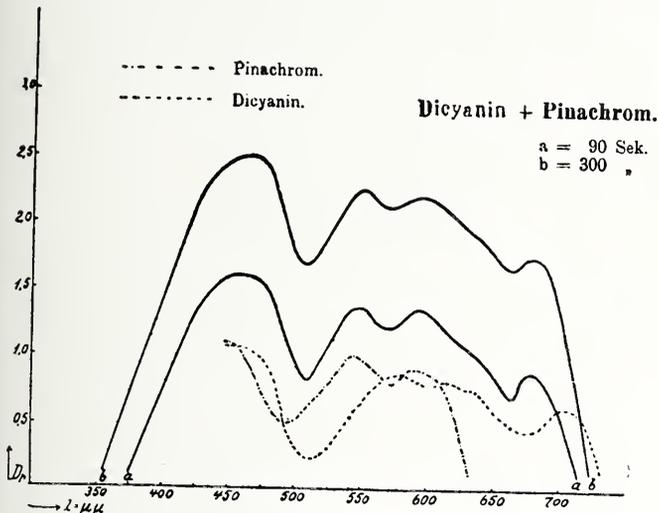


Fig. 19.

The colour-sensitiveness is inferior to the blue-sensitiveness. Like all the other dyacinine mixtures examined, only the alcohol plate was of any use.

G. DAUR.

(To be continued.)

THE ARCHITECTURAL AND TOPOGRAPHICAL SOCIETY.

THE honorary general secretary of the Society, Mr. W. Travers, 33, Old Queen Street, Westminster, S.W., has issued an appeal for help in a work which has been described as one of National interest, namely, that of making complete historical records of the ancient buildings of these islands, from the introduction of civilization to the year 1800, and the need for such a work has been admitted on all sides, and ought to have been undertaken long ago, for it is now almost impossible, after a century or more of destructive so-called "restoration," to obtain exact information as to the previous condition of much of our historic architecture.

Although the society is unable to act in any manner directly calculated to prevent such destruction, yet, by recording precisely, and in detail, the present state and the nature of the buildings and the monuments, it is able to some extent to counteract the effects of such vandalism, and owing to the accessibility of its publications to all, there is a potential educational value in their work.

The expenses of printing and publishing records of buildings, with sufficient illustrations fully to explain the text, must be practically the same whether the circulation be 200 or 1,000; therefore, the ratio of revenue to expenses must, until the subscription list approaches the latter figure, be too low to make the society self-supporting.

On these grounds alone the society lays additional stress on the following points, *i.e.* :—

- (1) Since the foundation of the society, rather more than twelve months ago, complete accounts of the buildings in seventeen parishes have been published.
- (2) The value of the work has been endorsed by the fact that many of the leading societies interested in this subject are now subscribing.
- (3) There are at present some twenty parishes partly completed, in addition to those already published, and several more are definitely promised. The fact that the society can obtain work of this nature entirely gratuitously shows how greatly the need for such records is felt by those who have expert knowledge of the subject.
- (4) The recent appointment of Royal Commissions to make an inventory of the ancient monuments of England, Scotland, and Wales shows that the State appreciates the need for such work; and by its terms of reference, the commission is only intended to make inventory, and does not in any way cover the ground of this society's labours.
- (5) The other part of the society's work, which includes the collection of carefully made re-

cord drawings, notes and photographs, etc., is progressing, and a considerable number of such records are now either promised, or are already in our possession. (6) All the work done for the society is purely honorary—therefore its funds are expended entirely on the work, and not in any way upon the workers. (7) A large sum of money is subscribed annually towards the furtherance of similar work in the ancient world of Egypt and Rome, and it would be unworthy of our National traditions should researches into the history of our country fail for want of funds.

The minimum sum of £500 is required to ensure the effective continuation of the work of the society until such time as the annual subscription list shall be equal to the necessary disbursements; a further contribution would enable the rate of progress to be made more consonant with the amount of the work to be done.

In conclusion an appeal is made to all who take an interest in the history of their country to help the work in some degree. All communications should be addressed to the offices of the Society at 33, Old Queen Street, Westminster, S.W. Donations will be treated as subscriptions to the society, and donors of half a guinea or more will receive the Record for the current year, whilst those of seven guineas and upwards will be entered on the Society's list of Life Members.

The appeal is signed by Lord Plymouth, Lord Avebury, Sir Aston Webb, R.A., and Messrs. Francis Bond, J. A. Gotch, Emslie J. Horniman, M.P., Thos. G. Jackson, R.A., Mervyn Macartney, and Edward S. Prior.

Photo-Mechanical Notes.

New Transparent Drawing Surfaces.

Two patents have recently been claimed, one by Emile Laporte, of Fribourg, for rendering sheets of celluloid available as a drawing surface by graining one side by various mechanical means; the other by Ozias Dodge, of Norwich, Connecticut, for rendering sheets of gelatine available in the same way, the graining in this case being done by allowing the gelatine to set on grained glass and afterwards stripping, exactly the same principle as is adopted when matt surfacing a glossy P.O.P. or glossy bromide print.

The sheets can be used in every respect as a drawing paper—some of the gelatine sheets being, in fact, made up as sketch-books—and are of especial advantage when the drawing has to be traced.

The applications of these materials in photo-mechanical work are chiefly in avoiding the use of the camera when reproductions of the sketch can be made the same size. Thus, many of the big cartoons of the New York daily newspapers are drawn on this grained gelatine sheet. The artists find it an agreeable surface to work upon, and it is susceptible of alteration by scraping or rubbing out with bread or india-rubber, exactly as paper would be. After the drawing is made, the sheet is flowed with collodion, which renders the surface perfectly transparent, then a negative is made on a dry plate, or on a film, developed and printed on to metal just as a negative would be if made in the camera. Or, of course, the Vandyke process may be used, and the print made at once from the drawing on to the zinc plate, reversed and then etched. The sheets are also recommended for making intaglio plates by the enameline process, which, on printing after etching, give results very similar to "soft ground" etchings. Mr. Dodge also has another patent for making printing surfaces by electrotyping, using a common fish-glue method of getting the image on to the copper plate and then depositing. The application of the sheets in other directions are very numerous. Thus, in lithography the gelatine can be used instead of grained transfer paper, and in ordinary photography retouching can be done on a grained sheet attached to the negative instead of with varnish, or papier mineral.

Health Conditions in Engraving Shops.

The International Photo-engravers' Union of America has paid much attention to the sanitary and other conditions in the work-shops with regard to the safeguarding of the health of the men at work in them, and has recently issued a report embodying the result of their enquiries, and making recommendations. From this

it would appear that the American workman is in general far more favourably situated than are workmen here, as many shops appear to be fitted with all the conveniences the Union think necessary, such as sufficient accommodation for outdoor clothing, ventilation, lavatories, enclosed closets for dragon's blood powder with fans to draw off the dust, acid baths placed in fume cupboards, with proper exhaust for the fumes, and so on. With regard to nitric acid, the report lays great stress on the necessity of having at hand some means of quenching the fumes in case of spilling. They recommend that bicarbonate of soda should be placed handy and labelled as to its purpose, and that a warning should be added against the throwing on of sawdust, which ignorance sometimes dictates. We have found ordinary whitening more effective than soda for this purpose; certainly some such safeguard should be found in every etching room.

Mercury Vapour Lamps.

We referred recently to the fact that one leading house in England had adopted these lamps for their black and white work. We are now informed that six of the principal New York establishments use mercury vapour exclusively for their black and white photography, and for printing on to metal as well.

A Dictionary of Printing and Process Terms.

"Handlexikon für die Papier Industrie und das Buch Gewerbe" (published by Gustav Schacht, Leipzig).—The first part of this encyclopædic dictionary of the printing and photographic industries is just published, and if it maintains during the 75 parts which will complete the work the high standard shown by the first, it will be a truly invaluable publication. There is a full description in German of the meaning of all the technical terms encountered; the term itself is also translated into four languages—namely, English, French, Italian, and Swedish. There are also numerous illustrations in the text and several supplements affording examples of the matters described. The price is M1.25 per part, or to subscribers who take the whole 75, M1 each.

A Text-Book of Colour.

"The Colorist." By J. S. H. Hatt. Published by E. and F. N. Spon.—This is an American book, in the preface of which the author states it is his object to give precise data whereby a colour scheme may be analysed and beauty in colour appreciated and produced. He claims that the book contains, for the first time in colour literature, either scientific or artistic, a complete unity between science and practice, as well as a consistent law for colour harmony and beauty in colour, which the author confidently believes will stand the test of time and the fullest investigation. Though the book may be of great service to some artists and colour printers, we are afraid we cannot quite concede all that the author claims. In endeavouring to make the theory simple he is often a little misleading, and in trying to explain all the phenomena of colour his theory is sometimes at fault. The book is illustrated by two colour charts, and is full of useful practical hints regarding colour for the artist and designer, who, after a careful reading of it, will certainly no longer regard yellow, red, and blue as the three "primaries."

The Dust Problem.

We have frequently referred to the troubles caused by dust in the photo-engraver's establishment, particularly in the studio, and other industries, of course, suffer from this cause. A note in the "British and Colonial Printer and Stationer" calls attention to preparations containing oil which are sold to be used when sweeping the floor. Where the commercial preparation cannot be obtained one can be made by taking sawdust and adding one-fifth of the quantity of common barrel salt and sufficient oil to give the sawdust adhesiveness. Any oil may be used, even used-up lubricating oil, taken out of oil drips. Care must be taken not to use too much oil, and it must be given time to thoroughly soak into the mixture. When sweeping, a small quantity is thrown on to the floor and swept over the surface of the room. It is claimed that it will attach to itself the dust much better than tea-leaves or wetted sawdust.

Pyroxline.

When making one's own collodion it is often found that the pyroxline when purchased is not quite free from impurities, which cause trouble when the collodion is made up. In general these may be removed by a simple washing with ordinary water, followed by a rinse in clean distilled water. The cotton is then squeezed in

a clean cloth and allowed to dry, when it is ready for dissolution in the ether and alcohol. If a sample even after this treatment does not behave quite as desired, it is advisable to dissolve it in a small quantity of methylated spirit (new industrial) and ether, and then to pour the collodion in a thin stream into a vessel of distilled water. This will precipitate the cotton, and after stirring well with a glass rod in several changes of distilled water it can be collected and dried, and will then be found in almost every case to be thoroughly satisfactory.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following patents have been applied for between July 12 and 17:—

SCREEN PLATES.—No. 16,513. Improvements in photographic screen-plates for natural-colour photography. Henry William Hamblin Palmer, 52, Stephen's Road, Tunbridge Wells.

CAMERA.—No. 16,398. Automatic hand camera. James Edgar Gould, Elswick, Newcastle-on-Tyne.

CINEMATOGRAPH.—No. 16,441. Improved cinematograph apparatus for the continuous exposure and projection of photographic plates. Rene Achille Robin, 7, Southampton Buildings, London.

GRAPHIC IMPRESSIONS.—No. 16,636. Improvements in and relating to the production of inimitable graphic impressions. Rosi Lamp'l (née Müller) and Paul Julius Lamp'l, 7, Southampton Buildings, London.

DEVELOPING APPARATUS.—No. 16,725. Improved appliance for developing multi-picture photographic films. William Kennedy-Laurie Dickson, 33, Cannon Street, London.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

DEVELOPING TANK.—No. 14,024, 1908 (July 2, 1908). The claim is for a developing tank fitted with a thermometer by which the temperature of the solution in the tank can be read outside the tank.

The tank A is made with a vertical recess or groove *a*, into which the stem or tube *b* of a thermometer is placed, the bulb *b*¹ being inserted in the interior of the tank through a sealed hole *a*¹ near to the bottom thereof and the upper end of the stem into a hole

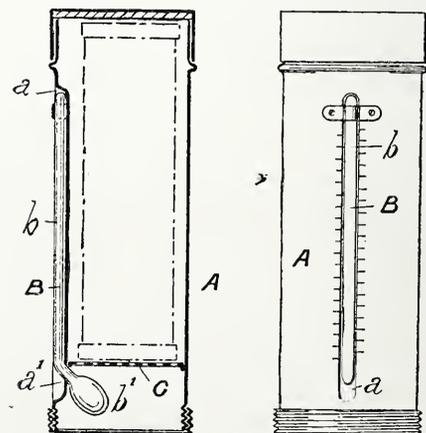


Fig. 1.

Fig. 2.

near the top of the tank. The stem *b* of the thermometer is bent to place the bulb *b*¹ inside the tank and a perforated grid or false bottom *C* is fitted in the interior of the tank to protect the bulb of the thermometer. The gradations or scale of the thermometer

may be inscribed on the stem or on the wall of the developing tank as preferred.

In another form the photographic developing tank is made with a vertical recess or groove with holes at both bottom and top thereof, through which a straight thermometer is inserted, the recess being of such a length that the bulb of the thermometer and the upper end of the stem remain within the interior of the tank. The holes are sealed after the thermometer is inserted. J. O. O'Brien for John Edward Thornton, Philadelphia, U.S.A.

SUN-COPYING PRINTING-FRAME.—No. 773, 1909 (July 1, 1909). The invention consists of a frame for printing from large tracings or drawings. The frame consists of a flat spring board or sheet, over which the original and printing papers are arranged. These latter are gripped together by special devices, and the apparatus also contains parts which serve as feet and legs when in use.

The frame comprises a flat bendable sheet *a* of any suitable material, such as three-ply board, and two end clips, each comprising a longitudinally grooved strip of wood *b* and a lever or arm *c*. The

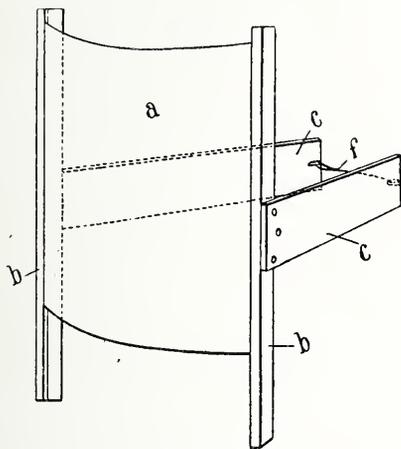


Fig. 1.

groove *d* in the strip *b* may be either parallel or tapered, that shown being parallel, but in the latter case it could then equally well be employed with papers of varying thicknesses.

To further improve the pressing of the sensitised paper against the tracing, a sheet of felt is fixed on the right side of the flexible board; the felt may or may not be turned over the edges of the board. If the latter, then the grooves must be made wider and deeper, to counteract the added give or liability to compression of the felt.

The sheets of material *e* are first folded over the edges of the board along two of their sides, and the clips *b* are then pressed over the edges of the sheet or board whilst it is quite flat. When the two clips *b* have been placed in position the levers *c* can be drawn together and secured—*e.g.*, by the cord *f* that is attached to one lever and engages at its free end a hook *g* on the other lever. The act of bringing the two outer ends of the levers *c* together not only

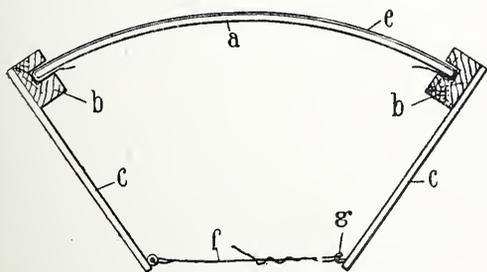


Fig. 2.

serves to give the required curvature to the board or sheet *a* to tighten the paper, but at the same time even if the groove is somewhat loose over the edges of the paper when the board is flat it will become tight before the board is bent and increase its grip correspondingly to the distortion of the board.

The boards may of course be made to any size, but they would in practice preferably be rectangular so as to be capable of being used for several sizes of paper, for instance large sheets could be

attached to its two ends, whilst small sheets would be arranged crosswise thereof from side to side, and in this case the board would be bent longitudinally instead of as shown. In order that this latter arrangement may be rendered possible the two clamping strips *b* are made of a greater length than the board, and, as in Fig. 1 conveniently serve as supports in conjunction with the two levers *c*. Robert Alwyn A. S. Piercy, Far Ben, Sérubwood, Wendenover, Bucks.

PLATE OR FILM PACK.—No. 13,999, 1908 (July 2, 1907).—The invention consists of a package for plates or films with light-proof interposition sheets, characterised by the fact that the plates or films and light-proof interposition sheets are alternately and separately so arranged in a case that the light-proof sheets project from the case at one end through a light-tight slot. The package illustrated in Figs. 1 and 2 is inserted into the case or frame illus-

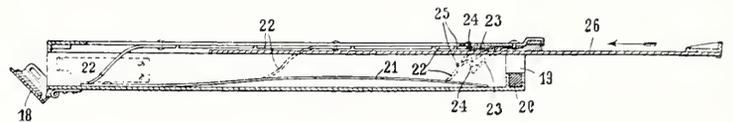


Fig. 1.

trated in Fig. 3 when it is desired to expose the plates contained in the package. In order to insert the package into the frame, the door 14 is opened by pressing on the lateral springs 15, and the package is inserted into the opening exposed by the door 14. The door 14 is then reclosed. The package and frame are then inserted into an outer box, Fig. 4. Before the insertion of the frame and package into the exposing-box the slide must be pushed in. After

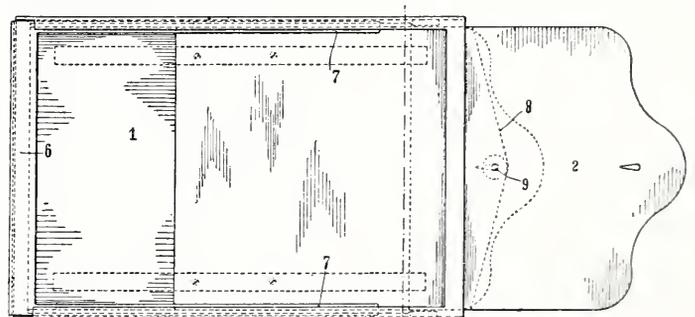


Fig. 2.

insertion of the frame with the package into the exposing-box the door is again closed. The dark slide may now be withdrawn. In order to expose the uppermost plate the sheet 2 covering same is disengaged from the stud 9 and drawn out. After exposure the package is drawn out, by means of the holder 8, through the opening 19 of the box. The closing member 6 of the package is

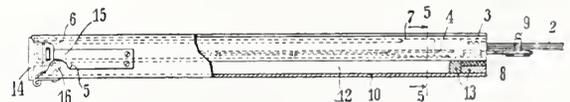


Fig. 3.

retained by the catch 16, so that the package is opened. The jaws 24 of the member 23 engage the front edge of the exposed layer-carrier. As the package is withdrawn through opening 19, the springs 22 press the exposed plate towards the bottom 10 of the box. The package is drawn out till the stop 5 engages the ledge 13 of the carrying frame. When the package has reached this position the exposed plate is so far removed from the package



Fig. 4.

that its front edge can be pressed by member 25 and springs 25 against the bottom 10 of the carrying frame. If hereafter the package is again pushed into the box, the exposed plate remains in the chamber 12 below the package. The changing operation may be repeated as many times as there are plates in the package.

When all plates have been exposed the frame with the package may be removed from the box by daylight. The plates may then be removed from the change-box in a dark-room. Optische Anstalt C. P. Goerz, Aktiengesellschaft, 44/46, Rheinstrasse, Friedenau, Berlin, Germany.

CINEMATOGRAPH MECHANISM.—No. 9,876, 1909 (April 26, 1909). The invention consists of a spool-box provided with a hinged spring-controlled door for closing the mouth or opening of the box, and trigger mechanism controlled by the operator for retaining and releasing the door. Frank Porter and the British Bioscope Manufacturing Company, Limited, 11, Long Acre, London, W.C.

CINEMATOGRAPH MECHANISM.—No. 8,548, 1909 (April 8, 1909). The invention consists of apparatus (for imparting intermittent feed movements to cinematographic films) having a pair of arms provided with claws for engaging the film, and for intermittently feeding it and operated by a crank on a shaft, the combination of a bell-crank lever, operated by a cam on the same shaft, and connected with the arms so as to give the engaging and disengaging movements. Charles Urban, 89, Wardour Street, London, W.

CINEMATOGRAPH MECHANISM.—No. 8,338, 1909 (April 6, 1909). The claim is for a film steadier for moving picture machines having a swinging carrier provided with a friction roller and capable of being swung with roller towards and away from the guide roller of the machine: also for means for retaining the friction roller in position co-operating with the guide roller. John Louis Hammond and John William Patton, Macon, Missouri, U.S.A.

CINEMATOGRAPH-PHONOGRAPH.—No. 7,426, 1909 (March 27, 1909). The invention consists of means for synchronising the action of a cinematograph and a talking machine, comprising a differential gear of known type which is connected to both machines and has an indicator for the purpose set forth. Both the cinematograph and the talking machine are in direct proximity to the differential gear, and not only the cinematograph but also the talking machine are connected to the differential gear by flexible shafting. Jules Greenbaum, 236, Friedrichstrasse, Berlin.

CINEMATOGRAPH MECHANISM.—No. 27,256, 1908 (December 15, 1908). The first claim is for apparatus having a pair of film-roll supporting members, and mechanism for unwinding a film-roll from one of the members in one direction, and for winding the film into a coil upon the other member in the same direction. Charles Randolph Uebelmesser, 102, Beekman Street, New York, U.S.A.

CINEMATOGRAPH-PHONOGRAPH.—No. 15,140, 1908 (July 17, 1908). The invention consists of improved means for driving cinematographs and gramophones in synchronism, comprising a motor generator the motor part of which drives the cinematograph while the generator part generates alternating current which drives a synchronously wound motor geared to the gramophone, or vice versa. Albert Lewis Davis, St. Saviour's Parsonage, 419, Oxford Street, London, W.

NEW PRESTON SOCIETY.—At a meeting held recently at 137, Friargate, Preston, to discuss the advisability of forming a photographic society to be devoted to pictorial photography, it was decided, by the unanimous vote of those present, to form a society to be called "The Preston Pictorial Photographic Society." The society already comprises nearly all the leading pictorialists in the district, and from these the following officials were elected:—President, Mr. G. A. Booth; vice-president, Mr. W. Phillips; hon. secretary, Mr. A. W. Cooper; hon. treasurer, Mrs. L. Ainslie Cox; hon. auditor, Mr. W. A. Beardwood; committee, Miss Marsden, Mr. D. Adams, and Mr. H. Ainslie Cox. Until suitable rooms are found the meetings will be held every Friday evening at 137, Friargate. The membership roll is to be limited to 25, and already this number has nearly been reached. Intending members have to be proposed and seconded by existing members of the society, upon which a ballot is taken. An entrance fee of 5s. is also required, the annual subscription being 7s. 6d. It is intended to join the Lancashire and Cheshire Photographic Union, and a folio work is being completed for the winter season. A case of photographs will also probably be sent to the annual exhibition of the Royal Photographic Society. The society intends to keep in touch with everything relating to pictorial photography, and demonstrations will frequently be given of all the latest processes in this branch of work.

Analecta.

Extracts from our weekly and monthly contentporaries.

Shop Window Reflections.

A task which the amateur photographer sometimes wishes to attempt (writes Mr. Cyril Yoft in "Photography and Focus" for July 27) is the photography of a shop window; and, as sure as ever he tries to do this, he finds himself in trouble with the reflections in the glass, and wonders how they are to be avoided. There is very little that can be done beyond the selection of the best standpoint and of the most favourable time for the work. The standpoint is governed by the nature of the things reflected. We have to remember that "the angle of reflection is equal to the angle of incidence," and, remembering this, it is not difficult to find the place where the reflections will give least trouble. If it is the sky that is reflected, it can generally be dodged by selecting as high a standpoint as possible, lowering the front of the camera if necessary. If there is some very bright object to one side of the window we can get rid of it by taking the photograph from that side. The most favourable time is, of course, when the sun is shining on the shop window, but not so as itself to be reflected into the lens, and the objects opposite the window are in the shade. A single bright object may sometimes be covered up for the time of photographing.

A Simplified Method of Working Bromoil.

Mr. J. M. Sellors, in the course of an article describing a more rapid bromoil process, in "The Amateur Photographer and Photographic News" for July 27 says: The bromide paper is exposed in the usual way, soaked for a few seconds in plain water, and developed with amidol. After vigorous washing with a spray for one minute to clear out the developer, it is placed in the bromoil bleaching bath, which is heated to a temperature of between 80 deg. and 90 deg. Fahr. The bleaching usually takes from two to three minutes. After bleaching, the paper is again washed under the spray for one minute and transferred to the 5 per cent. sulphuric acid bath, in which it remains for from three to ten minutes. After another minute's wash under the spray, it is put into an ordinary acid fixing bath, made up with hypo, sodium sulphite, and sulphuric acid, and allowed five minutes for fixing. The paper is then well washed for ten minutes, first with a spray and afterwards in a circular washer, and at the end of that time is ready and fit for pigmenting.

It will thus be seen that the entire operation only takes from twenty-six to thirty-four minutes. Compare this with the old method—say, three minutes' development, ten minutes' fixing, thirty minutes' washing, and thirty minutes at least for bleaching, etc. total about one hour and a quarter. This does not take into consideration the fact that it is usually recommended to dry the print before bleaching, which involves a further very considerable delay.

Separating a "Stuck" Print from a Negative.

Writing on this subject in the August issue of "The Photographer Monthly," Mr. Fred G. Palmer gives the following advice:—"To remove the damage the following will be found simple and expeditious. Tear away all the paper which has not adhered to the film, and then place the whole in a bath made up of—

Hypo	1 oz.
Citric acid	10 grs.
Water	4 ozs.

Leave it in this for twenty minutes. It will remove the unchanged silver. Then wash thoroughly to free the negative from hypo, and soak in methylated spirit for about twenty minutes. Cover the front of the negative with a duster and gently rub at the paper. As it begins to get dry, moisten again with spirit and keep doing this until all the paper has been removed. If it should happen that there is still a stain left on the negative, immerse it once more in the hypo bath and apply a drop of dilute ferricyanide solution with a camel's hair brush to the affected part. Then wash as before.

This method is a little troublesome, but in the case of a valuable negative that cannot be replaced without a great deal of trouble.

expense it is worth trying. The best preventive for "sticking" paper is, of course, to have both negatives and P.O.P. bone dry, then such an accident is impossible; but it is always easy to be wise after the event.

New Materials, &c.

Paget "Phosphate" Paper. Made by the Paget Prize Plate Company, Ltd., Watford, Herts.

Those who have watched the trend of events in the manufacture and use of photographic printing papers, particularly by amateur photographers, have recognised that within the last year or two the two types of paper which have gained favour with the amateur worker have been the self-toning P.O.P. and the gaslight or development paper. Between these two varieties of printing paper—one pre-eminently suited for a vigorous black-toned print and the other yielding with the greatest ease brown and sepia prints—the ordinary P.O.P. which requires to be toned either by the separate method or in the combined bath has lost a certain degree of favour. As regards manipulation, perhaps the gaslight paper, on account of being available for use without daylight, has rapidly attained a large amount of patronage, although it requires a somewhat greater degree of skill in its use than a daylight self-toning paper, and, moreover, many brands of it do not readily yield warm tones by modification of the developer, although among this category cannot be included the "Gravura" paper made by the Paget Company, which is specially adapted for securing a wide range of colours. However, it would seem that a type of paper which may be printed by artificial light, and at the same time yields with the greatest ease prints both of warm and cold tone, is one which the amateur worker in particular will welcome, especially when these qualities are associated with certain other features which reduce to an almost infinitesimal fraction the proportion of spoilt prints. The new printing paper, just introduced by the Paget Company under the name of "Phosphate" (presumably in reference to the sensitive salt of silver used in it), embodies these desiderata in a remarkably perfect form. In sensitiveness it is a gaslight paper, and it resembles so a gaslight paper as regards the contrast which may be obtained in the prints. But as regards the effect of incorrect exposure, it is totally distinct from a gaslight paper, the time for which must be carefully given if a good print is to be obtained. With the "Phosphate" paper, on the other hand, exposure may be six or more times that which will give a good print, and yet the result is quite satisfactory, the only difference being that the print is warmer in colour and somewhat softer in contrast, but not excessively so. In addition to this, the nature of the emulsion allows of very rapid development and of a much shorter time of final washing.

In enumerating these points we have given the salient features of the paper, a number of excellent results on which we have had the opportunity of making within the past few days. The simplicity of manipulation and the rapidity with which a number of prints are finished off will be understood on our briefly stating the procedure necessary. The paper is exposed behind a negative either to daylight for a few seconds, to incandescent gas for about a minute, or to one to two inches of magnesium ribbon burned at 12 inches from the printing frame. A developer consisting of a weak solution of metol made fairly acid with acetic acid is poured over the print as it comes from the frame, and the image builds itself up gradually, retaining full vigour in from one to three minutes. The print is given a brief rinse, fixed for half to one minute in a weak acid hypo fixing-bath, and placed to wash for a time, which need not be longer than half an hour, and may possibly be much shorter.

The range of tones is governed by the exposure, and the degree of exposure is seen roughly by the readiness with which the print develops. With the minimum exposure which can be given an almost blue-black print is obtained, closely resembling that obtained with metol-hydroquinone on a gaslight paper. If exposure is cut down below the time necessary for this result the effect is to fog the print in the course of the protracted development necessary to bring out the image. As a further degree of exposure is given, the tones are obtained first resembling those obtained on P.O.P. by

gold-toning and then of a warmer brown or sepia. It will be noticed that as a fuller exposure is given the contrast of the print obtained is less, but if full vigour is required in a warm-toned print all that is necessary is to use the developer at a lesser degree of dilution. In a word, short exposure with normal weak developer gives cold and purplish tones and full contrast: full exposure and normal weak developer gives soft prints and warm colour, and full exposure with stronger developer gives warm prints of full contrast. It is thus seen that the process allows of the worker readily adjusting his conditions to the character of his negatives. Even if he neglects the simple means which are thus afforded, it is nevertheless not an easy matter for him to make a useless exposure. He may be a good deal out, but he will still obtain a passable print. The developer recommended for normal work is made from the following stock solution:—

Metol	¼ oz.
Acetic acid B.P.	3 ozs.
Water to make	20 ozs.

For use with ordinary negatives 1oz. of this stock solution is diluted with water to 20ozs. For extra contrast the 1oz. is diluted only to 10ozs., or even to 5ozs. The acid fixing-bath is made by adding ¼oz. of metabisulphite of soda to a solution of hypo 3oz. in 20ozs. of water.

It should be added that any prints over-developed readily reduce in a weak Farmer's reducer, whilst any which may be finally obtained of too warm a tone are easily converted to a colder colour by five or ten minutes' immersion in an ordinary combined toning and fixing bath. The colour of the prints undergoes no alteration in fixing. On drying the warm tones cool somewhat, a print which looks yellowish whilst wet drying to a very pleasing brown. Perhaps the only two points on which a caution is needed in the ears of the amateur worker are first to throw away the developer after it has been used twice (1oz. suffices for two quarter-plate prints), and, secondly, to observe strict cleanliness in the dishes. Our own practice is to use a glass dish for development, to pour off the developer from the print, and, without touching the latter, give it a rinse under the tap as it lies in the dish, then removing it by one corner to the hypo bath.

The paper is made in both matt and glossy varieties, and is put up at a price based on twenty-two quarter-plate pieces per shilling packet. Tubes of two sheets, 24½ by 17, are sold at 2s. 4d., whilst postcards of the standard 5½ by 3½ size, are issued in packets of fourteen, complete with two masks, for 1s.

The attractiveness of the process, even to advanced workers who are apt to regard printing from negatives as an irksome task, should bring many inquiries for the paper at the dealers, whilst professional photographers, those in particular working for the Press, should not underrate the value of the paper in affording them the means of turning out prints indistinguishable from P.O.P. without the need of daylight, and within a few minutes. Space does not allow us to deal at length with the considerations concerned with the permanency of the prints, but the chemical nature of the process affords every assurance that the prints are fully permanent, as permanent as the gelatine which carries the image.

The M.C.C. "Lightning" Fixing Solution. Sold by the Midland Camera Co., Slaney Street, Birmingham.

This fixing solution is supplied in 5 oz. bottles at the price of 9d., being diluted with four times its bulk of water for use with plates and with ten times the bulk when fixing papers. In making a test of its rapidity of action we compared it with a bath of ordinary hypo containing 4 ozs. to the pint. The "Lightning" solution was mixed with four times its bulk of water as directed, and on placing an unexposed dry plate from the same packet in each bath, the silver bromide disappeared completely in the "Lightning" solution in the time of one minute, whilst the 4 oz. per pint hypo bath required three minutes to give the same result. It is evident, therefore, that the special fixing solution is very much more rapid in its action. In fact, a single trial will convince the worker that the bath is extremely rapid in its effect, and the beginner, particularly, will be well advised to make use of such a preparation for the reason that he is then less liable to obtain insufficiently fixed negatives or prints.

ROYAL ACADEMY MOUNT PAPERS AND BOARDS.—Messrs. Barton's, whose business is now conducted at 36, Cornwall Street, Birmingham,

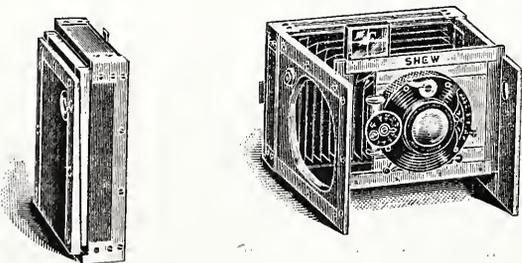
have just issued a new set of samples of the mounting boards and papers sold by them. The set is very conveniently put up in a series of booklets each holding about a dozen tints. The whole is supplied post free for 6d., and it certainly provides both the professional and amateur photographer with the most convenient reference he can desire as to the choice of mounting papers available. We are glad to see that Messrs Barton's recognise the uselessness of papers of pronounced or *outré* colours; almost all their papers are pleasing shades of grey, brown, cream, and green, produced in a choice of surfaces and some of them obtainable with a deckle edge. The photographer must be hard to please who cannot discover among them a series of papers answering his own requirements.

New Apparatus, &c.

M.C.C. Pocket Electric Dark-room Lamps. Sold by the Midland Camera Company, Slaney Street, Birmingham.

A lamp which occupies the minimum of space, is perfectly free from the grease of oil or candle, and at the same time is instantly ready for use, is quite a desideratum for the tourist photographer. These requirements are admirably fulfilled in the case of the tiny electric lamps just placed on the market by the Midland Camera Company. They are made in two varieties—the A pattern, price 3s. 6d., being fitted with a dry battery, duplicates of which, capable of being kept in condition for three months, may be obtained at the price of 6d. each, whilst a reserve wet battery, purchased dry and prepared for use simply by adding water, is sold at 1s. The lamp measures less than 1 by 4 by 3 inches, and is very nicely made in nickelled metal. The B pattern is a shade smaller, and is provided with a special form of accumulator battery cased in celluloid, which can be recharged, and may be kept in use uninterruptedly for a long period. Likewise made in nickelled metal, the price of the B or "extra" pattern is 7s. 6d. Either lamp certainly represents the height of convenience in use. Although the illuminating area is small, the light is amply sufficient for changing plates *en route*, and, if care be taken to keep it in action for no longer than necessary, will last for a considerable time without recharging.

THE SHEW EUXIT POCKET CAMERA.—By an error the review of this new camera in our issue of last week was wrongly illustrated, the block there printed being that of a somewhat old pattern of Xit

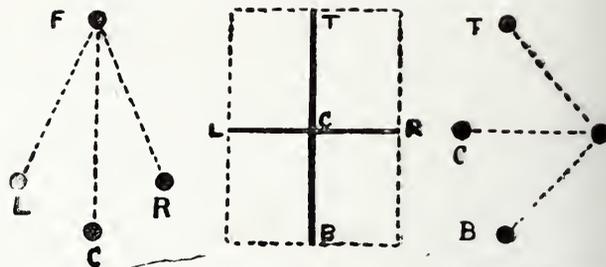


camera. The mistake unfortunately was not discovered until too late, but we hope that the two drawings herewith reproduced will correct any misapprehension due to the block employed last week.

An Infallible View-Finder for Magazine Cameras. Made by A. Arnold, 204, Woolwich Road, London, S.E.

This is an adaptation of the old method of using three fixed aiming sights on top and side of camera. Mr. Arnold supplies a complete outfit of six sights, two eye-pieces, a special focussing screen, fitted to a sheath for use in the camera, and a 6-inch periscope lens to serve as a magnifier when copying on a large scale, together with screws, clips, etc., for the sum of half-a-crown. The purchaser can then very easily adapt all the fittings to his own camera, the sheath holding the focussing screen being perforated in such a way as to show at four different points (L, T, R, B on diagram), the particular parts of the subject to which the sights should be directed. The sights are arranged so that the first one, F, is situated approximately over the nodal point of the lens. Two others, L and R, are fixed near the back of the camera, one on either side, so that the angle

L F R represents the exact angle of view included on the plate; while at C an eye-piece, consisting of a perforated brass plate, is fixed. The angle included is determined by glancing along the lines L F and R F, or T F and B F at the side of the camera, while a direct central aim is secured by sighting along the lines C F. It is suggested that when aiming along C F at the top of the camera it is best to steady the camera against the cheek bone, while, when



Horizontal Finder.

Screen.

Vertical Finder.

using the side aiming sights C F, the camera should be steadied against the forehead. Both these methods of holding the camera are very convenient in practice. The focussing screen is fitted to a sheath belonging to the camera, and the price includes the adaptation of this sheath—that is, perforating it at the points L, T, R, and B, and also at C, so that it may be used as a focussing screen in the ordinary way. Spring clips are also fitted to it, so that it may be held in position and up to register. The No. 12 sheath should be sent for the purpose of fitting, and when adapted for focussing purposes its use as a plate carrier is in no way impaired. There is no doubt that this method of securing a direct-vision finder on a magazine camera is excellent in practice, for a very low view point is compulsory with the usual reflecting finder. If the camera is of the fixed focus variety, near objects being focussed with the aid of magnifiers, the Arnold finder, once properly fitted, will always give the correct view angle. It will also do so when the front sight is so fitted as to move with the lens in a focussing camera. The only types of magazine camera in which the indications will not correspond perfectly with the results on the plate (in the case of near objects) will be those in which focussing is effected by a flange, but even in such cases the sights will give the correct angle for the greater portion of ordinary work. There is no difficulty whatever in fitting the sights when the focussing screen is available, while the latter accessory alone is a very useful addition to a magazine camera. We consider these very simple devices introduced by Mr. Arnold to be very useful, and we would strongly advise all users of magazine cameras to make a point of obtaining them.

CATALOGUES AND TRADE NOTICES.

"HOUGHTONS' QUARTERLY."—The current issue of this "journal of photographic information," issued by Messrs. Houghtons Ltd., contains the announcement of a new variety of "Ensyna" paper, giving a higher degree of contrast, and in one or two other respects modifying the process. A special sample packet of this new vigorous "Ensyna," complete with the necessary developer, is offered by Messrs. Houghtons for 7d. in quarter-plate size, 1s. 1d. in half-plate

A PRESERVATIVE FOR PHOTOGRAPHIC PAPERS AND FILMS.—According to a statement in the Washington Bureau of Manufacturers Consular reports, a representative of a United States photographic company has found a chemical composition which, when added to the regular developer, counteracts the bad effects which the tropical climate has on photographic papers, plates, and films. He claims that materials that heretofore have been guaranteed for one year only in Brazil can, on account of this discovery, be safely guaranteed for three years. Developing papers which had been in this climate three or four years, and were considered useless by a photographic supplier in Bahia, and which, when placed in the regular developing solution turned black before the picture appeared, were treated with the extra chemicals, which seemed to retard the oxidation formed under the severe climatic conditions, and brought out the exposed picture as well as if the developing paper had been only six weeks in this climate.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

TUESDAY, AUGUST 3.

United Stereoscopic Society. Paper: "Portraiture and Figure Studies."
Kinning Park Co-operative Camera Club (Govan). Business Meeting.

SOUTHAMPTON CAMERA CLUB.—Mr. F. G. Ryder lectured before the above society on Monday in last week on "What Makes a Picture?" As a basis for his remarks, the lecturer stated that "there are no orthodox rules in art." A picture should possess that quality which recalls some familiar scene or possesses some pleasing sentiment which one can look on again and again, and yet see some fresh charm. Although a picture may not have the orthodox rules, such as good line and balance, in its composition, the subject would be familiar, and that alone should be the principal expression to be adopted in all pictorial work. The lecturer also did not agree with submitting any picture to the opinion of a judge, because the pictorialist should possess some definite aim with his efforts which a judge may not interpret. He therefore contended that a photographer is the best judge of his own work, and should refuse to be influenced by any hard and fast rules by which the merits of pictorial work are usually decided. Mr. Ryder emphasised his arguments by referring to numerous illustrations of different schools in photographic work, and strongly denounced any effort which appeared to him artificial and unreal. The lecturer summed up his discourse by advocating that photographers should produce work which possesses the closest resemblance to nature, and not be influenced by anyone's dictum, this, to his view, being the foundation of all good pictorial work. After a discussion, in which many agreed with Mr. Ryder's contentions, a hearty vote of thanks was accorded the lecturer, and the meeting terminated.

News and Notes.

AN ALLEGED CINEMATOGRAPH NUISANCE.—At the Thames Police Court last week a gentleman complained to Mr. Dickinson about a nuisance arising from a cinematograph exhibition, held at a shop in Whitechapel Road, and he also handed up a paper signed by a large number of neighbouring tradesmen. The noise and nuisance, he said, was kept up until eleven o'clock at night, and was worse on Sundays than on other days of the week.

Mr. Dickinson: It is a common nuisance. Have you been to the police?

The Applicant: Yes, and they say they can only deal with an obstruction on the pavement.

Why don't you go to the Borough Council?—I was advised to come on here.

Mr. Dickinson: I know of no Act that could deal with the case, but I believe there is a borough by-law which could be put into operation. See the Clerk of the Council and tell him you want to put the by-law into operation. Otherwise you would have to go to the High Court to get an injunction. His Worship afterwards said that the applicant had better go to the Town Clerk and call his attention to By-law 2 of the Stepney Borough Council's by-laws, and say that he and his fellow tradesmen wanted protection.

PROPOSED PHOTOGRAPHIC EXHIBITION.—A meeting of the photographic trade was called for Thursday afternoon of last week by Mr. Arthur C. Brookes, editor of "The Photographic Dealer," with the object of discussing the views of trade houses as to the desirability of a photographic exhibition, to be held in London in the spring of next year. Representatives of a very few firms only attended the meeting, among those present being Messrs. Bradford (W. Watson and Sons, Ltd.), A. Linstead (Burroughs, Wellcome, and Co.), T. K. Grant (Lumière N.A. Co.), F. E. Greenwood (Elliott and Sons, Ltd.), W. J. Ramsey (Shew and Co.), and C. J. Miller (Gevaert, Ltd.). Mr. Brookes explained that he had issued a circular letter to the trade asking for their views as to an exhibition, and in response had

received replies from twenty-three firms, to the effect that they were favourable to the holding of such an exhibition, and would be represented in it. A further fifteen firms had replied that they would probably take space in the exhibition if it were held, whilst several other houses had expressed themselves opposed to the scheme. Mr. Brookes further announced that the Horticultural Hall, Westminster, would be available for an eight-days' exhibition, Saturday to Saturday, a fortnight after Easter, 1910. Some little discussion took place, and one or two questions as to the proposed character of the exhibition were answered by Mr. Brookes. It was stated that the intention of the promoters is to advertise the exhibition thoroughly in order to attract, not only photographic dealers, but also the general public, and reference was made to the very large attendance at other exhibitions which have been held at the Horticultural Hall. Plans and further particulars may be obtained on application to Mr. A. C. Brookes, 15, Harp Alley, Farringdon Street, London, E.C.

PHOTOGRAPHIC EXHIBITS AT THE BRUSSELS 1910 EXHIBITION.—On Thursday in last week, immediately following the meeting above reported, a small gathering of the photographic trade and others interested was held at the offices of the Platinotype Company, by kind permission of Mr. E. J. Humphery, who was unavoidably prevented from being present. Mr. Snowden Ward, the convener of the meeting, explained the circumstances under which he had consented to obtain the views of the photographic trade as to the desirability or otherwise of acting in concert as regards the representation of British photographic manufactures at the Brussels Exhibition. He explained the assistance which the new Board of Trade Commission was prepared to render to British exhibitors, details of which facilities have already been described in a memorandum from the Board of Trade published in the "B.J." for July 2. The discussion which followed centred round the question of the character of display admissible in a collective exhibit of British firms. Mr. Child Bayley, as a member of the sub-committee appointed by the Royal Commission to deal with photographic exhibits, said that exhibitors were under no obligation to make use of the show-cases, etc., offered them by the Board of Trade, and he thought that any stand or exhibit of a character in keeping with the general arrangements of the exhibition would be admissible. Mr. A. Linstead, of Burroughs, Wellcome, mentioned, on the other hand, that a stand of quite classical design submitted by his firm in the surgery and medical section had been refused as of unsuitable design. Several other speakers laid stress on the apparent necessity of obtaining a general statement from the Board of Trade as to the character of stand that would be acceptable for the collective British exhibit, and Mr. Bayley, speaking for the Commission, thought that a general question such as that could only be answered in general terms, and he thought the only course open to exhibitors was to describe definitely the proposed stand or stall, when a definite answer would be given. On Mr. Snowden Ward desiring to pass a resolution arising out of the proceedings of the meeting, it was proposed by Mr. C. J. Miller (Gevaert, Ltd.), and seconded by Mr. W. E. Dunmore, that an advisory committee be formed to act in conjunction with the committee of the Royal Commission as regards British exhibits. Votes of thanks to Mr. Humphery for his hospitality and to Mr. Snowden Ward for his services brought the meeting to a conclusion.

CAMERAS AT COUNCIL MEETINGS.—Before Mr. Plowden at the Marylebone Police Court last week, three beables in the employment of the Paddington Borough appeared in answer to a summons charging them with having assaulted Councillor J. F. Waycott.

In opening the case, Mr. Nonweiler said there was some excitement at a recent meeting of the Paddington Borough Council because a member had put his fingers to his nose and pointed them at another member. At the next meeting this gentleman was called upon to apologise before the minutes were confirmed, and during the scene which ensued Mr. Waycott was observed to be holding a camera. Some members came to the conclusion that he intended snapshotting them, and called the attention of the Mayor. Mr. Waycott was carried out of the Chamber and laid on his back in the lobby. The Council had no standing order or regulation to order the ejection of Mr. Waycott; and Mr. Nonweiler contended that Mr. Waycott committed no breach of order, and the Mayor could not order him to be removed.

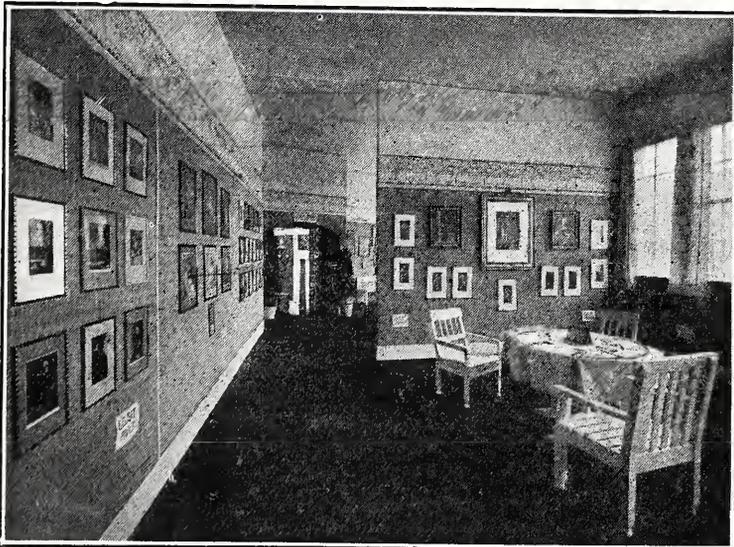
Mr. Waycott then went into the box and described the incident.

Immediately after prayers, he said, an alderman suggested to the Mayor that that was a fitting opportunity to call upon another member to apologise for putting his fingers to his nose at the previous meeting. At that moment the witness had a camera in his hand, it having been handed to him about a minute before. The Mayor's attention was called to this, and in a very severe tone of voice he told the witness to desist. The Mayor's tone did not, in the witness's opinion, entitle him to much consideration, and he refused to desist from handling the camera, stating that he had committed no breach of decorum and order. The Mayor then ordered the witness to withdraw, but he refused to do so, insisting that the Mayor had no power to give such an order. The Council adjourned, and after an interval the Mayor again ordered the witness to withdraw. On his again refusing the Mayor called on the beadle to eject him. After being landed on his back at the feet of the police the witness shook hands with the beadle and invited them to come and have a drink. (Laughter.)

Cross-examined by Mr. Bodkin, the witness denied having pointed the camera at the Mayor, but admitted telling the Mayor that he had a right to take a photograph of any public man in a public place. even the Mayor.

Mr. Plowden said no reasonable person would say that Mr. Waycott's proceedings could be described as anything less than frivolous and unseemly. No doubt Mr. Waycott felt aggrieved and desired to challenge the Mayor's conduct, but he (Mr. Plowden) was not trying the Mayor, and declined to give any opinion as to the legality or otherwise of the order. The assault was admitted, but the beadle, who were there to keep order, only carried out the instructions given them, and therefore the legal justification was complete. On that ground, and without going into the question of the Mayor's right to give the order, he dismissed the summonses. He expressed the hope that these proceedings would prove a warning to Mr. Waycott.

GEVAERT PAPERS.—An announcement of interest to all classes of photographers is that to the effect that during the present week the printing papers manufactured by the firm of Gevaert and Co., Antwerp, are being placed on the British market by the agency firm of Gevaert Limited, 26 and 27, Farringdon Street, London, E.C., directed by Mr. Charles J. Miller, known to the photographic trade



Gevaert Professional Room at the Dresden Exhibition.

by his managership for the past five years of the photographic department of the Rotary Photographic Co. Though hitherto not known in England, the name of Gevaert is recognised all over the Continent as the mark of excellence in photographic printing papers. The parent firm was founded in 1894 by its present director, Mr. L. Gevaert, and during the fifteen years of its existence has developed most rapidly, having now a factory covering an area of 45,000 square yards, and branch offices at Vienna, Copenhagen, Berlin, Milan, Moscow, and Barcelona. All that technical knowledge and organisation can do has been applied in the Gevaert factory to the manufacture of papers of the highest grade. The standard articles are collodio-chloride, bromide, gaslight, and P.O.P. papers. These

we shall report on in due course in these pages, but meanwhile the full price list of the Gevaert papers may be applied for. It is sent free from 26 and 27, Farringdon-street, E.C. Professional photographers in Germany and other Continental countries have long been making large use of Gevaert papers, and in the present Dresden Exhibition one of the series of exhibits devoted to the firm's product is composed wholly of prints by leading German professional workers.

THE SPEAIGHT EXHIBITION.—Professional photographers in considerable numbers assembled at Messrs. Speaight's Galleries, 157, New Bond Street, on Wednesday evening in last week, to inspect the portraits of Fair (and titled) Children, which has been held for some two months, and closes to-morrow, July 31. Among those who signified their presence by card or in writing were: Misses E. B. Aldridge, Amy Cassels, Lena Connell, Curtis (Messrs. Parker's), J. X. de Ferranti, and F. W. Dewsnap, Macnaghten, Mason, Norman, Painter, Smith, Walter Corin, Tissier, Messrs. Basil, George Bell, J. Bender and Co., H. Bentley, F. A. Bridge, George E. Brown (Editor of "The British Journal of Photography"), Herbert W. Busbridge, Gordon Chase, J. Chisholm (Messrs. Parker's), W. Coles, Harry Cooper, H. Essenhigh Corke, J. G. Cowley (Hana Studios, Ltd.), Debenham, Charles F. Dickinson, C. E. Dixon, Eastman and Sons, Edwards and Co., Alfred Ellis (Past President P.P.A.), Charles F. Emeny, Chas. H. Fisher (Sir Joseph Causton and Sons, Ltd.), S. H. Fry, E. G. Ganley (Burnett and Ganley), Rodway Gardner, William Gill, Gregg Couper and Co., W. E. Gray, John B. Harrison, Hearon Bros., R. Herman (The City Studio), H. Edmonds Hull, W. Illingworth, Wilfrid L. Jenkins, Louis Langfier, Louis Langfier, jun., Alex. Mackie (Secretary P.P.A.), Maull and Fox, Frank Mills, John Mills, W. Bevois Parker (Messrs. Parker's), Will Parsons, Plumtree and Stewart, D. Prodger, H. J. Rigden, Ralph W. Robinson, Edgar Scamell, Scott's Studios, Ltd., R. Lang Sims (President P.P.A.), Skillmann's Studios, Henry Spink (Past President P.P.A.), Tanner (Mills and Co.), Herbert Vandyk, Frank Wakefield, H. Snowden Ward (Editor of "Photographic Monthly"), W. H. West and Sons, Frank Wilkins, Wilkins and Holyoake, Window and Grove, and Youell (Mills and Co.).

Letters expressing their regret at their inability to be present were received from Messrs. J. C. Burrows, H. Hawkings, Lewis R. Prothero, C. St. John Vaughan, and W. Warrington.

Letters of thanks and hopes of being present were received from Messrs. Ernest C. Elliott (Elliott and Fry), Percy W. Marshall (Hensman and Marshall), C. H. Skillman (Skillman's Studios), and R. Fellows Wilson.

The second year photography pupils of the L.C.C. Trade School for Girls, Queen Square, Bloomsbury, W.C., accompanied by Miss Barclay, visited the gallery in the early part of the day.

Individual photographers who were unable to be present on the 21st have been made welcome by Messrs. Speaight. A Pretoria reader of the "B.J.," Mr. A. L. Gilham, arriving in London and securing his copy of last week's "Journal," proceeded to 157, New Bond Street, to inspect the portraiture.

Light refreshments were served in the lounge, and an interesting tour was spent in the inspection of the photographs, and of the architectural features and furnishing of the beautiful premises.

On the proposition of Mr. Lang Sims (President of the Professional Photographers' Association), a vote of thanks was accorded to Messrs. R. and F. W. Speaight for the opportunity given to their brother photographers of seeing and admiring the collection of work. Mr. Sims said that the courtesy was one which all those present would appreciate, and he was sure that any of them who had the opportunity would reciprocate on a future occasion.

Mr. H. Snowden Ward, in seconding the vote of thanks, pointed out that much of the work shown had been done by Mr. R. Speaight away from his studio, and therefore could not be taken as representative of the portraiture done at Bond Street. He thought that the Speaight Brothers were to be congratulated on having organised an exhibition on the same lines as those on which other art collections were shown in Bond Street, and even more on having drawn together a large number of their confrères.

Mr. F. W. Speaight, in briefly acknowledging the vote of thanks on the part of his brother and himself, said they both felt pleased and honoured that photographers had accepted their invitation. He believed it was the first instance of such a meeting, but he hoped it would not be the last.

Correspondence.

- *• We do not undertake responsibility for the opinions expressed by our correspondents.
- *• Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

THE PEPPER PROCESS.

To the Editors.

Gentlemen,—I notice on page 470 of June 18, 1909, issue, under the title of "Local Intensification," the oft-repeated powder process is given. May I place before your readers something a little fresher, which was once the subject of a patent, but is now free for anyone to use? It consists of a sensitive oil, made hard by the addition of some resin. The formula is as follows:—

White pepper	½ lb.
Benzole	15 ozs.

Filter and add, say, one ounce of a ten per cent. gum dammar solution in benzole. If it is desired that the powder should adhere more strongly, a little indiarubber solution is added. This is essentially a "no water process," and is simplicity itself to manipulate.

If the solution is thinned down sufficiently, five minutes in the sun or thirty to forty minutes in the shade is sufficient.

Most powders take too heavily and cause degraded high-lights. Such powders require grinding with gum solution; drying and re-grinding they will then be found to powder the picture clean.

The glass plates are coated by hand or whirler, and dry very rapidly. This process is especially useful for cheap magic lantern slide-making or the intensification of negatives, being clear as water, simple to use, and absolutely permanent.—Sincerely yours,

The Globe Hotel, Fort, Colombo, Ceylon. W. W. WALL.
July 6, 1909.

DIRECT POSITIVES FROM ORIGINALS.

To the Editors.

Gentlemen,—In an article in your valuable journal by Mr. D. Carnegie on July 9 last, a reference is made to a future description of a method for the elimination of the mediacy of the camera in the direct reproduction of a positive from an original. Now, I consider any design (partially patented) to be the right and simple contrivance or that purpose. It consists of a mirror mounted on a copy-board, lidable to and from the lens. The original print is affixed to a carrier near the lens. The mirror and original are turned parallel to one another, mirror being at right angles to the lens. By bringing the mirror nearer or further from the lens the size of the resulting picture is regulated. Illumination is effected from behind the copy-board, between original and mirror. I am preparing specifications of further improvements to the patent, and will supply same to concerned parties on request.—Yours most respectfully,

1, Henry Place (opposite the G.P.O.), Dublin. A. COHEN.
July 23, 1909.

EXPOSURE IN COPYING.

To the Editors.

Gentlemen,—I have noted with interest your article on "Exposure in Copying." Surely this is a case where a simple mathematical expression would be of more use than all the tables one could possibly construct. The following is the whole thing in less than a nutshell:—

$$x = \frac{2d}{n+1}$$

Then d is the distance of the radiant from object when copying same size; n the scale; and x the distance of radiant for any scale of enlargement or reduction. Focal length does not enter into the expression, but, of course, different lenses must be used at the same aperture relative to their principal foci. It will be seen that the luminant, instead of moving with the lens on its back focus, rather tends to move with the object; for the greatest value x can take is twice d , even when our object is a mile away. In fact, the formula shows at a glance the impossibility of constructing a table of general utility, for whatever value we may assign to d for convenience in copy-

ing same size, the source of illumination will persist in getting between the lens and object, both when n becomes either very large or small.
29, The Green, Richmond.

CHARLES J. STOKES.

July 26, 1909.

[We believe that Mr. Stokes is correct in saying that the source of illumination will persist in getting between lens and object when n is either very large or very small; but in practical copying work a very big range of scales is seldom required, and it is easy to arrange the standard exposure so that this trouble shall not occur in more than a few exceptional cases. We think also that most operators would prefer a table to a formula.—Eds. "B.J."]

Answers to Correspondents.

- *• All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- *• Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- *• Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.
- *• For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

The South London Photographic Co., Ltd., 129, Newington Causeway, London, S.E.
Photograph of The Duke of Norfolk and Lady Rachel Howard.
H. Bell, Grinstead View, East Cliff, Rye, Sussex. *Photograph of an old man standing with his back against the Armada Anchor in the Gungardan Battery at Rye, Sussex.*

COLOURING POSTCARDS.—Can you tell us the best way to colour glossy postcards cheaply and effectively, and how to glaze the cards after colouring without the colours running?—MARKEM.

Special colours for the purpose are sold at all the large photographic warehouses. The "Bertha Colours," made by the Vanguard Company, are good. The colour may be applied to glazed prints, and they will require no glazing afterwards. Messrs. Fallowfields also supply suitable colours.

DIAMIDOPHENOL.—It would be a boon to myself and many others if a formula for a soft-working acid diamidophenol developer was given in plain English measure. I have read your article thereon, but have failed to grasp it properly.—JOHN ACKROYD.

In English measures the formulae for a soft-working developer are as follows:—

Solution S.	
Soda sulphite cryst.	1¼ ounces.
Hydroquinone	1½ grains.
Water	5½ ounces.

Solution B.B.	
10 per cent. potass. bromide solution	2 ounces.
Bisulphite liquor (commercial pure)	4 ounces.

Developer.	
Solution S	1 ounce.
Diamidophenol (dry)	8 grains.
Solution B.B.	24 drops.
Water	8¾ ounces.

RICHARD PAYNE.—See reply to John Ackroyd. We have not tried the time of development with the plates you mention; we suggest that it is not difficult for you to do so.

PAUL LEMAIRE.—1. Both developers will give equally good negatives, but that made according to the formula will not keep well. 2. We cannot say. We do not know the gentleman.

H. A. MATHER.—Trapp and Co., 89, Chiswell Street, E.C.; Houghtons Ltd., 88-89, High Holborn; Marion and Co., 22-23, Soho Square, London, W.; Butcher and Sons, Camera

House, Farringdon Avenue, E.C.; and Witt and Wesley, Grove Road, Tottenham, N. (2) If the damage is anything more than a good sized pinhole, the best plan will be to make a glass transparency by contact; retouch that, and from it prepare a new negative.

BOOKS.—Can you give me also the names of any good books on studies of the human figure or figure studies, etc., and their prices, and where to be obtained, as I am anxious to take up that branch particularly?—**PILATUS.**

1. "The Human Figure: Its Beauties and Defects," by Ernst Brücke (translated by the late Prof. Anderson), Grevel and Co., King Street, Covent Garden—used to be 7s. 6d., but we think a cheaper edition is now available. 2. Hatton's "Figure-drawing for Art Students," Chapman and Hall, 7s. 6d.; an excellent and thoroughly practical work.

GLAZING PRINTS.—Could you tell me, through the "B.J.," if there is any other way to enamel cards besides putting them on the slab? Is the enclosed done in this way where there are many to do?—**J. E. P.**

A polishing medium can be used, such as those given in the current "Almanac," page 803, or the Vanguard "Lustralene." This will give a considerable gloss, though not the kind of glaze obtained by stripping. The latter is the commercial method. The sample you enclose is undoubtedly stripped, the sheets of cards, each of about two dozen, being treated in this way.

PRINTS FROM AUTOCHROMES.—Where am I able to buy "Uto" paper for colour photography? Is there any method of printing from Autochrome plates in colours?—**W. A. MAIER** (Elmhurst, L.I., New York State, U.S.A.).

So far as we know, the "Uto" paper of Dr. Smith is not on the market at present. The method of preparing paper prints from Autochromes consists in making three colour-sensation negatives from the Autochrome by contact on panchromatic plates, using the suitable light-filter in each case. From this set of negatives composite (colour) prints are made by the carbon or pinatype processes.

BLISTERS ON FILMS.—Could you tell me the cause of the small blisters on the enclosed film?—**FILMAX.**

Blisters can be caused in so many ways that it is quite impossible to tell you the exact cause of these, but it looks as if you had applied some acid bath too soon after an alkaline one. If you simply develop, fix and wash in the ordinary way, and take care that the solutions do not vary greatly in temperature, you should have no trouble at all.

CARICATURE PORTRAITS.—There is a photographer producing post-cards while you wait, using caricatures for the figures. I should like to know if there is any patent about it that would prevent me doing the same, as I do not wish to infringe.—**ALERT.**

It is open to anyone to produce caricature portraits in the well-known way directed for the use of the comic caricature backgrounds. We think it very unlikely that the photographer has any patent rights in a method; certainly he can have none in the idea.

FEROTOTYPE.—We are afraid we do not understand your difficulty. You cannot take prints off ferrotype plates. One positive picture is obtained on each plate by development.

H. E. W. UPSHER.—(1) The retouching is very fair; a little over-done perhaps. (2) We advise you to use the maker's formula.

COPYRIGHT BLUFF.—Your valued opinion on the following will be gratefully received. A very elaborate monument has just been erected in the cemetery here, and the day it was finished a photographer in the town photographed it for postcards. The next day I photographed it with the same end in view. While I was taking the picture the other man saw what I was doing. This morning I received a lawyer's letter warning me that Mr. — had made a photograph of the monument and registered it, and that if I published photographs of it immediate proceedings would be taken against me under the Copyright Act for "penalties, damages, and costs." I have just learnt that the writer of the letter is not a proper lawyer, but a lawyer's clerk. What shall I do?—**J. R. C.**

Publish your pictures as you intended to do, for no one can prevent you. The fact that the other photographer has registered

the copyright in his picture makes no difference, as that gives him no copyright in the subject. We may tell you that the man who has attempted to bluff you, by pretending to be a solicitor, has acted illegally, and if his conduct is brought before the Incorporated Law Society he will probably be proceeded against, and possibly have to pay a heavy penalty.

CHLORIDE OF GOLD FROM COIN.—For some years past I have been making my own chloride of gold, using half-sovereigns or sovereigns for the purpose. On mentioning this to a friend the other day, he said that what I was doing was illegal, and that I should find myself in trouble if it was found out. Can this be correct, as surely I am entitled to do what I like with my own money?—**STAFFS.**

What your friend tells you is quite correct. It is illegal to deface or destroy current coin of the realm, though it is being constantly done by jewellers and others—so far as gold coin is concerned; also by photographers who, like yourself, make their own chloride of gold. Although the thing is illegal, we cannot call to mind any prosecution for utilising gold coin for manufacturing purposes.

COPYRIGHT.—Last year I took on my holiday a number of negatives (half-plate size) of haymaking and harvesting scenes that were very successful and some of them of exceptional local interest in the neighbourhood. I did nothing with them at the time except give a few prints away to friends. Since then circumstances have changed with me, and it has occurred to me that I might make a little by them if I were to publish them. Will you please tell me if it is possible to make them copyright now that so long a time has elapsed since they were taken—now about a year.—**H. H. H.**

Certainly you can register the copyright in the pictures. There is no limit as to the time within which registration must be effected. It may be done—by the author of the work—year afterwards.

MASTER.—Some four years ago I took a young fellow as apprentice. He is now getting troublesome and threatening to leave, though he has yet another year to serve, which, of course, will be the most valuable one to me. The agreement, I may mention, was not a stamped one, but it was in writing.—**F. O.**

If the indenture was not stamped it is not binding, either on you or him. He has been merely a weekly servant all the while and can leave when he likes on giving a week's notice.

ENSIGN FILM COMPETITION.—Mr. James E. Tyler, North Street, Halstead, Essex, is the winner of the "Ensign" Roll Film Competition for July. Houghtons Limited offer a three-guinea camera every month for the best negative on "Ensign" film. The entries close on the 3rd of the month. Entrance is free, and a competition form enclosed with every spool of "Ensign" film.

GUIDES FOR THE HOLIDAYS.—The latest additions to the series handy little guide books published by the Health Resorts Development Association deal with the towns and surrounding districts of Hitchin, Lytham, Sheringham, and Windermere, and, like others in the series, may be obtained free by addressing a postcard application to the respective Town Clerks.

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SUMMARY.

FRAUDULENT SUPPLY OF PHOTOGRAPHS.—A case of considerable importance to the photographic profession was heard at Southampton last week. Mr. S. G. Kimber, F.R.P.S., summoned a firm of photographers in reference to the supply of silver prints as carbon photographs. A full report of the case appears on page 612, whilst in an editorial article on page 606 we draw the attention of our professional readers to the fact that the case should apply a check to the fraudulent supply of the cheaper class of photographic print in place of carbons or platinotypes. It is to be hoped, too, that the case will remind manufacturers of the opportunity for fraud on the part of the less reputable photographers created by the lack of sufficient explicitness in descriptive terms applied to printing papers other than those for the carbon and platinum processes.

The exhibition of results by the Morgan system of dry-mounting, etc., continues open until to-morrow week, August 14. Mr. Morgan, Jun., gives daily demonstrations from 10.30 to 4.30. (P. 609.)

Mr. Harold Baker in the current issue of "Photographic Scraps" describes an extra-rapid method of developing the Ilford "Zenith" plates, the results being superior to those obtained in the longer time by the usual process. (P. 609.)

The L.C.C. school of photo-engraving is to be rebuilt, the London County Council having sanctioned the expenditure of £20,000 for the purpose. (P. 614.)

"COLOUR PHOTOGRAPHY" SUPPLEMENT.

Mr. Colin N. Bennett contributes an article on the use of the separate "Thames" plate method of colour photography, in which he describes the knack of registering the transparency with the screen-plate. (P. 57.)

M. Monpillard has given the formulæ for a compensating light-filter to be employed when using limelight as the illuminant in photo-micrographic work on the Autochrome plate. (P. 61.)

The precautions to be taken in adopting a lens separation when making stereoscopic Autochromes is the subject of a note on page 59.

The use of flashlight in making instantaneous exposures on the Autochrome plate is dealt with by M. H. D'Osmond. (P. 60.)

A French worker has recorded his method of working the Autochrome plate without a dark-room whilst on tour. (P. 60.)

Several hints on the manipulation of the Autochrome plate are given by correspondents on page 64.

Dr. W. Scheffer has recently published some notes on the fineness which is necessary in screen-plates to be viewed under various conditions. (P. 62.)

EX CATHEDRA.

Judges as Judges. A magistrate has been called upon to judge a photograph of a baby. The parent objected that the photographic enlarger tried to pass off the presentment of another baby upon him. "Why, it's got a different pinafore on, and in the large photo the baby is sitting on a mat, while my baby sat on a cushion," the plaintiff pleaded, further stigmatising the enlarged infant as "cock-eyed," and adding "Mine ain't." It must have been a flagrant case of "control"—an abortive attempt to foist art in lieu of photography upon an unready public. The magistrate urged that some licence should be allowed to the artist; but the outraged parent considered that cock-eyes were no artistic advance upon the "straight" condition of the original. He was told to be satisfied with it, nevertheless, especially as it was not a first-class advertisement for the photographer. Evidently the magistrate does not know what constitutes a good advertisement in latter-day portraiture. The fond father promised to give the photographer an advertisement when he met him.

* * *

Cutting Stereo Prints. In reviewing a book on stereoscopy lately, we remarked that by printing direct from the original negative, and then cutting and reversing the prints, we obtained more even results, and got through the work more quickly than by using a reversing frame and printing the two pictures in succession in their right positions on one piece of paper. A correspondent takes exception to this, but has apparently misread our statement altogether. He advocates, so far as we understand him, cutting the negative and transposing the two halves before printing, which is naturally one of the quickest ways of working, but one not referred to in our review as it was not mentioned in the book. Our correspondent goes on to refer to the method of cutting and trimming the print as not only obsolete, but untrue, and also as "an operation using more material than is necessary, solely for the purpose of cutting it away as waste." In point of fact, however, the trimming does not waste any more material than does the masking, which is necessary by the other method, and it enables us to utilise mounts and borders of any colour. The method of cutting the negative is, however, a very useful one, and if film negatives are used and trimmed down, we can produce prints with dark borders that give a very good effect. As regards truth of effect, this is not in any way affected by the mode of printing. If we cut the prints we must trim them properly, and if we cut the negatives we must mask them properly. A certain amount of adjustment is generally necessary if the lens separation is fixed, though with an adjustable separation we can, of course, arrange everything perfectly on the focussing-screen.

Modes in Mounts.

Fashion and the dry-mounting process having displaced the solid, stiff mount to a large extent, there must be large quantities of such mounts which are so much dead stock to photographers until fashion changes again. We know of one firm, and not a very big one, which some time ago had twenty to thirty thousand wood mounts, but has used nothing but paper during the last year in order not to lose prestige or fall behind rivals. Many stiff mounts, if not more than eight-sheet thickness, could be used up by having a harmonising paper folder and tissue stuck on them. They can certainly be pushed as most serviceable, for, after all, the paper mount must be framed, or kept in a portfolio. The latest mount, so-called "the booklet," consisting of mount with flap and tissue stuck on the top and tied with silk ribbon, with artistic head, embossed on the centre, is very popular, and for the best work may displace the mount in the more usual folder. The flexible vellum has long passed the height of its popularity, whilst the rather vulgar six-sheet plate-marked vellum surface mounts, with fancy brown lithographed design, that ran through 1908, have, we think, had their day. From inquiries we find that the "Cosway Mount," consisting of card printed with imitation engraving border to the edges, is very popular with a cheaper class of customer.

* * *

Some Current Styles in Mounts.

Fancy plate-marks show no signs of dying out, though we think the worst of printed and embossed borders have been seen. The oval shape and the panel is dying, whilst the circle, that was all conquering three years ago, is dead. Everything considered, we think the general trend is a recurrence to the simple style of mount. The old-time square cabinet is the principal shape, whilst in stiff mounts the white is regaining its popularity, though the very beautiful combinations possible by the use of tinted mount and tint are likely to be most used for the best work. It is rather peculiar to note that in the old days of the album mount dark Bristols were used for the best mounts. As the flexible mount has rendered useless big stocks of large stiff cards, so did the latter turn the small black and brown gold edged and gold blocked mounts into useless lumber. Since these were ordered in great quantities at a time, for only one mount was used for all cartes, one for cabinets, and so on, it would be interesting to peep into the stockrooms of half-a-dozen establishments with a pedigree. It is thankless work prophesying, but it seems almost certain that there will for many years be no recurrence to this style. From the ever and rapid changing mounts of the present day it is certainly sound advice to order in small quantities only. Many varieties, designs, and outside sizes are, however, a snare, being a bother and constant source of worry, friction, and mistakes from beginning to end.

* * *

Cinematograph Literature.

As evidencing the phenomenally rapid growth of the cinematograph trade during the past year or two, attention may be called to the list published in the current number of our contemporary, "The Kinematograph and Lantern Weekly" of the periodicals relating to the trade published in different parts of the world. These number almost a score, and come from such distant parts of the globe as New York, Vienna, Paris, Berlin, and Budapest. The cinematograph, as a means of popular entertainment, has within the last few years reached a degree of popularity which shows no signs of diminution, and with the possible introduction of natural colours by a photographic process into the pictures it would seem that for some years yet

animated pictures will continue to be a staple form of popular entertainment.

* * *

A Souvenir of Messina.

We have received from the Italian Photographic Society, 50, Via Degli Alfani, Florence, the illustrated prospectus of the souvenir volume dealing with Messina and Reggio, which that body is shortly publishing as a souvenir of the disaster of last year. The volume is to run to 300 pages, the text matter being in Italian, French, English, and German. There are to be over 550 illustrations, and the proceeds of the sale are to go to the relief of those rendered orphans in the disaster, a project which has the patronage of H.M. the King of Italy. The price of the volume, unbound, is 10 lire; bound, 15 lire.

FRAUD IN THE SUPPLY OF "CARBON PHOTOGRAPHS."

A CASE of considerable importance to all those whose interests lie in reputable professional photography was heard at the Southampton Police Court on Thursday in last week. It concerned the supply, by a Southampton firm, of photographic prints which were advertised and invoiced as carbons, but were, as a matter of fact, a form of silver print. The Police Court proceedings are fully reported in another column, so that there is no necessity for us to detail at length here the circumstances of the case. Briefly it may be stated that the summons was taken out by Mr. S. G. Kimber, F.R.P.S., secretary of the Southampton Camera Club, against Messrs. Freeman and Co., in reference to photographs supplied to Mr. Kimber in fulfilment of an order which he gave the defendant firm, as the result of seeing their advertisement in a local paper, in March last. The advertisement ran as follows:—

WANTED, all ladies and gents to inspect our high-class studies; carbon cabinets 2s. 6d. per half-dozen, usual price 30s. For six days only.—Freeman and Co., artists, Above Bar, Southampton.

It will be obvious to anyone in the photographic business that such an advertisement professes to give at a low price the carbon prints which are usually supplied by high-class professional photographers at prices frequently comparable with the 30s. per half-dozen cited by the advertisers. In execution of Mr. Kimber's order there was supplied to him, however, not carbon or pigment prints, but toned P.O.P.'s of the so-called carbon surface. As will be seen from the Police Court proceedings, the defendant described these prints as carbons on their invoices, and the supply of them therefore brought them within the Merchandise Marks Act of 1887, under which it is unlawful to apply a false trade description to goods supplied.

As pointed out by the plaintiff's solicitor in the course of his remarks, the question involved in the case was not whether the carbon-surface silver prints were equal in appearance or permanency to a genuine carbon print. The customer gave the order on the assumption that he would obtain genuine carbon prints, and therefore he was entitled to receive them. The defendants put in a formal plea "guilty" to the charge, and through their solicitor made sundry excuses to the effect that there was no intention of defrauding. A fine of 5s. was imposed in each of two distinct charges, together with costs, which the plaintiff agreed to accept at three guineas, making £3 13s. in all.

We are able to supplement the report of the proceedings by some additional particulars. It will be noticed that there were two summonses: one with regard to the advertisement and the other with respect to the actual prints delivered. With regard to the latter, the defendants had

not acted with that 'cuteness one would expect, for the receipt given to Mr. Kimber for the amount paid set forth that it was for "six cabinet carbons"; thus there was a fatal definiteness in the contract which in itself nullified a statement made by the defendants by letter in reply to Mr. Kimber's complaint that the prints delivered were not by the carbon process, that the prints supplied were as ordered, and were "carbon matt" prints. This admission that there was a difference between a carbon print and a carbon-surface print, however, did not come out in Court, and the defendants' advocate made the most he could of the opportunity afforded by the common use of the expression "carbon" to describe the surface and appearance of prints on certain papers which otherwise have no connection with the carbon process. In a quite pathetic appeal to the magistrate, he represented that his client was himself deceived. He had bought the paper as carbon paper, and had therefore described his prints as carbon prints. This was the only shred of an excuse possible; but it was unavailing, for although the prosecuting solicitor expressly stated that the prosecution was satisfied with the plea of guilty, and did not ask for a fine, the magistrates imposed a fine of 5s. in each case, thus showing inferentially that they regarded the matter as something more than the innocent mistake of a guileless photographer.

Although the substitution of a cheaper form of print has constituted a form of disreputable competition of which professional photographers of standing have long complained, there has never been, so far as our memory serves us, a case in which such fraudulent practice has been brought to book, even in a police court. It will be remembered, perhaps, that some years ago the "Daily Telegraph" made sweeping accusations against photographers in general to the effect that it was a common practice among them to supply bromide prints for platinotypes, and though on behalf of the profession generally such a charge was at that time keenly repudiated, and may still be repudiated, yet the growth of the cheaper class of business during the last few years has, we fear, led to such an accusation being more justifiable at the present time than when our contemporary wrote its article in 1901. We are not writing now of photographic studios of reputation and commanding reasonably good prices, for to these the difference between the cost of the raw material employed in making a silver and a platinum print respectively does not bear the same proportion to the cost of the finished article which it does in the case of many firms who are now offering photographs to the public at almost incredible prices. So long as this cheap business is done on lines which may be legally defensible, if morally discreditable, no action on the part of the better-class photographer is possible other than to convince the public of the superiority of his own work and of the better conditions under which his assistants are employed. But when it comes to resorting to fraudulent methods, such as the substitution of an admittedly cheaper class of print for a carbon or platinotype, there is every reason to visit the offenders with the penalties of the law. All photographers, therefore, who have at heart the status of the profession will applaud the public spirit of Mr. Kimber in taking this case into Court. It constitutes a precedent which, we hope, will not be forgotten by all those who may have similar illegitimate conditions to face, and from what we can hear a good deal of this kind of substitution is being practised. We believe it is not altogether unknown among those firms who do printing for photographers for printing orders in bromide to be received with the shameless request that "a good job may be made of them," as it is proposed to sell them as platinotypes. The absence of actual conviction under the Merchandise Marks Act has perhaps led such persons to suppose that they can indulge in this practice

with impunity, and we may therefore hope that the case which has just been heard at Southampton may have the salutary effect of proving to this kind of trader that he is jeopardising what reputation he may have by offering for sale such fraudulent substitutes for genuine articles.

There is a matter arising from this case that deserves the serious consideration of manufacturers of some photographic papers, and that is the very loose application of the terms used to describe their qualities. From the above it will be seen that the defendant, through his solicitor, stated that he bought the paper which he used as carbon paper, and thereupon described his prints as carbon prints, and in proof thereof he held up a box inscribed in print large enough to be read all over the court: "So-and-So's Carbon," and it required somewhat careful examination of the box to discover that what appeared as a decorative monogram contained the letters "P.O.P." To a bench of magistrates, none of whom were acquainted with photographic matters, this exhibit might have lent colour to the excuse put forth. All who do practise photography quite understand the sense in which the expression "carbon" is used as merely to indicate the nature of the surface, but with this want of explicitness it might have been difficult to convince laymen that the word "surface" was presumed to be expressed. In legal proceedings of this kind the prosecutor has to state his case and support it by evidence, and after his case is closed he can produce no further evidence. The defendant then has his turn. It is necessary, therefore, for the prosecution to anticipate the defence and meet it in advance. In this particular case it was anticipated that the defendant would rely upon the defence that actually was used as his excuse. The hon. secretary of the Professional Photographers' Association, who, with a representative of the Autotype Company, was to have given evidence, informs us that in getting up his evidence he started with the idea that he could show positively that all manufacturers of paper used the word "surface" in describing the surface of their paper; but on investigation he found the word frequently dropped—almost more often than not. This is a matter that does not affect photographers; for, as we have said, no one practising photography can be deceived by such expressions as platinobromide or carbon P.O.P.; but it is otherwise when these or similar terms are applied outside the photographic circle, and the repetition of them may become the cover for fraud of a most despicable kind. We do not for a moment suggest that any manufacturer would knowingly choose a descriptive expression that could be misused, for British manufacturers of photographic materials as a rule stand high in the scale of commercial morality; but here is a concrete instance of a term that has an esoteric and an exoteric meaning actually used to deceive the public. Perhaps it is too much to ask those who have made their manufactures known under descriptions to which these comments apply to alter their nomenclature, but it is not too much to ask them to see that in future issues of descriptive matter, labels, etc., there is sufficient explicitness to render impossible such an absurd excuse as that seriously made by the Southampton photographer.

FIFTY YEARS OF PHARMACY.—We have to congratulate our contemporary, the "Chemist and Druggist," on the production of its jubilee and summer issue. The publication is a massive volume of text and advertisements, with which is presented as a supplement a facsimile of the first issue of the "Chemist and Druggist" as a monthly trade circular in September, 1859. The long and intimate connection of the "Chemist and Druggist" with the drug trade is suitably emphasised by a history of the journal and some very interesting biographical notes of persons in the trade. We felicitate our contemporary on finding itself in a state of such robust health after fifty years of strenuous life.

LARGE DIRECT NEGATIVES WITH MEDIUM-SIZE CAMERAS.

It is no unusual thing for professional photographers to find themselves called upon to produce a photograph of a larger, possibly much larger, size than the apparatus at command will permit of. The camera may not be large enough, and even if it were there may not be a lens available that would cover the necessary size picture. How, then, is the work to be done? One way that would naturally suggest itself would be to take a small negative and make an enlargement from it. But it may happen that if that were done the small negative would not include all the subject that is necessary either in one direction or the other. The subject may be a factory, or a landscape for that matter, and the distance from which the camera can be placed from it will not permit of the whole of the subject being included even if a very wide angle lens is employed. Under these conditions the only thing to be done is to take negatives piecemeal and combine them afterwards. This would be looked upon by some as a very difficult job to undertake, but it is really not so in practice. Suppose the picture required is 18 x 11, or, may be, 15 x 7, and the only cameras and lenses available are 12 x 10 or whole-plate respectively. With either of the above sizes it is easy to obtain two negatives that can be combined into one afterwards. Still larger sizes may be obtained by taking more negatives, but I shall here confine myself to two; more may be combined on the same principle, and various ways of doing this class of work have been given at different times in the "Journal." The one, however, now to be described differs somewhat from these, inasmuch as paper is the medium employed for the negatives. At the present time rapid bromide papers are on the market, and these, though slower than rapid plates, are sensitive enough for our present purpose—under most conditions. Objection may be raised against paper negatives on account of the grain of the paper showing in the prints, but the objection is more imaginary than real. The loss of fine detail is less conspicuous than when enlargements are made on bromide paper from small negatives, and it is this that I have under present consideration, it being assumed that the results are required for commercial purposes—process blocks, collotypes, etc., for show-cards, catalogue illustrations, or the like.

The procedure is as follows:—If the paper is bought in cut pieces it will probably lie quite flat when put into the dark slides, with simply a piece of glass at the back to press it close in contact with the rabbet of the slide. If it has a tendency to curl, glass plates, free from air-bells and perfectly clean, are put into the slides first, and the paper pressed in contact with them with two or three sheets of blotting-paper. It goes without saying that if the largest size is required, the longest diameter of the paper must be placed vertically in the slide. The slide, or slides, being filled the camera should be planted firmly and perfectly level before the centre of the subject; here a spirit-level will be found very useful. It must be kept in mind that on no account must the position of the camera be altered, however many negatives have to be taken. The image is then gauged and focussed on one-half of the subject so that it includes about an inch or so of the other half, and the exposure made. The camera is then rotated on its axis by loosening the camera-screw, so as to include about an inch of the subject in the first negative in the second exposure. The two exposures, it is unnecessary to say, should be as even as possible. The

development of the two negatives, if possible, should be done in the same dish. If not, it is best done in two dishes placed side by side so as the easier to get the two negatives as nearly as possible of the same density, which latter must be judged of by looking through and not down upon them. The negatives must be made somewhat dense, as the grain of the paper will then be less noticeable in the print. A full exposure should be given, but no more, as over-exposure would lead to flatness, and add to the granulation of the paper. The negatives are then fixed and washed in the usual way, and dried flat between blotting-paper. In taking the negatives it is advisable to expose in duplicate, and when that is done it is best to develop the two in one slide together, as then there is a better opportunity of getting uniformity in the pair.

The negatives—two or more—having been obtained, the next thing is to combine them into one so as to print on a single piece of paper. A piece of glass an inch or two larger than the combined negative is to be cleaned, placed on the retouching-desk, and one of the negatives (in the rough)—we here assume that only two are to be combined, though any number may be in the same way—is taken and adjusted on one half of the plate and secured in position with a few touches of india-rubber cycle cement. The other negative is similarly secured in its position, the overlapping portions of the two negatives serving as a register for accuracy. When the cement has become quite firm a sharp trimming-knife or a keen-edged pen-knife is taken and the two overlapping edges cut through to the glass with one cut and the detached portions removed. In making the cut it is well that it should not be in a formal straight line, but taken through unimportant parts of the picture, as round the margins of buildings or through or about trees.

The combined negative is now ready for printing. Should the edges of the negatives at the junctions show a tendency to curl away from the glass a touch or two of the cycle cement will hold them down. Of course, the negatives can be taken off the glass and be fixed to it again with any mountant; but that is not advisable, as any aqueous cement will cause an expansion of the paper, and perhaps unequally, so that an accurate juncture will not again be obtained. Some cycle-cements have but little colour, and if in attaching the negatives to the glass it is but sparingly used its colour, if applied only to the denser portions of the picture, will not show in the prints. When the combined negative is finished, if one of its components is seen to be thinner than the other, the back of the glass of that one may be coated with matt varnish or with mineral paper. Clouds can, of course, be introduced in the negative by stumping plumbago on the paper in the usual way. This, if judiciously done, will hide the juncture in the sky portion of the picture.

Prints made from bromide paper negatives show but little or no granularity. The printing is slow, but that is of little moment, for, as a rule, only a few prints of such subjects as we have in mind are required. If many are wanted they may quickly be produced by printing on bromide paper or gaslight paper. If the negative be made transparent with wax, paraffin, castor oil, or the like, it will print quicker; but it is a curious fact that when that is done the granularity of the paper becomes more pronounced than when it is left in its original condition.

F. P. RENTER.

THE MORGAN SYSTEM OF DRY-MOUNTING.

As already announced in our two last issues, there is now being held in the "Little Gallery" at the Offices of the "British Journal" an exhibition of the results obtainable by the method of combined dry-mounting, embossing, and blocking, invented some year or so ago by the late Mr. G. W. Morgan. The details of this system of preparing mounted portrait prints have been described in past issues of the "Journal," since when certain further improvements have been made in the process, which, as now available, is adjustable to the most varied conditions of the business of a professional studio. Although the best method of forming an idea of the capabilities of the process is to witness the demonstration which the late Mr. Morgan's son is now giving at the exhibition, some few words require to be said as to the facilities provided by the process.

The Morgan system is based on the use of, first, an adhesive material which, under hot pressure, cements the print to the mount, and, secondly, of a specially designed mounting folder. This consists of a pair of metal plates hinged together. One of them is provided with a die in which the design for the surround of a mount is engraved, the opposite plate having on it a matrix registered with the die and providing the necessary pressure when the hinged folder is placed in the dry-mounting press. The one plate of the folder is further provided with a stop adjustable in two directions with the mount, so that a folder which is provided with a die suitable, say, for cabinet prints, may be used for all sizes of mounts up to 16 x 12 or 18 x 12 inches, and can be instantly set so that any series of mounts of a given size may be immediately placed on the folder in correct registration or a given position of the print upon it.

The design of the dies, too, in all cases is suited for both square and oval prints, so that at the one expense of 35s., which is the cost of a folder complete with die, matrix, and adjustable stops, the photographer is in the position to turn out mounted prints of quite a series of different sizes. Any number of different folders may be used in the press, so that

the outlay of a few pounds in this way allows of considerable variety in the output of a studio.

The operation of mounting, embossing, and blocking is as follows:—The metal folder is first placed in the press for a minute or two to become warm, is then removed and opened out, and the print laid, face down, in position on the die. The stops having been adjusted for the correct position of the mount, the latter is pushed against them and brought down upon the print, which is thus pressed between the die and the mount and held in position. The upper half of the folder is then brought down on both mount and print, and the whole pushed into the press and given a hot pressure of about four seconds' duration. The result is a neat design in relief around the print, a perfect mounting of the latter on the board, and also, if means have been taken, an embossed marking of the photographer's name on the mount, these three operations being produced by the single pressure.

The process is also amenable to the application of a pasted-on tint surrounding the print. In producing this effect the print is laid face down on the die, the tinted paper laid face down upon it, and the mount over all, a single hot pressure then serving to cement the print to the tinted paper and the latter to the mount, together with the production of a plate-mark around the tinted border. These operations, difficult to describe adequately in print, are performed with swiftness and certainty by the use of the metal folders, and it is hoped that those who are interested in this latest development of photographic mounting methods will not fail to pay a visit to 24, Wellington Street, before the exhibition closes—namely, on August 14.

It should be added that, along with the demonstration of the Morgan dry-mounting, the opportunity is also offered of making trial of the mercury-vapour Cooper-Hewitt light for studio purposes, the necessary installation having been provided, and a camera, background, and facilities for developing photographers' own exposures (half-plates) being at disposal.

"ONE MINUTE DEVELOPMENT" AND ZENITH PLATES.

A paper in the current issue of "Photographic Scraps."

ONE-MINUTE development is carried out by bathing the plate in the "reducer" constituent of the developer for 30 seconds, and then bathing in the "accelerator" for 30 seconds more, without washing off the first solution. At the expiration of the minute the plate is rinsed and fixed.

My solutions are:—Reducer; metol 4 drams, hydroquinone 8 drams, potassium metabisulphite 2 ozs., potassium bromide 4 drams, water to 100 ozs. Accelerator; sodium carbonate 12 ozs., water 100 ozs.

I was working with the mixed developer until I applied the one-minute method to Zenith plates, when I was so pleased with my results, that I have since developed all my portrait negatives, without exception, in the "one-minute" way.

The time in the two solutions may be varied to suit the exposure, whether under or over, and also to produce the kind of negative desired. If I find the exposure has been a little too short, the bathing in the "reducer" solution is shortened, and the time in the alkali or "accelerator" is prolonged until proper density is obtained. This also applies when there are violent contrasts in the subject. In such cases the plate may be kept in the first bath for about 30 seconds, followed by one to two minutes in the second bath, as may prove necessary.

For normal exposures, where good density is desired, the first bath may be given for quite a minute, followed by the same time in the second bath. If over-exposure is suspected or known to

have occurred, the first bath may be prolonged to two minutes or even more, and the time in the second bath be much shortened.

It will be found that a first plate developed by this double method will be too soft and delicate, and it will also be very yellow in colour. A second plate developed in the same solutions will be stronger and less yellow, and each succeeding plate will be denser and still less yellow. I think the yellowness is due to the absence of sodium sulphite in the second solution, the proportion of sulphite to alkali being far less than in the ordinary mixed developer. The gain in density is accounted for by the fact that each plate carries in its film a certain amount of the "reducer" into the "accelerator." After a few plates have been developed, the increase of density appears to cease, but it is not advisable to run the second bath too low, or to use it too long without adding some fresh solution. The addition of a small quantity of sulphite to No. 2 solution prevents yellowness, but I find a better method is to add a small quantity of No. 1 solution to the dish of No. 2 before beginning to develop, as this not only prevents the yellowness of the image but the thinness also. After six or eight plates have been developed a little fresh alkali should be added to bath No. 2, which will need freshening up when the image is seen to appear too slowly.

When a batch of plates has been developed, any of number one solution that may be left over may be poured into a bottle for use next time. It is well to roughly filter it through a tuft of cotton

wool. I always pass the ball of a finger gently over each plate, as soon as it is put into the first solution, to remove any small particles which may be adhering to the gelatine. If this is not done the moment the plate is wetted, such particles cannot be removed without the formation of nasty spots which call for very careful spotting, in both negative and print.

The second bath will not keep after use, and any left over should be thrown away. The surplus of number one solution should be kept in a separate bottle, as it always has a cloudy appearance, and leaves a deposit on the sides of the bottle. When using it again I always add a third or more of fresh solution, in order to keep up the quantity, so that plates shall be well covered.

The advantages of this method of development are obvious. In the first place there is a great saving of time; good portrait negatives can be developed in 30 seconds in each solution, one minute in all, if the solutions are sufficiently concentrated. My solutions are just about the right strength for 30 seconds in each with Zenith plates; they give me portrait negatives that print well on Ilford Carbon Surface Bromide paper, and also give good prints in carbon. The second is economy of developer; this can be applied to a large number of plates, and be used repeatedly if a little fresh be added. The third advantage is reduction of exposure, and this is a great gain to the portrait photographer, even in these days of rapid plates.

The greatest advantage of all, however, is the marked superiority of the portrait negatives it produces. One of the difficulties of the studio operator is the false values given by the ordinary plate

developed in the ordinary way. The face, as a rule, is too dark with exaggerated shadows, especially if the sitter is wearing light clothes. Very often matt varnish and other dodging must be used to keep the face light enough, while printing sufficiently deep to render detail in the dress.

The "one-minute" method of development gives results far surpassing those produced with a mixed developer. The face will need less retouching, the high-lights will show soft delicate detail, the shadows will be more luminous and will also have more detail in them. The print will not present those blank patches of white high-lights and black shadows, which one often sees in portrait photographs. These advantages should induce photographers to at least give the method a trial, for if economy of time, economy of developer, shorter exposures and better results do not appeal to them I do not know what will.

If I can help it I never allow anyone else to develop plates have exposed, and the advantages mentioned are those I have personally experienced in daily work. Those who feel doubtful of starting a new method should try an experiment; expose a plate in the studio as usual, and, before development, cut it in two, develop one half in the old way, and the other half in the new and compare the results.

I do not say the new method will suit every plate. I tried one which failed to give good results by it; but there is no doubt about its suiting the Zenith, which, by the way, is the finest plate for portrait work I have ever used.

HAROLD BAKER.

MIXTURES OF DYES AS SENSITISERS OF GELATINE PLATE

III.

[The following is an abridged translation of a thesis by Guido Daur, presented for the degree of Doctor of Philosophy at the Münster University. The experimental work was done on the suggestion of Professor Miethe, to whose colleague, Dr. E. Stenger the author of the papers renders his thanks for much advice and assistance. The full text of the paper occupies a book of 105 pages published by E. Grieser, Frankfurt a/M.—Eds. "B.J."]

20 and 21. *Isocol-dicyanine*.—Fig. 20 represents the results obtained with a mixed bath of these two dyes; fig. 21 gives the curves obtained by using the dyes in separate baths. It was found necessary to wash plates in alcohol. The curve is of the isocol type without gaps in the green, a maximum at 530, a second at 580, and a third at 630. The minimum between 530 and 580 is somewhat

In fig. 21 three curves are given, each for an exposure of 60 seconds. I. Dicyanine-isocol used in one bath. II. Dicyanine-isocol used in separate baths in the order isocol-dicyanine. III. Isocol-dicyanine used in separate baths in the order dicyanine-isocol.

The position of the maxima is the same in all three curves. They lie in the green-blue, green-yellow, orange, and red. In the

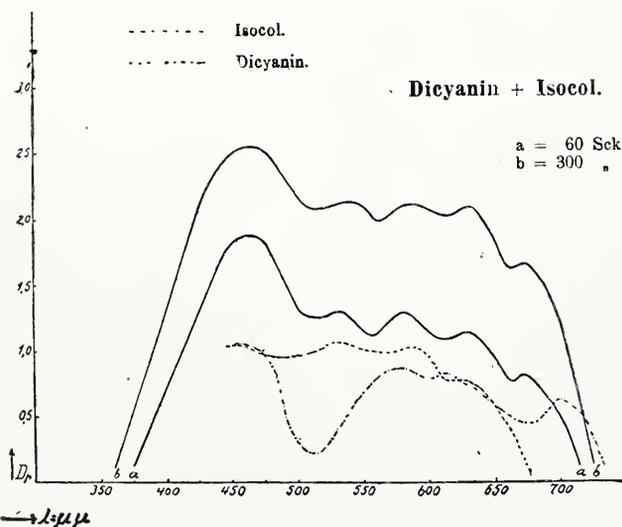


Fig. 20.

The dyes were used in mixed bath.

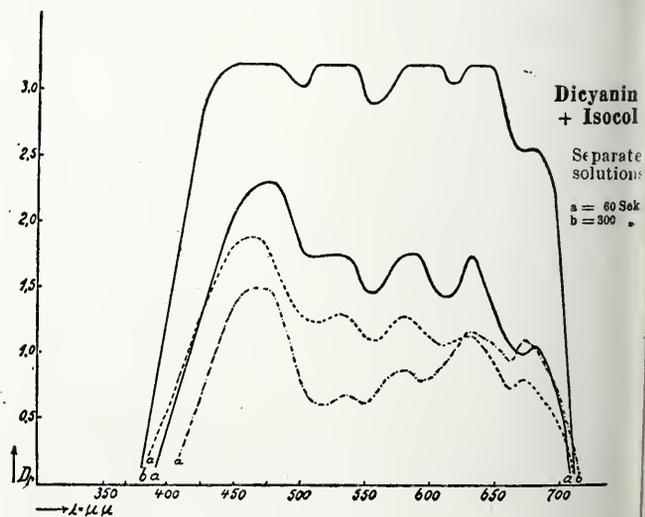


Fig. 21.

— Plate sensitised, first in isocol, then in dicyanine.
 Plate sensitised, first in dicyanine, then in isocol.
 - - - - - Plate sensitised in mixed bath.

deeper than with isocol alone; the maximum at 630 is considerably higher than when using the dye by itself. The reason for this no doubt is that at this point the dicyanine maximum of 610 is apparently obtained. The last dicyanine maximum of 700 also comes up, prolonging the curve towards the blue, owing to a shift to 670. The colour-sensitiveness, as also the general sensitiveness, leaves much to be desired.

of I. the sensitiveness for the rays of the first three colours is almost equal, the red-sensitiveness being only a little less. For II. the sensitiveness for the first three colours is almost equal and the action in the red very much inferior. It is also worthy of note that the minima lying between the various maxima appear more pronounced. In III. the ratio of sensitiveness of the spectral rays

very different. From greenish-blue through greenish-yellow to range the density steadily increases, remaining constant in the red. The general sensitiveness of the plate, however, is much less, so that the relatively strong action in the red is about equal to the lesser action of II. The general sensitiveness is greatest in II., the colour-sensitiveness in this case rapidly increasing with increase of exposure. Whilst in I. the blue maximum does not reach the normal density, even after an exposure of 300 seconds, in the case of II. all the maxima are equal to that in the red.

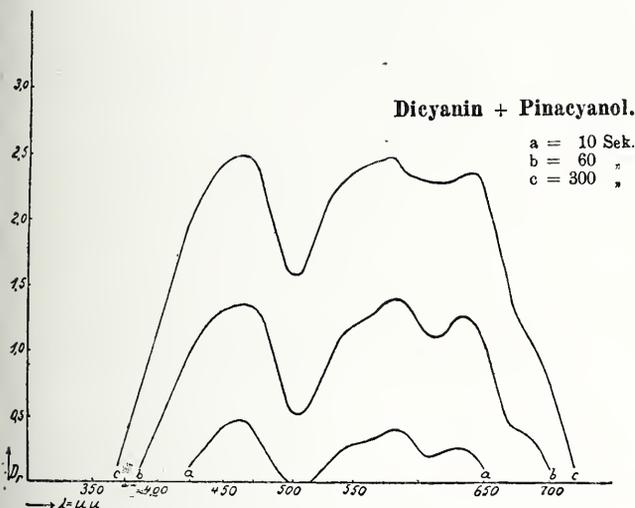


Fig. 22.

22. *Dicyanine-pinacyanol*.—The general character of the curve (Fig. 22) is that of pinacyanol; the strong dicyanine maximum of 400, which in other combinations is shifted 20 to 30 $\mu\mu$ towards the blue, is not to be found on short exposures. On longer exposures it comes up slightly and gives slight prolongation of the curve. As anticipated, no filling up of the gaps in the green takes place. Both dyes give a maximum at 580, hence the spreading of the maximum at this point. It was to be expected from the 610 maximum of dicyanine that the gaps shown by the pinacyanol at this point would be filled up. It should also be noted that the shift of the maximum 20 $\mu\mu$ towards the red, noticed in the case of formulæ nos. 18 and 19, also takes place here (630). As the colour maxima

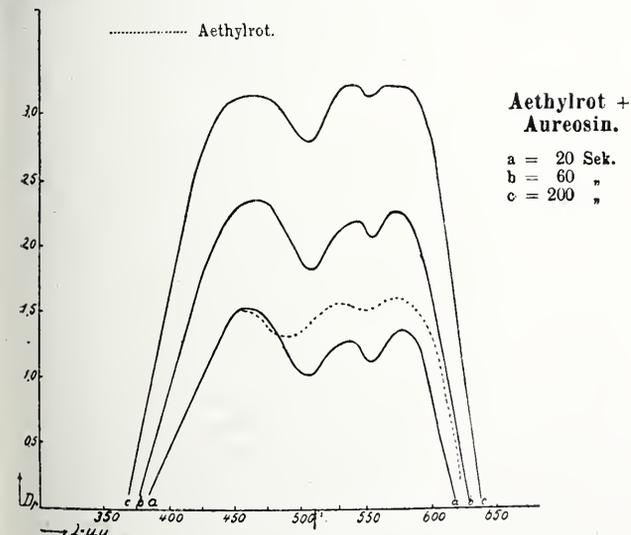


Fig. 23.

about the same value as that of the blue, it is probable that there is some screen action, also the fog is very strongly marked (7). The water-washed plate could not be used.

Mixtures of Eosines and Isocyanines.

It was not found that these dyes were incompatible. The solution, being left standing in the air after use, deposited an insoluble precipitate, probably a combination of the cyanine base with the acid of the ethrosine. Ethyl-red was chosen as the isocyanine to be used in mixture with each of four eosines.

3. *Ethyl-red-aureosine*.—Contrary to expectations, the curve is

almost wholly that of ethyl-red, in the case of the short exposures only the ratio of colour-sensitiveness to blue-sensitiveness being affected. From the ethyl-red curve, which is so chosen that its height in the blue corresponds with that of the last curve of the two dyes, this can be clearly seen. There is a shift of both maxima about 10 $\mu\mu$, the new positions being 540 and 570. There is also a certain contraction of the maxima. The gap at 500 is somewhat enlarged. The maximum at 590 is of the same value as that at 540 on short exposures, but increases with longer exposure, and with a time of 200 seconds exceeds even the maximum in the blue.

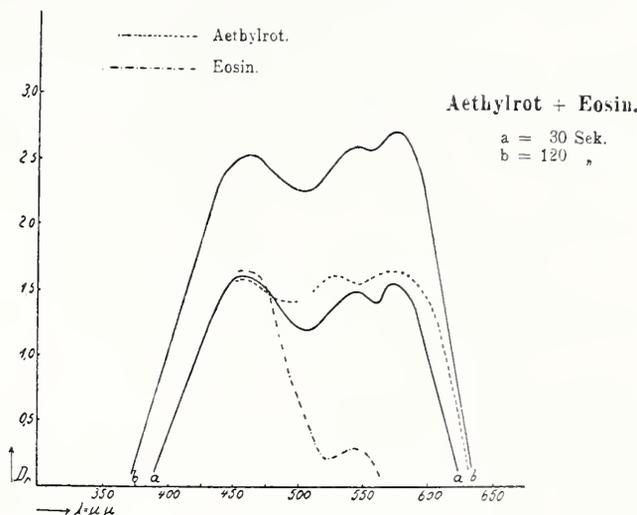


Fig. 24.

24. *Ethyl-red-eosine*.—As shown in Fig. 24, the above relations hold good when eosine is used, although this dye is a much weaker sensitiser than aureosine, but the result is very much the same. The two maxima at 530 and 590 are thrown together at 540 and 585; the gap in the green has become accentuated. The colour sensitiveness at short exposure is less than that of the mother emulsion, but becomes equal to this on longer exposure, and exceeds it in the case of the greatest exposures. The maximum at 585 is also intensified on increasing exposure. With 200 seconds the minimum lying between the two maxima is scarcely noticeable, and disappears on still longer exposure.

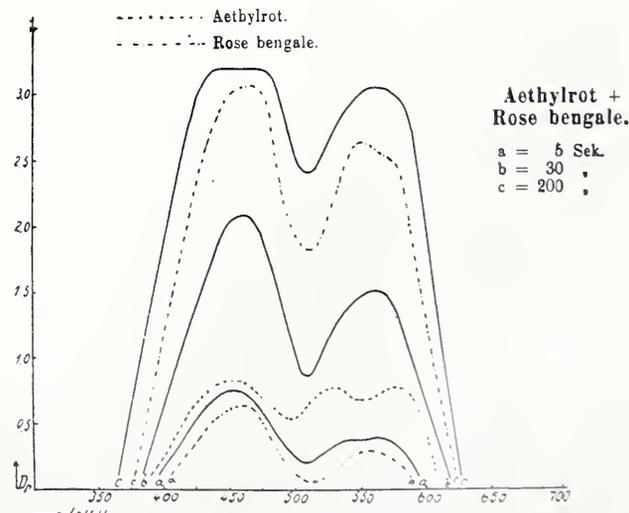


Fig. 25.

25. *Ethyl-red-Rose-Bengal* (Fig. 25).—The curve here is that of the strongly sensitising rose-Bengal, which has a rather deep gap in the green and a maximum at 550. The ethyl-red raises the curve somewhat at 500, and its maximum at 530 produces a considerable excrescence of the steeply rising curve of rose-Bengal. The maximum of ethyl-red at 580 has disappeared. In Fig. 25, alongside a curve for ethyl-red showing the same blue-sensitiveness obtained by giving five seconds' exposure with the two dyes, is shown the rose-Bengal curve for the same degree of light action. It will be seen that the general sensitiveness is increased. The ratio of the colour-

sensitiveness to the blue-sensitiveness remains the same as for rose-Bengal used by itself.

26. *Ethyl-red-erythrosine*.—Erythrosine, owing to its strong sensitising powers, fixes the shape of the curve, and there is scarcely a sign of the effects of the ethyl-red; there is no improvement of the gaps in the green. The ethyl-red maximum at 530 is in evidence on short exposures at 520. The slight prolongation of the curve towards the red end of the spectrum is to be ascribed to the ethyl-red. The ratio of colour-sensitiveness to that in the blue is, however, extremely

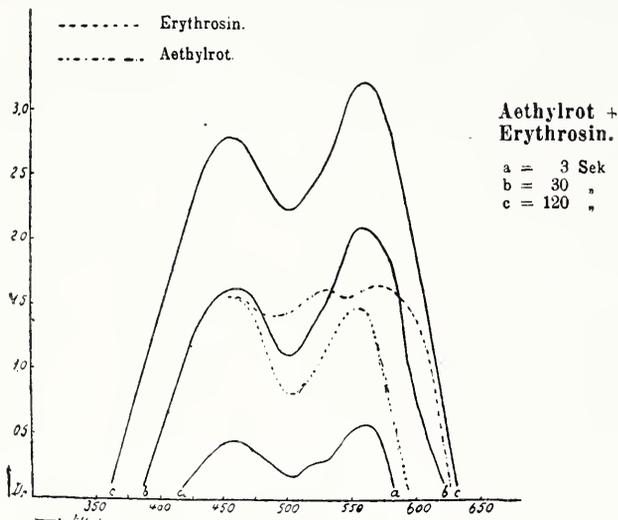


Fig. 26.

good. On short exposures the density at 560 is greater than in the blue. Exposing 120 seconds the maximum is in the green, 200 seconds being necessary for the same density in the blue.

27. *Pinacyanol-eosine*.—Contrary to experience with other mixtures of eosines and isocyanines, the plate bathed in alcohol was much the better of the two. The curves are of the pinacyanol type and exhibit in a striking way the deep and broad gaps in the blue-green to a degree not exhibited by pinacyanol alone. The depth is perhaps to be explained by the considerable increase of the first pinacyanol maximum at 580. The pinacyanol curve gradually rises from the minimum to its first maximum at 580. The curve of the combination, however, rises in a perfectly straight line instead, as

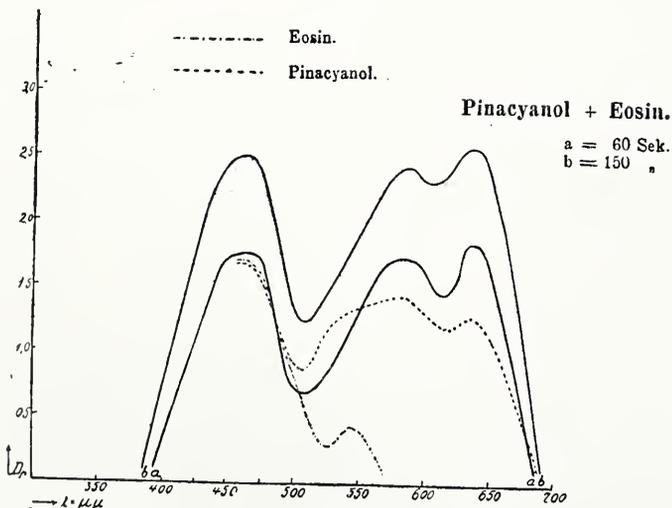


Fig. 27.

might have been expected, showing a rise between 530 and 550. The maximum of the eosin at 540 is thus without effect in admixture with the other dye. There is scarcely a sign of any shift of the pinacyanol maximum. The colour-sensitiveness compared with that for the blue is good.

28. *Pinacyanol-erythrosine*.—It was to be expected that the erythrosine would affect its companion dye quite differently from eosine; the latter but slightly affected the pinacyanol curve, whilst the strong maximum at 560 of the erythrosine might be expected to make itself felt. And as seen from Fig. 28, the first maximum

of the pinacyanol is not to be seen at all. The erythrosine maximum encroaches upon not only the maximum of the mother emulsion at 450, but also the orange maximum at 640. It is notable that the pinacyanol maximum 630 has shifted 10 μμ towards the red. The combination of pinacyanol with eosine would seem on this

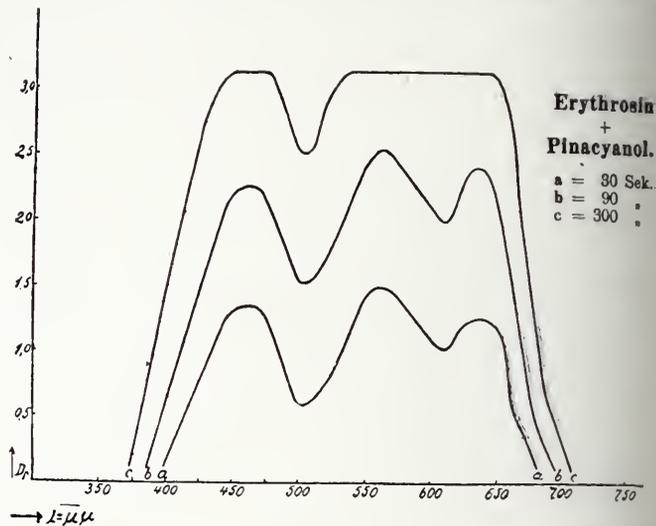


Fig. 28.

account to be undesirable, as any alteration of the pinacyanol curve by this sensitiser is not likely.

G. DAUR.

(To be continued.)

FRAUD IN THE SUPPLY OF CARBON PHOTOGRAPHS.

A CASE of importance to photographers, both amateur and professional, occupied the attention of the Southampton Borough magistrates on Thursday morning, when L. B. Freeman, H. Metcalf, and L. Barron were summoned by Mr. S. G. Kimber, F.R.P.S., the well-known secretary of the Southampton Camera Club, that on or about March 1 last they unlawfully, and with intent to defraud, applied a false trade description within the meaning of the Merchandise Marks Act, 1887—to wit, carbon cabinet 2s. 6d. per half-dozen usual price 30s., to certain goods, to wit, certain photographs. The second summons was to the effect that on or about March 5 last they did unlawfully and with intent to defraud apply a false trade description within the meaning of the Merchandise Marks Act, 1887—to wit, six cabinet carbon, to certain goods, to wit, six photographs.

It was intended to be a test case, and no pains had been spared to ensure success. At an early stage the Professional Photographers Association had been appealed to to assist, and the committee recognising the importance to the profession of a decision upon the question raised, had instructed their honorary secretary to attend the Court to give evidence. The Autotype Co. had also provided an expert witness connected with their firm, and in addition there were other witnesses in support of the prosecution. The careful preparation of the case involved an expenditure far beyond the three guineas which, by arrangement between the legal representatives of the opposing sides, the defendant agreed to pay costs, and it is unfortunate, therefore, that the proof of the prosecutor's case by the evidence of the witnesses was not required, as it would have remained on record to form a precedent for future proceedings on the same lines.

Mr. G. Dominy was the presiding magistrate, and there were also on the bench Messrs. J. Lemon, R. Chipperfield, L. Button, C. Thomas, W. J. Baker, and W. Wright.

Mr. A. C. Hallett appeared for the prosecution, and Mr. Lampport defended.

Mr. Lampport put in a formal plea of guilty, admitting that the case came within the Act, and pointed out that the defendant was Mrs. Laly Barron Freeman, and stated that the other two names had nothing to do with her, and had not for some time, the firm having been dissolved. His friend did not know that, hence the summons against the three persons.

Mr. Hallett read the summonses again, and then proceeded to make a statement of the facts to the bench, as, he stated, arrange

between Mr. Lamport and himself. He pointed out that it was a case of great importance. The gentleman who laid the information was his client, Mr. S. G. Kimber, a brick manufacturer, and for many years past Mr. Kimber had taken very deep interest in photography, and was, he thought it would be admitted, one of the best, if not the best, amateur photographer in this part of the country. He held medals and various other distinctions, and was a Fellow of the Royal Photographic Society. The case came about in consequence of an advertisement which appeared in the "Southern Daily Echo" of March 1, and the advertisement read in this way:—"Wanted, all ladies and gents to inspect our high-class studies, carbon cabinets, 2s. 6d. per half-dozen, usual price 30s. For six days only.—Freeman and Co., artists, Above Bar, Southampton."

Mr. Lamport: You will notice I am not objecting.

Mr. Hallett: I stipulated when I accepted the plea of guilty that I should make this statement. I have got the original advertisement here if my friend cares to withdraw his plea.

Mr. Lamport: Don't get cross.

Mr. Hallett: It is not a question of getting cross. It is a question of duty. I say again, sir, I have a gentleman from the "Echo" office, who comes here upon compulsion to produce, if necessary, the original advertisement. There can be no doubt that advertisement was inserted by these defendants.

Proceeding, Mr. Hallett said that after reading this advertisement Mr. Kimber, on March 5, went down to defendants' studio, which was then in Above Bar, Southampton, and then carried on business as professional photographers. There he saw a lady, no doubt in their employ, whose name he did not know. He said: "I want six carbon cabinet photographs, as advertised in the 'Echo,' at 2s. 6d." She asked his name and address, which he gave, and she entered it in a book in his presence. He noticed she wrote the word "advertisement" in brackets opposite the entry made. He gave her the sum of 2s. 6d., and she handed him a receipt which read:—"No. 8,723. March 5, 1909. Received from Mr. Kimber the sum of 2s. 6d., six cabinet carbon photographs. Freeman and Co., Southampton. 2s. 6d." She showed him various specimens, and asked him what sized photograph he required. He said a three-quarter length. She directed him to the studio, where he saw another lady operator, and she, he supposed, took his photograph. On Tuesday, March 9, he received a printed circular from the firm which asked him in consequence of having slightly moved, which they found on examining the negative, whether he would give them, at his earliest convenience, the opportunity of taking another photograph. The next day he called again at the studio and there saw a gentleman. He took another photograph. Nothing further was heard of the matter until about three weeks later, and then Mr. Kimber, thinking it time something was done, went again to the studio, which he found to be closed. On making certain inquiries he was directed to 75, Bernard Street, where he found a photographic shop had been opened with the name of Freeman and Co. written over the door. It was only fair to say that he (the speaker) understood they had disposed of their business and transferred it to Bernard Street. There Mr. Kimber went in and saw a young girl he had never seen before. He asked whether he could have his photographs. She asked him his name, and he told her. Then she said she was unable to find the negative, but would give him another sitting if he wished. He said he would like another sitting, and she took him to the studio, and there she exposed one plate upon him. He called again on Saturday, the 29th, and saw another young girl, and she handed him six photographs. He (Mr. Kimber) would produce those photographs were he to be called into the witness-box. He (the speaker) now proposed to produce the photographs to the Bench.

Mr. Lamport: I think the point is that we applied a false trade description.

Mr. Hallett: I am coming to that.

Mr. Lamport: I know; it is not a question whether he got them or not.

The Chairman (after looking at the photographs): We simply see them as they are; I am no judge.

Mr. G. Forbes Bassett (the magistrate's clerk): You have seen these—they are simply put in to show six photographs.

Mr. Hallett: I think it is necessary. I am going to point out how

the false trade description arose as I continue. He (Mr. Kimber) got those six photographs from the young girl and proceeded to test one of them with a bleaching solution of hydrochloric acid and bichromate of potassium, and this demonstrated at once it was not a carbon print. There were, he continued, carbon prints in court which would show what a carbon print really was. Putting it in his own unprofessional language, he would say these were what are called silver prints. The carbon print, he understood, was a permanency. That was to say, if this particular solution was applied to a carbon print it would have no effect upon it at all. If the magistrates would look at the two prints which had been tested they would find they yielded immediately to the test. In fact, three had been tested—one by Mr. Kimber, and two by experts, who had come to say they were not carbon photographs at all, but were silver prints. Proceeding, Mr. Hallett said that on the 4th of June Mr. Kimber wrote a letter; but he was not going to trouble them with the whole of the correspondence, but merely make a reference to it. Mr. Kimber wrote complaining that the prints were not carbon prints at all, and in one of her letters, dated June 29, the defendant stated that she was surprised at the letter of Mr. Kimber, and said that the photographs he received were as advertised, "carbon matt," as the specimens shown at the time of the order. Not being satisfied with that explanation, Mr. Kimber made certain inquiries, and amongst other things he came to consult him (Mr. Hallett). Of course, it struck him at once that this was undoubtedly a case in which they should look for information in this particular Act, and, therefore, he formed these informations on the two summonses. The summonses were served, and on the Saturday after a letter was written in which defendant offered to do anything she could to please Mr. Kimber. His friend pleaded guilty to the information. The magistrates would probably recollect that as far back as the year 1890 there was a decision of the Queen's Bench to the effect that the only necessary ingredient in a case of this kind was—did the purchaser get the thing he bargained for? It was not whether it was worth any more or less. The question was: Did they get six carbon photographs? Undoubtedly they did not, and they had gone to very considerable trouble and expense over this matter. He had in court three experts—one local gentleman and two others from London. With the magistrates' permission, he desired to say that it was not the wish of Mr. Kimber to do other than have this thing exposed, to show to the public that this was not a carbon process at all, and that in describing it as a carbon process defendant had applied a false trade description to this particular class of goods, and had placed herself within the Merchandise Marks Act. As to the question of costs, his friend had consented to pay three guineas towards the costs. Of course, three guineas would not pay those costs, as, Mr. Hallett went on to point out, there were gentlemen from London and Mr. Kimber's personal expenses to be considered. He trusted the magistrates would consider he had done right in bringing the matter before them, and, in conclusion, stated that his friend was going to give an assurance that this should not occur again, and with the permission of the Bench he proposed that the matter should end there for the present.

Mr. Lamport said he had received instructions from his client to enter a formal plea of guilty, and also to agree to pay the sum that had been stated, and with that he hoped the magistrates would say that there was no necessity to go further than the payment of that sum. He would like to say that defendant had never any intention to defraud and mislead, and he was bound to say that his client thought she had unconsciously come within the law. The defendant had been in business for many years in Above Bar Street, and occupied premises there, next door to one of their Worships. That was recently sold, and in the confusion of moving, evidently, according to the correspondence read, the negative was mislaid. In opening his friend had given Mr. Kimber an advertisement as an amateur photographer, and he (Mr. Lamport) would second all that had been said with the greatest pleasure. Defendant had got some new carbon paper: they called them carbon photographs, and it turned out they were not, directly a test was made by an expert from Southampton and two from London, who said it was not what defendant had suggested. They were very sorry. They did not want to prejudice any amateur photographer, and they did not want to injure the trade. They did try to make pretty pictures at times, but there were occasions when they failed. The defendant

offered to pay the £3 3s. and promise never to offend again. His client did not wish to fight; there was a technicality, she was wrong, and was sorry that should have happened.

Answering one of the magistrates,

Mr. Lamport pointed out that the photographs were supplied, although they did not answer the description given on the receipt. Surely if the prosecution were content, they (the magistrates) did not desire to go further. On behalf of his client, he gave an undertaking that it should not occur again, and the defendant would pay £3 3s. on account of costs. That being so, surely the court did not want more than the prosecution. There was never any admission to defraud.

Mr. Hallett: There is an admission within the meaning of the Act.

Mr. G. Forbes Bassett (magistrates' clerk): You had better plead not guilty, and you might get off with 10s. and costs.

Mr. Lamport was of opinion that the offer made should meet the case. He did not ask for permission to withdraw his plea if there was no desire of imposing a fine.

Mr. Hallett: I don't mind you withdrawing your plea.

Eventually the magistrates agreed that defendant must pay 5s. in each case, and the £3 3s. as arranged—in all £3 13s.

Photo-Mechanical Notes.

The London County Council School of Photo-Engraving and Lithography.

THE London County Council decided at its meeting on July 27 to acquire the ground on which this school stands, pull down the present building, and rebuild suitable premises. We have long thought the present premises were of no particular credit to the Council, and though no doubt reasonable while the school was an experiment, they should have been replaced long ago when it was evident that it was an assured success. It is interesting to remember that this was the first technical school undertaken by the Council through its Committee, the late Technical Education Board. The school owed its origin to the efforts of a few lithographic artists to improve their education. They induced their trade union to levy 1d. a week per member, which, together with voluntary subscriptions, enabled them to hire a floor of a disused warehouse in the Clerkenwell Road and engage a master and models for drawing. Naturally the funds were insufficient to carry on the work properly, and so they appealed to the then newly formed Technical Education Board for help. This was granted, with an intimation that further aid could only be given when better premises were found. Subsequently the present premises at Bolt Court were discovered, and the Technical Education Board hired them; the school was transferred there and commenced work in May, 1895, being formally opened in November of that year. The lithographers appealed to the Council for help on the ground that they should have the opportunity of studying photo-mechanical processes which they felt were beginning to supplant lithography, and so the school had added to it a photo-process department. Among those reporting to the Council about the school in the early days were Sir W. Abney and Mr. Emery Walker, the latter still chairman of the Advisory Sub-committee. Mr. Snowden Ward is another gentleman on the present Advisory Sub-committee who was also on the first. The numbers attending the school were not very large at the commencement, but they have gradually grown until there are now every year upwards of six hundred individual students. From the process side being subsidiary it has now become by far the most important, the numbers attending these classes showing large increases every year, while the lithographic side remains practically stationary. Mr. Charles W. Gamble was appointed the first director of the school. He resigned in 1902 in order to accept the position of head of the photographic and printing crafts' department at the Manchester School of Technology. The present principal, Mr. A. J. Newton, was then appointed, and he has so worthily carried on the work commenced by Mr. Gamble that the repute of the school is now deservedly world-wide. The school has frequently exhibited its work, always receiving high awards. It also issues every year a volume of specimens of work done by the students, a handsome

evidence of the practical character of the work of which we have frequently expressed our appreciation. We have no doubt the new building will afford further opportunities for increasing the usefulness of this valuable institution. The cost of the new school is to be £20,000, of which £15,500 is for the site.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following patents have been applied for between July 19 and 24:—

CINEMATOGRAPHS.—No. 16,984. Apparatus for projecting cinematograph and the like pictures. Silvio Doccetti, 4, Corporation Street, Manchester.

PRINTING FRAMES.—No. 16,992. Improvements in photographic printing frames. Rudolf Gissingner, 345, St. John Street, London.

STANDS.—No. 16,994. Improvements in supports for photographic or similar apparatus. Ernst Kehrer, 345, St. John Street, London.

FILMS.—No. 17,009. Machine or apparatus for the manufacture of photographic films. Philip Arthur Newton, 6, Bream's Buildings, London.

ANIMATED PICTURES.—No. 17,021. Improvements in apparatus for taking or reproducing animated pictures. Louis Henri Huet, 53, Chancery Lane, London.

CINEMATOGRAPHS.—No. 17,130. Method of and apparatus for regulating the light thrown on the picture film of cinematographs and the like. Bronislaw Gwozdz, 7, Southampton Buildings, London.

COLOUR PHOTOGRAPHY.—No. 17,198. Process for producing coloured portraits and photographs and accessories used in connection therewith. Ludovic Maurel and Samuel Achour, 110, Strand, London.

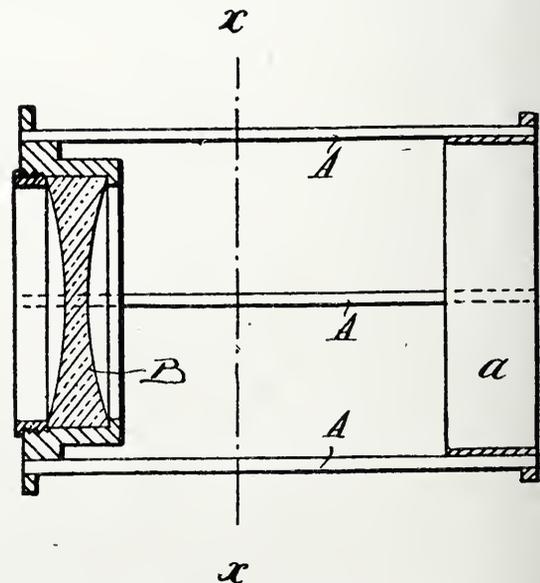
COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

TELEPHOTO-LENS MOUNT.—No. 20,415, 1908 (September 29, 1908).

The invention relates to a method of mounting the positive and negative elements of a telephoto system which reduces the internal reflection to a minimum by dispensing with a tubular connection. The negative element is carried at the end of a light removable framework built of a number (usually three or four) of strong



metal wires or rods projecting into the camera from the inside of the front panel or from the mount of the positive element. The positive lens mount is of the focussing type, actuated preferably by a small lever arm and screw movement to vary the separation of the two elements according to the magnification required and to the camera extension.

Thus the frame, A, carrying the negative lens, B, consists of four stout metal wires or thin rods fixed to the lens at the inner ends and to the ring or short tube, *a*, at the outer. The tube, *a*, fits tightly on the outer tube, *c*, belonging to the focussing mount, C, and fixed upon the front panel, D, of the camera so as to project for some distance inside. The positive element (not shown in the drawing) is screwed into the outer end of the sliding focussing tube, *c*¹, which is operated by the intermediate tube, *c*², having a small handle or lever, *c*³, and helical slot, *c*⁴. The outer tube, *c*, has a longitudinal guiding slot, *c*⁵, and a pin, *c*⁶, on the sliding tube passes through both slots. On turning the tube, *c*², the positive lens is moved away from or towards the negative lens or element and the separation thus varied in the manner described. It will be seen that, owing to the absence of a continuous tube between the two elements, the internal reflection is almost eliminated, the rods of the light frame reflecting only a very small fraction of the light directed towards the sides. Owen Edleston Wheeler, "Strathmore," Prince's Road, Weybridge.

CAMERA SWING-FRONTS.—No. 15,608, 1908 (July 23, 1908). The object of the invention is to construct the apparatus in such a way that a swinging front can be firmly and rigidly supported upon a single stretcher. A stretcher bracket to which the stretcher, *g*, is pivoted is provided with a slotted arm or bracket, E, of quadrant or other form with a clamping screw passing through a slot in the bracket and a slot in the stretcher by which the latter can be clamped in any position, either vertical or at any inclination thereto to which the

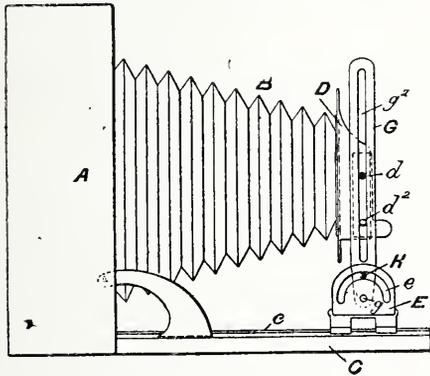


Fig. 1.

stretcher may be swung. In one form the stretcher bracket is provided with a pin or pivot, to which the lower end of the stretcher is pivoted with a slotted arm or bracket rising above the pivot. This arm is preferably of quadrant form, but may be straight, inclined, curved, V, or other suitable shape. The slot in either variation may be stamped or cut in a plate without forming a separate arm or member.

In another form the slotted arm or slot may be below the pin or pivot, with the stretcher pivoted some distance above its lower end, the lower end of the stretcher being slotted to engage the clamping screw passing through the slot in the bracket. The slot

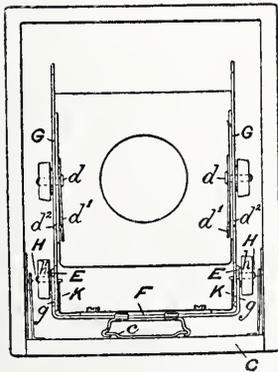


Fig. 2

either in an arm or in the plate is preferably of quadrant form, but may be straight, inclined, curved, V, or other suitable shape.

In the form shown in Figs. 1 and 2, which is the form at present preferred, the stretcher bracket or plate, E, is made of quadrant form, and the strut or stretcher, G, pivoted thereto at

its lower end on the pin, *g*. A curved slot, *e*, is formed in the bracket, E, above the pin, *g*, and the clamping screw or bolt, H, is passed through the strut or stretcher, G, and through the slot, *e*, the strut or stretcher being rigidly clamped by the nut, *h*, and washer, *h*¹, thereon. Thornton-Pickard Manufacturing Company, Limited, Arthur Gray Pickard and Arnold Shepherd, Altrincham, Cheshire.

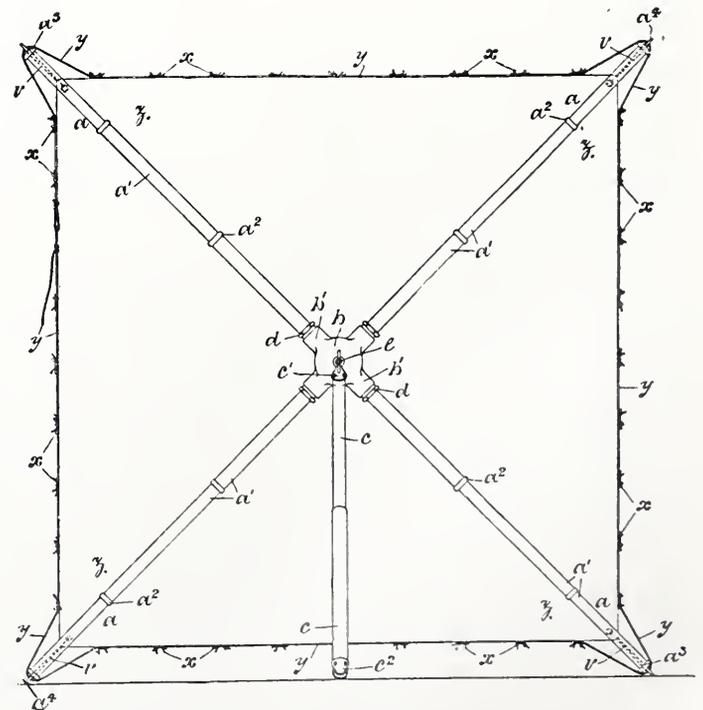
LANTERN-SCREEN STAND.—No. 18,471, 1908 (September 3, 1908). The stand comprises a series of radial pieces detachably attached to a centre socket piece, these pieces being provided with junction plugs whereby the several parts constituting the pieces can be connected to each other and held in their relative positions when the stand is in use, while they permit of the several parts being easily and quickly disconnected and telescoped one within the other when not in use, and of being stowed away in a small compass suitable for travelling purposes; further, the parts are detachably connected to a centre junction, to which is also loosely connected the stay or strut whereby the stand is supported in position.

The stand comprises a number of collapsible stays, *a*, connected together by a central socket or junction piece, *b*, and to this piece is connected the strut, *c*, whereby the stand is supported in an upright or other approximate position.

The parts, *a*, are composed of a series of tubular lengths, *a*¹, which are adapted to telescope one within the other, and are provided with junction plugs, whereby the tubular lengths are maintained in alignment at predetermined distances apart.

The central junction-piece, *b*, comprises screw-threaded sockets, *b*¹, which are adapted to receive screw-threaded conical sleeves, *d*, which are split, and adapted to receive and grip the inner lengths of the members, *a*, when the same are engaged with the sockets of the junction-piece, *b*, as shown in Fig. 1.

The outer ends of the parts, *a*, are provided with plugs, *a*³, having rings, *a*⁴, as shown, which serve as guides for a cord, rope, or the like, as hereinafter described. Pulleys or other means may be employed in place of the rings, and where such pulleys are made use of the same may be mounted in bifurcated ends formed in the outer ends of the outer lengths of the members, *a*. The plugs, *a*³, serve to hold the rings, rollers, or the like in position and enable them to be removed when the screen and stand are to be collapsed.



The parts, *a*, can be adjusted longitudinally, relatively to each other and to the centre junction-piece, by means of split conical sleeves, which are adapted to grip any part of the length of the inner tubular lengths. A further means of adjustment may be provided by screw-threading the junction-plugs, *a*², and the ends of the tubular lengths.

The strut, *c*, is fitted with lugs or tongues, *c*¹ and *c*² respectively, at the upper and lower ends, the lug, *c*¹, at the upper end being adapted to engage with a pin, *e*, loosely connected to the centre junction-piece, and held loosely thereto by a nut or its equivalent as shown, and the lug, *c*², at the lower end being provided with a screw or other means whereby the strut may be supported on or engage with a platform, floor, or the like. The connection at the upper end of the strut enables the stand to be tilted and arranged at varying angles relatively thereto, and the platform or floor.

In fitting up the stand and screen (as shown in Fig. 1) the members, *a*, are fitted in the sockets of the centre-piece and the strut attached, after which loops or loose portions of the cord or rope at the corners of the screen are engaged with the outer ends of the members and the screen tightened up on to the stand. The corners of the screen are fitted with tapes or the like, *v*, for holding these outwardly when the screen is fitted on the stand.

Where the cords or the like pass through rings attached to the removable outer plugs, these may be more or less permanent attachments to the cords. The portions of the stand and strut which rest on the floor or other like plate may have means, such as cushioned attachments, to prevent damage in the use of same, and also means for engaging with the floor or other places. William Laurence Parkinson, 5, Commutation Row, Liverpool.

FOLDING OPTICAL LANTERN.—No. 17,027, 1908 (August 13, 1908). The invention consists of a lantern suitable for optical projection of lantern-slides, etc., made so that when not in use it can be compactly stowed and packed in a small space, or in a small packing case, which renders it capable of being carried about by hand with relative ease; while at the same time it shall be also light and strong, and shall have all the optical qualities which lanterns of the usual type have.

With regard to the body portion of the lantern, the partition or wall forming the front end of it, carrying the condenser, is adapted to be moved out of its normal, that is, the vertical position, and to be placed in the horizontal position, parallel, say, with the base. This is best obtained by hinging this front frame at its lower edge to the base so as to fold towards the back, with the condenser under it, and lying on the floor of the lantern. Generally, this movable portion carries a guide for the lantern slide carrier frames or the slides.

The sides of the body portion are movable, having fastening devices adapted to engage with the condenser carrier frame or back wall, and with the base, and so adapted as to be readily placed up in position, or taken down. These parts not only serve as the sides of the body, but, when fitted and attached, they also fix the condenser carrier frame or part referred to, in the vertical position. Or these sides may be arranged to fold about hinges or joints, either in single or multiple folds, and take the horizontal position when folded.

The upper part or roof of the body is also removable; and it may be provided with grooves, in which the upper edges, or parts thereon, of the condenser frame or back end, and the side boards or sides, may fit, so that it and the other parts will be held in place.

The frame or front of the lantern carrying the objective is also capable of being moved into a horizontal position, say, by hinges or connections. In one form, the lower part of this front may be hinged to the sliding frame which carries it, and which is racked out and in, in the base of the lantern; and it is adapted to fold inwards about these hinges into the horizontal position, so that it will fold down, and be stowed compactly in the front portion of the frame, with a bellows portion which is connected with it, folded beneath it. When this end, carrying the optical lens is in the vertical position, it can be held and fixed in this position by sliding pins and slotted plates, hooks, clamps, or other suitable means.

When the various movable or collapsible parts are moved in their position of use, to the packed or stowed position with the sliding frames slid in the lantern will occupy a space of about 15 inches long, by 7 inches wide, by 4 inches deep, which, relatively, is a small space for a full-sized lantern to occupy, so enabling it to be carried about in a packing case, or bag of comparatively small size. William Laurence Parkinson, 5, Commutation Row, Liverpool.

New Trade Names.

SYNOLOIDS (DEVICE OF SUN AND GAS-FLAME). No. 311,986. Chemical substances used in manufacture of a photographic developer. Synoloids, Ltd., 14, Harlesden Park Parade, Harlesden, London, N.W., photographic paper and chemical manufacturers. April 3, 1909.

SODAX.—No. 313,551. Chemical substances used in manufactures, photography, or physical research and anti-corrosives. Joseph Crosfield and Sons, Ltd., Bank Quay, Warrington, Lancs, soap manufacturers. May 28, 1909.

PRINTEX.—No. 313,831. A self-toning emulsion being a photographic chemical solution. Lothar Fiedler, 6, Eversleigh Gardens, Loughton, Essex, electrical engineer. June 9, 1909.

MONGOOSE BRAND (DEVICE, A MONGOOSE).—No. 314,057. Chemical substances used in manufactures, photography, or philosophical research and anti-corrosives. Hanger, Watson, and Harris, Ltd., Stoneferry Works, Hull, and 28, Wellclose Square, London, E., paint, colour, and varnish manufacturers. June 17, 1909.

L. C. Co., LTD. (DEVICE, CAT IN CIRCLE).—No. 314,112. Cinematograph films included in class 8. London Cinematograph Co., Ltd., 154, Charing Cross Road, London, W.C., manufacturers and merchants. June 18, 1909.

SYNOLOIDS (DEVICE OF SUN AND GAS-FLAME). No. 311,987. Photographic printing papers. Synoloids, Ltd., 14, Harlesden Park Parade, Harlesden, London, N.W., photographic paper and chemical manufacturers. April 3, 1909.

Noxo.—No. 312,016. Photographic paper. John J. Griffin and Sons, Ltd., Kingsway, London, W.C., manufacturers. April 5, 1909.

New Materials, &c.

“Vigorous” Ensyna. Made by Houghtons Ltd., 88 and 89, High Holborn, London, W.C.

Under this name a new variety of the distinctive and well-known Ensyna paper introduced last autumn has now been placed on the market by Messrs. Houghtons. As the name indicates, “Vigorous” Ensyna is designed primarily to give prints of somewhat greater contrast than the ordinary brand, and, therefore, it is more suitable for the thin and somewhat flat negatives which constitute a considerable proportion of the output of the beginner in photography, to whom particularly the ease and rapidity of the process make a special appeal. Apart from this quality in the new paper there are several other features which show that in the new Ensyna emulsion the makers have secured certain special effects. The development of a sufficiently exposed print takes place much more quickly—within one to one and a half minutes—and there is therefore a lessened danger of the careless worker obtaining defective prints due to fogging from unsafe light during development. Further, in addition to the matt and glossy brands, there is a new grade known as “Carbon” Ensyna and giving prints of very pleasing semi-matt surface.

Our own trials of the new paper were made with one or two of the sample packets which during the present month are being offered by Messrs. Houghtons at the prices of 6d. in quarter-plate size, 1s. half-plate, post free and complete with developer. Taking a thin and delicate negative—one just about right for a P.O.P. print—was obtained on the “Vigorous” Ensyna, giving the minimum exposure. a print of cold purplish tone, with somewhat too great a degree of contrast. It is evident that with negatives of greater flatness the results with the new paper will be of just about the degree of brilliancy to satisfy the average worker. But, further, by giving a greater degree of exposure and thus securing a warm purplish to brown and warm brown tone, the contrasts in the print are somewhat softened, although not to anything like the pronounced extent which a similar degree of over-exposure would bring about in the case of a development paper. In this respect we find that “Vigorous” Ensyna differ markedly from the ordinary grade, and it thus places the worker in the favourable position of being able to deal with negatives of quite different character by modification of the exposure. In all cases the tones are of a very agreeable colour whilst the great readiness with which the exact depth of colour is hit in the developer should be one of the chief factors in enhancing

the process in the eyes of the amateur worker. There is no loss in depth in the fixing bath, although in the case of the matt paper the usual allowance must be made for the slight cooling in colour which takes place on drying. In manipulation the new paper resembles that of the ordinary grade. The paper is wetted by a half-minute's immersion in water, which is then poured off and the developer applied. The print is fixed as before for half a minute in an acid hypo bath, and is then given a short wash, the whole operation being carried out within the space of a minute or two. We feel sure that further notice will be drawn to this new type of printing paper by the introduction of the "Vigorous" Ensyna, and attention may therefore be drawn again to the opportunity afforded by Messrs. Houghtons for a trial of the new material on a sufficiently extensive scale for a trifling sum.

"Victol" One-solution Developer. Sold by Houghtons Ltd., 88 and 89, High Holborn, London, W.C.

A one-solution liquid developer suitable for all kinds of photographic work has so gained in popularity during the last year or two that it is not surprising to find a preparation of this kind being introduced to their numerous customers by Messrs. Houghtons. The developer is issued by them, under the name of "Victol," in 3oz. bottles at the price of 1s. 3d., this quantity making 72oz. of the normal strength developer suitable for negatives. For use in the case of normal exposures one part of the concentrated solution is diluted with water to 24 parts, or to twice this amount if under-exposure is apprehended, whilst in the case of over-exposure only about two-thirds of the water should be taken. Our own trials of the solution on a batch of plates exposed during the holidays showed us that the developer responds excellently to the wants of the photographer. Although the image appears immediately, density is built up very readily, with the result that the development may be stopped at a point where a thin detail-full negative is produced, or may be pushed further to obtain any required degree of vigour, and this without unduly protracting the time of development. If a highly vigorous negative is obtained we have found it well to use a 1:10 or 1:15 developer with a little bromide added, an alternative method recommended by the makers being to bring up the negatives for four or five minutes in a 1:24 solution, following this with two or three minutes in a 1:12. For both bromide and gaslight prints "Victol" at a suitable dilution gives prints of excellent colour and vigour, a little bromide being added in each case to secure the full brilliancy of the high-lights. The developer in all cases may be used repeatedly without showing any signs of stain or markings, and is evidently a preparation which is suitable for all the purposes of photographic development, and represents the most convenient form of photographic developer.

CATALOGUES AND TRADE NOTICES.

AUTO TYPE ENLARGEMENTS.—The Autotype Co., 74, New Oxford Street, London, W.C., have just issued a new edition of their "trade enlargement list," which very conveniently supplies the prices of carbon enlargements from negatives, paper prints, daguerreotypes, etc. The list further supplies and illustrates the very attractive forms of portrait made by the Autotype Co. for photographers, such as the "Michallet Sketches," "Lawrence Portraits," "Stained Drawings," and "Engraved Border" enlargements. These represent most charming and effective work, either wholly photographic or on a photographic basis, and are supplied by the company either mounted or in a suitable neat frame. Enlargements on canvas, carbon miniatures on ivory, and carbon prints in quantity are also dealt with in the new list, which quite adequately represents the great facilities of the Autotype Co. in the way of carbon work for all classes of professional portraiture. As no printed list can convey an idea of the quality of the work it may not be irrelevant for us to add that we have never known an instance in which an Autotype print or enlargement has fallen below the consistently high standard which the Company maintain.

FACTS AND FALLACIES.—Under this title Messrs. Burroughs, Wellcome, and Co., Snow Hill Buildings, London, E.C., have issued a booklet of instructive reading dealing with the necessity of pure and freshly dissolved chemicals, and emphasising the quality and portability of some notable tabloid photographic chemicals, such as the economical "Rytol" developer and sulphide toning compound. The booklet is sent free on application.

PHOTOGRAPHIC DEALERS should make a note of the private special discount list just issued by the firm of Jonathan Fallowfield, 146, Charing Cross Road, London, W. The list forms a key to the encyclopædic "Fallowfield's Annual," and under its alphabetical arrangement supplies a rapid reference to the discounts given for the different classes of goods. It is issued for private circulation only to bona-fide dealers.

A NEW LIST has just been issued by the Service Co., 292, High Holborn, London, W.C. It provides a very full description of all classes of photographic apparatus and materials, and is sent free on application to the firm.

"SYLVIA" SPECIALTIES.—A list reaches us from J. Abley Bros., Copthorne Road, Shrewsbury, giving prices for "Sylvia" bromide and gaslight paper, "Sylvana" P.O.P., C.C., and albumenised papers in addition to plates and several developing preparations. The list, with terms to professional photographers, is sent free on receipt of trade card.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

SATURDAY, AUGUST 7.

Kinning Park Co-operative Camera Club (Govan). Outing to B'shopton.
Hackney Photographic Society. Outing to Otter's Pool.

MONDAY, AUGUST 9.

Kinning Park Co-operative Camera Club (Govan). Committee Meeting.
Southampton Camera Club. Short Demonstrations. C. Daw, R. E. Parson, and W. H. Trigg.

TUESDAY, AUGUST 10.

Hackney Photographic Society. An Evening with the Portfolio.

Commercial & Legal Intelligence.

AGENT'S BANKRUPTCY.—Before Mr. Registrar Hope in the London Bankruptcy Court on August 2, the public examination was held of E. Alexander, a dealer in picture postcards and fine art prints, formerly in business at 101, Southampton Row, W.C. In answer to the interrogatories of Assistant Official Receiver Bowyer, debtor stated that he was a German subject, and came to this country about 1900, and from March of that year until December, 1903, was employed in London by a local firm of fine art publishers. In January, 1905, debtor became the London agent of the "Arnstophot" Company, a concern engaged in the manufacture of picture postcards in Germany, and in March, 1905, took premises at 104, Southampton Row. In addition to acting as agent for this German firm, debtor carried on a business as a fine art publisher on his own account. In September, 1906, debtor moved the business to 101, Southampton Row, and in June, 1908, sold the business to a limited liability company, trading as E. Alexander, Ltd., and which continued until February, 1909, when it went into liquidation. Debtor's consideration for the sale was £3,000, represented by 200 debentures at £10 each and 1,000 fully paid up £1 shares in the new company, of which debtor was made managing director at a salary of £10 a week. After the company went into liquidation debtor obtained a situation with a firm of fine art publishers at £5 a week. Debtor had guaranteed two debts of E. Alexander, Ltd.; one of £850 to the Photo-Chenile Company of Germany for goods supplied, and £375 to his mother for money advanced as a loan; he had given no other guarantees. The examination was concluded.

HOLIDAY GUIDE BOOKS.—Aldeburgh, Salisbury, Skegness, and Whitley Bay are the latest additions to the series of popular little guides published by the Health Resorts Association, 29, John Street, Bedford Row, London, W.C., any of which may be obtained free by sending a postcard request to the Town Clerks of the respective localities. Tourists and holiday makers, whatever may be their aim in visiting any special district, will find these little booklets of interest and use, whilst the photographer should find them specially serviceable as giving in concise form and small space the chief points of interest in any town and its surroundings, thus enabling the tourist, who perhaps has but little time at his disposal, to secure the most desirable records of his visit in the least possible time.

News and Notes.

THE MARRIAGE of Mr. H. Essenhigh Corke, of Sevenoaks, with Miss Evelyn Ward Seymour, took place on Thursday in last week. Mr. Corke will be known to a large number of our readers both as a Fellow of the Royal Photographic Society and also as a contributor to our pages.

THE TRANSLATOR.—We are in receipt of copies of this publication, issued fortnightly, as an aid in the study of foreign languages, and obtainable from the publisher, La Chaud des Fond, Switzerland, price 2 francs 50 for six months, or 5 francs per annum. The journal consists of passages in both English and German from various authors, together with examples of commercial correspondence in the two languages and notes on some of the uncommon words and phrases. In addition to a German-English issue, there is also an Italian-German and a French-German version of the publication, the arrangement and price being as already mentioned.

PHOTO SURVEYING METHODS FOR THE AMATEUR.—A correspondent points out the following corrections in the translation of Dr. R. Defregger's article which appeared in our last issue:—Fig. 5, page 590, omits the letters *a* and *b*, which should presumably be at the following positions:—



The sixteenth line of third paragraph, page 589, reads:—"A parallel line drawn from *g* to 'the second view-line *Ab*' should read:—"A line drawn from *g*, parallel to the second view-line *Ab*." The phrase on line 11 of third paragraph should presumably read:—"Obtaining these loci by passing a fine needle through the map on to a sheet of writing paper below, the angle $\angle Aa$ is obtained."

HOLIDAY LITERATURE.—The Great Western Railway has this year published quite a budget of books dealing with the many holiday districts accessible by the company's lines and connections. That entitled "Holiday Haunts" gives particulars of features of interest, and of apartments, boarding establishments, hotels, and farmhouses in many of the most beautiful portions of England and Wales, and particularly in Devon and Cornwall, Herefordshire, Somersetshire, and South Wales. The book is very fully provided with maps and illustrations, and is obtainable for threepence from the company's bookstalls and offices, or post free on application to the superintendent of the line, Paddington Station. "Beautiful Brittany" is quite a new piece of holiday literature, in which the Great Western Railway Company give an altogether excellent idea of the attractive country accessible from the port of Brest, easily reached now by the new service of G.W.R. steamers from Plymouth. Through this new gateway into Brittany the holiday maker may explore a country which has a thousand fascinations in the way of coast scenery, chateaux, and cathedrals, not to mention the picturesque archipelago or inland sea of Morbihan and the estuary and valley of the Loire, whence the tourist may journey to Paris. Without professing to be a guide book, the glimpses it gives of picturesque Breton life and costumes make it an excellent volume to be first consulted by those who would explore this old-world country lying comparatively near at home. The price is sixpence at the company's bookstalls, or post free on application to the company at Paddington Station. A further booklet entitled "Rural London" deals with the attractions of Buckinghamshire towns and the Thames Valley as places of residence. New railway facilities have opened up old-world towns, such as Chalfont St. Giles, Beaconsfield, and High Wycombe, as possible for the city man, and the volume gives particulars as to railway travelling, educational, and other features. The booklet is sent free.

UXBRIDGE PHOTOGRAPHER BURNT OUT.—A disastrous fire occurred on Wednesday of last week at the premises of Mr. T. H. Billingham, photographer, of 56, St. Andrews, Uxbridge. At the time the outbreak was discovered, there was nobody on the premises. Neighbours gave the alarm about 9.30, but the fire evidently originated in a small office, in front of which were stairs, so that an up-draught was created, and almost the whole of the upper premises was quickly ablaze, the flames shooting out fiercely

through the roof. The interior of the premises was practically gutted, and valuable furniture, trade appliances, and negatives destroyed by fire and water. The studio, some twenty yards from the house, was unharmed, but the shops on either side were damaged. The fire was not extinguished by the Uxbridge brigade until one o'clock the next morning. Fortunately most of the damage is covered by insurance.

DEATH OF MR. WALTER TYLER.—We regret to have to announce the death of Mr. Walter Tyler, head of the well-known firm of Walter Tyler, Ltd., Waterloo Road, London, S.E. Mr. Tyler, who for nearly forty years has been a prominent and leading member of the optical lantern trade, retired from active business life about three years ago, hoping to spend some years of ease and recreation at his residence at Teddington, but unfortunately this period of well-earned rest was all too brief, and after a short but severe illness Mr. Tyler passed away on Wednesday of last week at the age of sixty-two.

BABY'S PORTRAIT.—A fond parent walked into the box at the Thames Court last week and handed the magistrate (Mr. Dickinson) copies of photographs of "baby," alleging that the photographer, in enlargement, had substituted the negative for that of another, and, of course, a less inspiring and captivating infant.

The magisterial eyes closely inspected the photographs. The magistrate observed that the enlargement was clearly from the same plate as the smaller copy. But the father agreed not with him.

"Why, it has got a different pinafore on, and in the large photo 'the baby is sitting on a mat while my baby sat on a cushion,'" he indignantly pointed out.

Mr. Dickinson: You must allow some license to an artist.

Fond Father: License? Why, the baby in the large photo is cock-eyed. Mine ain't.

Mr. Dickinson: How old was the baby when the photo was taken?

Fond Father: Nine months.

Mr. Dickinson: At that age they do not focus well. While I am satisfied the photo does not do justice to your baby, I am afraid it's the same child.

Fond Father: Can I have a summons?

Mr. Dickinson: Oh, no, no. It may not be a first-rate advertisement for the photographer, but you must be satisfied with it.

Fond Father (grimly): I'll give him an advertisement when I meet him.

Correspondence.

** We do not undertake responsibility for the opinions expressed by our correspondents.

** Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

JOHANNESBURG PHOTOGRAPHIC EXHIBITION.

To the Editors.

Gentlemen,—An exhibition is being organised by the Johannesburg Photographic Art Circle, and will be held in Johannesburg from November 3 to 6. It will be open to all pictorial workers, but limited to South African work, and all pictures submitted will go before a selection committee. No medals will be awarded, but a certificate issued to every exhibitor whose work is accepted. No more than eight pictures may be submitted, and there will be no charge for wall space. A catalogue will be sent to each exhibitor. Entry forms with full particulars, may be had from the hon. secretary, and must be returned by October 12. Exhibits to reach Johannesburg by October 20.—Yours faithfully,
HAROLD SMITH, Hon. Sec.
71, Cuthbert's Buildings, Johannesburg, July 12, 1909.

THE RETURN OF SPECIMENS.

To the Editors.

Gentlemen,—With reference to the warning you publish as to the non-return of specimens, there is another matter worthy of attention, and that is the return of specimens in a damaged condition. Some time back I sent up, in answer to an advertisement in your pages, some half-dozen half-plate prints, protected with cards on bot

des, and enclosed suitable stamped envelope for return. The specimens were returned in the envelope without any protecting cards, and, of course, were entirely ruined, the postmark penetrating rough besides crumpling. I complained to the firm, but received no reply.—Yours faithfully,

E. F. GURTON.

16, Royal Square, Jersey, July 30, 1909.

[We think employers should show more consideration than did those referred to by our correspondent. Those applying for situations should also pack their specimens in reversible wrappers addressed for return on the reverse side) in order to make the packing as easy a matter as possible.—Eds. "B.J."]

Answers to Correspondents.

PHOTOGRAPHS REGISTERED:—

J. Bailey, 18, Mill Street, Tonyrefail, Glamorgan. *Photograph of the presentation of local gentlemen to H.R.H. Princess Louise on her passing through Tonyrefail on June 23rd, 1909.*

Hartland, The Studio, Brettell Lane, Stourbridge. *Photograph of the late A. E. Kinsell, Bank Street, Brierley Hill, Staffs.*

N. Jenkins, 274, Harehills Lane, Leeds. *Photograph of Painting by Romney of Lady Hamilton, entitled "The Toilet."*

J. Bostock, 24, Moorgate Street, Nottingham. *Photograph of Nottingham Britannia Rowing Club; President's Garden Party.*

Richardson, 2, Stirling Road, Dunblane. *Photograph. Kinbuck, with camp of 1st Batt. (Scottish) Church Lads' Brigade.*

PRICE OF BUSINESS.—What is the formula by which one may arrive at the price to be paid for a business, as a business, the stock, etc., at a valuation? For instance, would two years' profits be about the cash value of a business? I have read "How to Buy a Business" recommended by you.—**BUSINESS.**

Something will depend upon the class of business. One and half to two years' nett profits would generally be a fair price.

OXGALL—Have heard somewhere of the use of oxgall in preparing glass plates for enamelling, but cannot remember the procedure. Can you help me?—**STICKERS**

The oxgall is simply rubbed over the plate and then wiped or polished off. It is a thing not much used on account of its unpleasantness, unless it is used quite fresh, or the refined kind as supplied by artists' colourmen be employed. Wax or French chalk is what is generally used.

BARRATT.—(1) We believe both English and American sizes are largely used. We suggest you should write Messrs. W. Butcher and Sons, Camera House, Farringdon Avenue, London, E.C., for their advice. (2) St. Louis and Canadian Photographer, 911, N. Sixth Street, St. Louis, Mo., U.S.A.

PURE ALUM.—With reference to an article in the "B.J." re bad alum, we have had exactly similar trouble, and would be pleased to get your correspondent's address for our mutual satisfaction. We are sending two samples of alum (1) and (2), and No. 1 is the sample which has caused our prints to turn so badly. Would you let us know if this is a similar quality?—**ALUM.**

The samples you send are both very impure, and both form excellent reducers, though neither is so impure as the sample referred to in our note. We think you must have confused the samples sent, as No. 2 appears to be the worse of the two. Both reduce and change the colour of P.O.P. prints, and both contain a quantity of ferrous and ferric salts. The trouble is no doubt due to the latter, as a mixture of pure alum and ferrous salt has no such effect. The samples are also mixed, as regards the alums, they apparently contain both potassic and ammonia alum. Though they reduce P.O.P. prints, they do not appear to act similarly on negatives. Therefore, they might safely be used for negative work if no ferricyanide be afterwards used for reduction or intensification purposes.

RETOUCHING (Reply to "Business.")—Whoever taught you retouching imparted one most important quality to your work—the full retention of the likeness. You also differentiate in your touch for men and women—an excellent feature, but your work lacks the finish demanded by the best firms, and we advise you to direct all your energy and thought to the attainment of a brighter, cleaner grain, and general improvement of the modelling. A few finishing lessons from a good teacher should put you right, and make a first-class retoucher of you.

VARIOUS.—Kindly let me know the following:—(1) Which are the practical uses of a 2-in. extension, the so-called W. A. movement, provided with rack and pinion in many modern cameras? (2) How can one make wooden dishes for enlargements?—**PROGRESS.**

(1) When using a lens of extreme wide angle, but such a very extreme movement as two inches only from front to back of camera would rarely be of any use since three inches is about the shortest focal length of wide angle lens which can be got. (2) The usual plan is to make four centred pieces, each having a groove in which the glass plate can slide, forming the bottom of the dish. The glass must be tightly fastened in with red lead and putty.

VULCANITE, ETC.—(1) Would you kindly inform me where I can obtain the material (vulcanite, I believe) used in making the dark slides of modern hand cameras? (2) Also could you let me know of a good manual on dry-plate and paper making?—**GEORGE S. STEWART.**

(1) Try Frederick Hill and Sons, 108, Bishopsgate Street Within, E.C. (2) There is no book which deals with emulsions for plates and papers in a way which is of any commercial use.

GOLD COINS FOR CHLORIDE OF GOLD.—In your note on a communication from "Staffs" to-day I see that you state that the conversion of coin into gold chloride is illegal. Are you right? I am not a lawyer, but I find in a book of reference that 'defacing the current gold, silver, or copper coin by stamping thereon any names or words, whether such coin shall or shall not be thereby diminished or lightened or using any machine or instrument for the purpose of bending the same, is an indictable misdemeanour. And if any person shall tender or put off any coin so defaced, stamped, or bent as aforesaid, he will be liable to a fine not exceeding 40s., recoverable summarily.' Melting or dissolving coin is not, I think, in any way defacing. No one would dream of destroying silver or copper coins, which are far more valuable than their weight in metal; but gold coin is worth just its nominal value when within the legal limit, and it is just worth melting down or dissolving. But I would suggest to those desirous of making their own chloride that they should buy from an assayer gold cornets, which are practically pure gold and save themselves the trouble of purifying. I have myself never found any necessity for purifying, however, if the impurity is allowed for in making toning solutions.—**J. F. TENNANT.**

We are quite right in what we said. Gold coin contains the full value of the metal, hence the mint lose upon it to the extent of cost of the coining. That is not the case with either silver or bronze. The reason why gold coins are sometimes used by jewellers and photographers is that they have the guarantee that the metal only contains the proper proportion of base metal and no more. The small amount of alloy, if left in, will make no practical difference in making chloride of gold.

MEZZOCHROMES.—Can you inform me where mezzochromes are obtainable?—**C. E. F.**

The Burlington Fine Arts Company, 29a, Charing Cross Road, London, W.

RETOUCHING.—Reply to E.R.—Your work is very fair, but open to considerable improvement in the modelling and general finish. The touch used for the young girl is much too strong for a glossy paper print, but might serve well enough for some of the matt papers. You retain the likeness very well, and that is certainly the best feature in your work. When increasing the highlights carefully avoid leaving too decided an edge, and you will improve your effect. There is no reason why you should not attain to the highest finish in time.

DIAMIDOPHENOL.—In the two last numbers of "British Journal of Photography," there is reference to diamidophenol developer. I have spent some two hours trying to get a simplified oz. formula from the three articles, but have quite dismally failed. (1) For example, in making the "bisulphite" liquor with acid, etc., how much water is wanted? (2) Could we have in next number a simple formula on these lines?—Water, say, 20 ozs., sulphite dry, sulphuric acid, hydroquinone dry, bromide dry, diamod dry, for contrast prints? We could then easily mix up all we require.—**A. E. SMITH.**

The quantities are as follows:—Sulphite, 1 ounce; hydro-

quinone, $1\frac{1}{4}$ grs.; potass bromide, 15 grs.; sulphuric acid, 50 drops; diamidophenol, 45 grs.; water, to make 20 ounces. In the event of the mixture being made up in one solution as above, it is doubtful if there is any real advantage in using the hydroquinone.

COPYRIGHT.—I beg you to inform me the following through your paper:—(1) Is it permitted to copy a copyright photograph to sell it only at a country which is not within the domain of the author's country? For example, if a French copyright photograph, registered by a French subject at France, can any Englishman copy it for selling only at England or another country out of the domain of France without permission of the owner of copyright?—T. HANNA, Assiout, Egypt.

Certainly not. Under the terms of the Berne Convention of International Copyright, the compliance with the formalities in the country of production confers copyright privileges upon the photographer in all the countries of the convention, among which are the chief civilised nations of the world.

DEVELOPER.—Will you kindly inform me if the pyrocatechin developer (one solution), page 777, "B. J. A.," is suitable for the development of plates and papers, and is it cheaper than the M. Q. developer? I am at present using the following:—Metol, 28 grains; hydroquinone, 110 grains; sodium sulphite, 2 ozs.; carbonate, $2\frac{1}{2}$ ozs.; water, 20 ozs. for plates; then I dilute with equal parts of water for papers. What I would like to know is, What proportion must I use of the pyrocatechin developer on page 777 of the "Almanac" for plates, and if dilute for papers? The formula I refer to is one solution:—Sodium sulphite, 5 ozs.; water, 20 ozs.; caustic soda, 260-300 grains; pyrocatechin, 400 grains; dilute with 20 times its volume of water for use.—COGAN.

We should try it diluted with 20 times its volume of water for plates, but whether further dilution is desirable for papers can be told only by trial. We doubt if it is cheaper than M. Q. developer, which is about the cheapest known.

SPOTS ON NEGATIVES.—Please inform me through the medium of your columns as to the causes of the black spots on the enclosed negative? I have tried various makes of plates, but all the same, especially the rapid grades. I might say that these spots generally appear in the fixing bath or in the final washing. I use a pyro soda developer.—TROUBLED.

These spots are due to dirt in the manipulation. Make certain that all the pyro is dissolved in the developer and also all the carbonate of soda. It is almost certain that the spots are produced in the developer, but probably you do not notice them until the plate is fixed.

PUTTY FOR STUDIO.—Will you be good enough to inform me in the "Journal" where I can obtain "putty" suitable for glazing a studio roof?—W. M.

Ordinary good glazier's putty is what is generally used. Messrs. Carson's, we believe, make a special elastic putty which may be obtained through all large dealers in builders' material. It is said to be preferable to the ordinary putty for glazing glass roofs.

REVERSING PLATES.—I have been trying to follow the directions given by E. Fenske in your issue of June 4, for producing positives direct on gelatine plates, by means of reversal by bichromate, but so far with no success. I over-developed, as directed, but on immersion in the potassium bichromate solution the image did not disappear, though left in the solution for a considerable time. In several cases, the film frilled or blistered badly. The result in the most favourable case was a transparency much too dull and dense for practical use. Probably the fault was on my side, and I am anxious to know what I did amiss. I used Imperial "N.F." plates; is the film, perhaps, too thick for this process? Does the exact amount of sulphuric acid in the potassium bromide 5 per cent. dilution make the difference between success and failure? I notice that no precise directions are given by your correspondent as to the proportion of sulphuric acid to be used. Lastly, may I ask whether the permanganate and sulphuric acid solution, used in the reversal of Autochrome plates, would be a reliable agent in the process of reversing an ordinary negative?—J. M. J.

We have not tried the process. We should think you would

succeed better with the reversing method given by Mr. Douglas Carnegie in the "B.J." July 9, p. 529. With ordinary (gelatine plates permanganate is very liable to give rise to stain.

BUILDING LAWS.—I am desirous of building a photographic studio in this neighbourhood, to be of wooden structure and iron roof size 30ft. by 12ft., and to be 8ft. back from the road, and any thing between 5ft. to 10ft. clear of any building. In fact it is intended to be built in a garden and approached by a small gateway 3ft. wide, and a path leading to the entrance. Below I give sketch of block plan as I intend building. I have placed the plan before the council, but they returned it stating same was not in their by-laws. I have since seen some of the council members privately and have asked their objection to erecting this studio. They can give me no definite reason except that it is outside their by-laws; in fact, they hint as much as to say "build it," and say that they do not think they have any voice in passing more than passing a small cot or other shed. As I do not wish to go to the expense of building this studio, and then find I cannot make use of it, I shall be glad if you will kindly give me your advice on the matter, namely, can I build without the seal of the council? I may add that it is to be a temporary structure, and on ground leased from year to year.—HARRISS.

We have read through the 52 pages of the by-laws, and can find nothing in them that will permit of such a building as you propose being erected, as it would contravene them. If you make the sides of iron and glass only we should think the plan would be passed. On this matter you had better see the district surveyor. Of course your interview, privately, with members of the council really goes for nothing officially, and if you put up the building without the sanction of the council you do so at your risk.

REDUCER.—Yes, if they are properly reduced, the permanency in no way affected.

MAC.—We think that the P.O.P. will give a slightly better result than the bromide paper.

ELECTRIC LIGHT.—1. We have had no experience with the lamp named, but its value will, of course, depend upon the conditions it is in, so can express no opinion as to that. 2. The best lens for portraiture is the ordinary portrait lens, on account of its rapidity, and that is an important point when artificial light is employed. If you want a second-hand one you should apply to the second-hand dealers who advertise in our columns for their lists. 3. The lamp named is a good one, so is the Westmins enclosed arc. 4. The firm is a very respectable one.

RIGHTS—PRINTS.—Will you be good enough to state whether your opinion an individual taking negatives from a photographer's premises under a judgment of the County Court for arrears of rent would be justified in making prints from them and disposing of the same for money towards the satisfaction of the debt?—WILLIAM DAY.

We see no objection provided they are orders from the persons who paid for the portraits being taken. The copyright in the pictures is vested in them, and if they register that copyright, they can prevent the sale of copies. The negatives, of course, belong to those who seized them under the judgment of the County Court, though the sitters may prevent the sale of copies.

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SUMMARY.

The Photographers' Association of America has just held, at Rochester, New York State, a Convention which certainly would seem to be a record for meetings of this kind. Close on 1,800 persons attended it. The impressions of an English visitor, Mr. F. Marriott, are given on page 624, following which are accounts of the way in which the Convention was entertained by Mr. George Eastman and the Board of the Eastman Kodak Co., and of the kind of demonstration by which photographers in the States exchange ideas and knowledge.

MM. Lumière and Seyewetz have extended their recent researches on the behaviour of developers to a comparison of the powers of the principal developers for rendering weak impressions of light. The degree to which developers are affected by rise or fall of temperature as regards degrees of contrast given is also investigated. The results and formulæ used are given in the article on page 627.

In a note on page 621 attention is drawn to the frequent advantage which may be taken of the chromium intensifier for the improvement of bromide prints, either as regards colour or for giving a little extra pluck.

The conclusion of a series of editorial articles on the working of the albumen process appears this week on page 622, where some hints are given as to the most common causes of failure.

An instance of one way in which the sudden accession of hot weather may give rise to difficulty in hand-camera work is the subject of a note on page 622.

The days for receiving pictures to be offered to the Selecting Committees of the Salon and Royal are August 30 and September 2, respectively. (P. 621.)

A five-lens objective and a method of preparing paper prints from screen-plate transparencies are included among "Patents of the Week." (P. 634.)

The "Mechanical Mounting of Half-Tone Blocks" and the "Choice of Lenses for Process Work" figure under "Photo-Mechanical Notes." (P. 633.)

EX CATHEDRA.

The Two Exhibitions. Only a week or two has to elapse before prints for the Photographic Salon and the Royal Photographic Society have to be sent in. The last day for receiving exhibits for the Salon is Monday, August 30, on which day they must be delivered by hand at 5A, Pall Mall East, between the hours of 10 a.m. and 6 p.m. If sent by carrier, exhibits must be addressed to Messrs. Selfridge and Co., Dept. 134, and must arrive not later than Thursday, August 26, accompanied by the entry form. We understand that the Linked Ring have appointed a selecting committee, consisting, we hear, of the English members only who formed the selection committee last year. Although no official announcement has been made of the fact, it is an open secret, we believe, that the organisers of the Salon are anxious to include in the exhibition an adequate representation of the work of those who are not members of the Linked Ring. This being their aim, it is a pity, we think, that they have not made an earlier announcement of the exact composition of the selecting committee. In the case of the Royal, the last day for receiving frames by hand is September 2 at Messrs. Bradley and Co.'s, 81, Charlotte Street, Fitzroy Square, W., between 10 and 6. If sent by carrier exhibits must reach Messrs. Bradley at the above address on Wednesday, September 1

* * *

The American Convention. As shown by the article on another page of this issue, the Photographers' Association of America has beaten all its records at the National Convention held at Rochester a few weeks ago. An English photographic pressman, writing in one of our American contemporaries, sums up the characteristic of the American Convention in the word "strenuous," and offers the opinion that if this serious strenuous element were introduced into the Photographic Convention of the United Kingdom it would mean the death and burial of that body. Whether this would be the result or not, it is evident that at Rochester in the latter part of July the American professionals have given the greatest demonstration of their solidarity as a body. They have shown the utmost readiness to exchange both ideas and acquired knowledge; to such a degree, in fact, that the Convention has been described as "one great photographic school with sympathetic professionals, masters, and teachers and willing and earnest students all of one mind."

* * *

The Colour of Bromide Prints. Although we are never advocates of those methods of chemical jugglery which many delight to apply to prints or negatives which are defective, yet there is one process which we think deserves to be kept in mind by bromide printers more than it appears to be. This is the chromium intensifier, used now to a considerable extent for negatives, and

consisting of a weak solution of bichromate of potash made acid with hydrochloric acid. The proportions need to be adjusted carefully, and the formula given in the "Almanac" may therefore be referred to. A bromide print which just lacks a touch of brilliancy or which is not quite up to the standard as regards colour is very greatly benefited by being put through this intensifier, one application of which scarcely increases the actual density of the print, but merely gives the improvement in pluck which is wanted. It has the advantage that there is no need to subject the print to long washing before the process is applied. A brief rinse under the tap and the print is ready to be bleached. It is then again given a short washing for about ten minutes and re-developed. All developers are not equally suitable for this latter purpose. One of the best as regards quickness of action and colour of deposit is the "tabloid" Rytol, introduced some months ago by Messrs. Burroughs Wellcome.

* * *

A Hand-Camera Mystery.

An instance of the minor problems which trouble the photographic amateur, and are by him referred to the unfortunate dealer, has recently come under our notice. The camera was one of the fixed-focus type, provided with a focussing scale and an excellent lens of $f/5.6$ aperture. When taken out for use on the recent appearance of fine weather, all the negatives proved to be distinctly out of focus, so that it was found necessary to give a certain extra movement to the lens in order to get a sharp negative. Then a week or so later it was found that this extra adjustment became unnecessary, the camera giving sharp pictures on the focussing scale if properly set in the usual way. The explanation proved to be one which no doubt would puzzle the beginner. Owing to the damp conditions under which the camera had been stored, the wood had expanded sufficiently to throw the lens out of adjustment when in use at its full aperture, but a few days' use out of doors in the warmth of the sun has led to contraction of the casing to its original dimensions.

* * *

Glazing the Studio Roof.

One of the troubles which are constantly before the portrait photographer is the difficulty of securing a perfectly water-tight joint in the glass of the studio roof. A considerable period of heat will cause the putty used in fixing the panes to become almost brittle, in which case it fails to keep the joints water-tight. This is usually due to the use of unsuitable putty in the first instance. The best material should be stiff and become yellowish as it dries; a soft and white putty is likely to give rise to trouble. A special form of putty is, we believe, manufactured for use under these somewhat trying conditions, and we recollect some years ago seeing a recipe for a composition intended to serve the same purpose. The basis of the mixture was cheap paper torn into pieces and covered with a little strong caustic potash solution. This was boiled up and about one-third its volume of turpentine added to it. To the hot mixture there were then added pitch, resin, gutta-percha, and wood tar, the whole being boiled until it formed a stiff paste. We scarcely envy those people who undertake the preparation of this mixture themselves—for one thing, most of the ingredients are very inflammable—but it is possible that a commercial preparation resembling it may be obtainable.

PRACTICAL NOTES ON ALBUMEN PAPER PRINTING.—V.

THE recent articles, to which the present series of notes forms the conclusion, has, we know, proved of considerable interest to many printers whose experience has hitherto been confined to producing prints on P.O.P., bromide, gaslight papers and other papers. This is evidenced by the number of queries we have received from printers as well as from some employers who are unable to enlighten their employees on the causes of their failures. Instead of replying to the queries as received, we have thought it better to devote a special article to the causes of troubles that may be met with and their remedies.

It may as well be pointed out here that somewhat greater care as regards cleanliness in the manipulations is necessary when working albumen paper than in the case of P.O.P. This will be recognised when it is remembered that with the former the albumen is spread direct on the raw paper, and that the film contains a far larger proportion of free nitrate of silver than does the latter. Furthermore, in the case of P.O.P., the gelatine emulsion is spread on an insoluble baryta coating which insulates it from the paper; hence the back of it is not so susceptible to slight contaminations as when the coating is on the bare paper.

One of the troubles that the beginner may meet with is that the prints when washed and dried are yellowed or show yellow patches. There are several causes of this. The most probable one is that, in the case of patches, the prints were not kept in continual motion while in the fixing solution, so that some stuck to others or, possibly, to the bottom of the dish, with the result that the hypo did not have free and equal action. Another reason may be that the solution was too weak or exhausted, or that too short a time of immersion was allowed for complete fixation. When the solution is very cold a longer time in it must be given than at a more moderate temperature. Another, and very prolific, cause of yellowness is fixing a large number of prints in a small quantity of solution. A good quantity of solution is necessary for a comparatively small number of prints in order to permit of their being kept well separated from each other. Hypo is cheap enough now to permit of its being employed on a very liberal scale. One other prolific cause of yellowness in the prints is that, when they are taken out of the fixing bath, they are put into a dish of water and allowed to remain quiescent. When that is done the prints are almost sure to become more or less yellowed—either in patches or all over. This is completely avoided by having the dish under a running tap and continually turning the prints over and over as when in the fixing bath. The sooner the major part of the hypo can be got rid of, the better for the pictures.

Mealiness or, as it is sometimes termed, "measles" is always more pronounced in the shadows than in the lighter parts of the subject, and destroys the vigour of the picture. It is generally due to attempting, by prolonged toning, to obtain deep tones in prints made from feeble negatives. From such negatives nothing beyond a warm red-brown should be attempted, and that can usually be satisfactorily obtained. Another cause—in the case of the use of the acetate toning bath—is that the solution was used too soon after mixing. The remedy in this case is to keep the bath, say, 24 hours longer; it will then generally be found to work quite satisfactorily. Another cause may be that the sensitising bath, by use, has become too weak; here the remedy is obvious. A guide to the strength of the bath for the paper used is that the deepest shadows become fairly bronzed without the lights being over-printed. As a preventive of mealiness it may be mentioned that, in toning, when the lights are sufficiently toned it is ne-

THE PARTNERSHIP between Messrs. George Henry Herbert and Raymond Lloyd Reece, carrying on business as photographic artists at 17, Biggin Street, Dover, under the name of "Martin Jacolette, Dover (successors Herbert and Reece)," has been dissolved. The business is to be carried on by Mr. Reece.

to impossible to carry the toning further without getting mealiness in the shadows.

Impure whites, as in vignettes, may be due to the paper being sensitised on a bath that has become discoloured by use. The avoidance of this defect was explained in the second article ("B. J.," July 9, 1909, p. 527). It may also be due to the paper having been kept too long after sensitising—or, possibly, to exposure to light before printing—or may be due to a too strong light while toning, or in the first stages of fixing. It may also be due to the dish in which the silver is washed out of the prints being contaminated with hypo. If this is the cause it will usually be seen by the water becoming discoloured during the washing. The remedy in this case is again obvious.

Blisters are a prolific source of trouble with some papers—particularly the highly albumenised ones—and various remedies have from time to time been suggested. One was referred to in the last article ("B. J.," July 30, 1909, p. 589). Another advocated by some in place of diluting the hypo after fixing, as there directed, is to put the prints into a solution of common salt and gradually dilute this latter bath before putting them into the washing water. Another remedy which has been recommended is to use a weak sensitising bath—say, thirty-five grains to the ounce—and float the paper on that for double the usual time. This sometimes proves a remedy, but then the prints often suffer—having a more or less sunken-in appearance, and lack vigour. One plan which has never failed in our hands, even with the most refractory paper, is, after printing, to pass the still dry prints through methylated spirit and then wash, tone, and fix in the usual way. There is a little drawback to this method, inasmuch as the spirit renders the paper somewhat transparent, and the action of the toning bath is not so easily seen until one gets somewhat familiar with the appearance.

Lack of contrast, when vigorous negatives are employed,

is generally due to the sensitising bath being too weak; the remedy, of course, is to strengthen it. Insufficiently deep printing may also be the cause.

Prints of too black-and-white a character generally arise from the silver bath being too strong for the paper. The dilution of the solution is a remedy. The defect may arise also from the prints being made from hard negatives—lacking in half-tones. In this case the trouble may to an extent be mitigated by using a weaker sensitising bath, and, before printing, exposing the paper to light just enough to destroy the purity of the white and no more.

Marble-like marks on the paper before printing are due to floating the paper on a bath on which a surface-scum has accumulated by the bath standing some time in the dish.

Finger markings on the back and front of the prints are caused by handling the paper with fingers contaminated with hypo or, may be, in hot weather, with perspiration.

White spots on the prints are usually due to minute air holes or adhering to the paper while on the sensitising solution. Minute black spots are generally caused by particles of metal in the raw paper, or, more probably, by particles of iron in the water in which the prints are washed previous to toning. The remedy in this case is to tie loosely one or two thick tresses of fine flannel over the nozzle of the supply tap.

Minute cracks in the albumen seen after the prints are mounted are likely to occur only in exceptionally dry weather and with highly albumenised paper. Their occurrence comes about as follows:—The prints when laid out to dry curl up, sometimes tightly, and in uncurling the dry albumen cracks. The remedy in this case is to mount the prints wet as they come from the final washing water or to dry them between blotting boards under slight pressure so that they are kept flat until they are mounted. It is the curling up and the uncurling that causes the mischief.

THE CONVENTION OF THE PHOTOGRAPHERS' ASSOCIATION OF AMERICA.

ANNOUNCED for some weeks past in almost frenzied terms of exhortation in our American contemporaries, the annual Convention of the Photographers' Association of America was held at Rochester, New York State, from July 19 to 24, under the presidency of Mr. Frank R. Barrows, of Boston, Mass. The Convention has proved to be the largest ever held in connection with photography, the official attendance figures being 1,365 men and 420 women, or a total of 1,785. The nearest approach to these figures are those representing the attendance at the Boston Convention of 1907 with the number of 1,175. Six crowded days of professional photography made up the proceedings of the Convention, which from both press and private sources of information were evidently characterised by a degree of enthusiasm and informality to which we are unaccustomed in this country. The business of each day commenced at nine in the morning, and would appear never to have concluded before midnight, whilst the activity with which the Convention was supported by the Press is shown by the fact that during the six days two daily photographic newspapers were produced: "The Bulletin of Photography" edited by Frank V. Chambers in the morning, and "The Day's Development," by J. C. Abel each evening. Quite characteristic was it of the superfluous energy of an American conventioner that a vice-president of the Association, Mr. J. H. C. Evanoff, should have promptly accepted a challenge to edit the daily "Bulletin." Two characteristic personal paragraphs may be culled from page four of the issue of our contemporary, produced with "Jimmy" Evanoff in the chair:—

"Tot Townsend was recently summoned for jury duty. The

judge asked, "Are you a free holder?" "Yes, sir, I am." "Married or single?" "Married last October." Have you formed or expressed any opinion?" "Not since last October."

When Harris got into town he went straight to the Seneca and registered. "Beg pardon," said the hotel clerk, "but what is your name?" "Name!" exploded Harris, "don't you see my signature there?" "I do," said the clerk calmly, "that is what aroused my curiosity."

They know how to make things go at a Rochester Convention. Excursions, as we know them at English Conventions, are impossible things at meetings pushed along at the rate of the functions of the Photographers' Association of America, which marked everywhere on its programmes, "be on time as everything is going to be according to schedule." With the exception of the visits to Kodak Park, the headquarters of the Eastman Kodak Company, and to the works of the Bausch and Lomb Optical Company, the purely recreative items in the week's proceedings consisted in the evening spent at Ontario Beach, with again the Eastman Kodak Company as a host. "From morn to afternoon, from afternoon to night," a series of demonstrations, meetings, and discussions kept the 1,800 visitors to the Convention in the neighbourhood of their headquarters. A great feature of the Convention has been the series of photographic schools, conducted each day by different acknowledged leaders of professional portraiture in different parts of America. A special building was arranged for this purpose, and among those who thus gave their time and knowledge for the benefit of their fellow workers were Messrs. Ryland W. Phillips of Phila-

delphia, F. Milton Somers of Cincinnati, E. B. Core of New York, F. Scott Clark of Detroit, A. F. Bradley of New York, and Will H. Towles of Washington.

At one evening meeting Ryland W. Phillips gave a very elaborate lantern lecture, entitled "With Other Photographers"—a demonstration of the individual methods of prominent professional workers. Mrs. Gertrude Käsebier followed with a paper,

AN ENGLISHMAN'S IMPRESSION OF THE ROCHESTER CONVENTION.

The greatest photographic Convention of all time was held at Rochester, commencing on Monday and ending on Saturday, July 24 last. Rochester, situated some 100 miles from New York, is the largest and most important photographic city in the world. The city presented a very gay appearance when I arrived, being festooned with flags and words of welcome to the Conventioners and their friends, being also illuminated at night by countless electric lights in honour of the occasion, or, as the "Rochester Herald" has it: "Main street is a sea of colour by day and a blaze of light by night."

There were about 2,000 members of the Convention present at its various functions and pleasures, and they came from all parts of the United States and Canada (whose representatives alone numbered at least two hundred).

The Conventioners brought with them, too, their wives, their children, their sisters, their cousins, their annts, and their friends, forming a crowd of men and women representing photography as practised in all parts of the United States.

A quotation from the Mayor of Rochester's speech may interest your readers. It is:—

"This is the centre of the photographic world, and you represent here now the highest type of the profession. Your needs we minister to here. It is true that much of the output of our establishments is devoted to filling the wants of the amateur or inefficient, yet the amateur and the professional march side by side, and to the amateur you owe a debt of gratitude, who by his large demand has helped the manufacturer to cater more efficiently to the specialist.

"I think the smallest manufacturer here is larger than the largest outside the city. We have also the largest manufacturers here of lenses. It is estimated that in the factories here is made more than 90 per cent. of the moving-picture films of the world—500 miles a day, a greater distance than the Empire State travels in one direction over the New York Central line. Every week a ton of silver is used at the Kodak Works; that is the largest supply of silver of any consumer in the world outside of the United States Mint. The Kodak Works are also the largest consumers of aluminium in the United States, and probably anywhere, and in their paper storage warehouse the rolls, 41in. wide, would stretch from here to San Francisco. Now there are made annually cartloads of films, thousands of acres of paper, and train-loads of chemicals; and when a new plate building in the Kodak Works is completed it will coat 1½ acres of glass in a day, and it will be the largest single building in the world devoted to the manufacture of photographic products.

"Thus you may see how largely the commercial prosperity of this city is dependent upon you, and how much we value your presence here, and also your patronage of the city product. This is our response to your material side; but we have still much to appeal here to your sense of the beautiful. The parks, lakes, river, falls, shaded streets, and drives are things to be proud of. We ask you to consider yourselves welcome within our gates. We wish you the best of good times while here, and ask you to come again, and that soon."

And this was the welcome extended to me on all hands, although a stranger from England.

It was a great, *practical* Convention, representative, as I have said, of the whole of American photography, truly national in

"Not Always My Way," forming an art criticism of photographs from her studio. We give below an article written by a London reader of the "British Journal," Mr. Fred Marriott, who was present at the Convention, which account we supplement by a report of some of the other proceedings condensed from the Rochester "Democrat," which each day during the week very fully reported the proceedings of the Convention.

its scope and spirit, so that the humblest photographer in the United States will feel that he and his business interests are part and parcel of the aim of the Association.

It has their interests truly at heart, and such meetings and mutual helpfulness act as a stimulant and vitaliser to them in their work. It is also a natural development, and one bound to lead to the raising of professional photography in public estimation.

A business show pure and simple—pleasure next, business first; but the Conventioners overflowed, nevertheless, with good spirits, good-nature, and good-fellowship.

The lessons in photography were a very popular feature of the Convention, and were closely followed even by the professional photographer. It was a great photographic school, and the manufacturers joined hands in hearty co-operation, being desirous not merely of selling their goods to the photographer, but teaching him at the same time how best to use them; and, what is more, the photographer seemed only too willing to listen and learn. Many have travelled vast distances to do it, and, to my personal knowledge, at considerable inconvenience and expense.

The daily demonstrations were crowded; and here is a note I take from one of the daily papers published on the spot verifying my statement:—

"The morning school of photography under the north gallery at Convention Hall is proving the most popular feature of the programme. The room has been partitioned off from the rest of the hall, the front door has been removed, a huge glass casing installed, and seats have been raised in tiers. The only criticism heard of the arrangement is that the room is too small to accommodate all the members who wish to attend the school. Nearly a thousand pupils were jammed into the school-room yesterday morning, and they remained persistently throughout the long session, despite the heat and the lack of seating accommodation."

Again: "The first lecture of the evening was by R. W. Phillips, of Philadelphia. His subject was "With Other Photographers." By a series of lantern-slides he showed photographers at work in their studios with subjects, and followed each studio view with a reproduction of the work in which the artist was engaged at the time the first slide was taken. The use of screens for lighting effects was gone over in detail, attention being called to the methods of some of the best known photographers in the world."

Mr. Phillips's talk was listened to with not only close attention but with great enthusiasm. The conditions of the light, arrangement of accessories, background, and actual posing of the subject, with samples of the finished work, the manner in which the harsh lights are subdued, and the illumination brought in harmonious relation—or, in other words, how a photograph is transformed into a picture by various workers—being particularly instructive and interesting.

I had a chat with an expert photographer whose name is well known in London, and who is now resident in the States, and he told me he had gained much valuable knowledge and many hints from his visit to this Convention. Why could not our British brethren follow suit with mutual advantage to manufacturer, professional, and amateur alike?

Another distinctly good idea was the division into sections of the pictorial work of each State, an idea that would seem

stimulate competition, with the happy result of obtaining the very best work possible—a striving, as it were, by the representatives of each section to be first in the field. English photographic societies throughout the Empire might adopt the same as surely with excellent results.

Another good feature was that of a friendly competition amongst the Conventioners. The one furnishing the best idea or invention of most use to the photographer or the manufacturer in connection with photography was awarded a prize—in this instance it was a hundred-dollar gold watch—another hint for our Royal Photographic and other societies.

Finally, before referring to other matters I will quote the words of one of the Canadians here. He said: "We have come over here to gain some enthusiasm in our association work, and to strengthen our determination to carry the work forward to complete success. If we could take the personnel of this Convention into our home towns it would achieve the very elevation which we are seeking, and we should hold a position that we do not now hold in the estimation of the general public."

After expressing sentiments like that, is it any wonder that the association was a successful one?

WITH OTHER PHOTOGRAPHERS.

At no session was there the general interest that was manifested at the illustrated lectures which were given at the Hotel Seneca by Mr. Ryland W. Phillips and Mrs. Käsebier. Every seat was taken, and many persons stood at the sides of the room and the exits, while others sat upon the floor rather than lose the first opportunity which had come in the history of the association to hear exponents of the two schools of photography champion their opposing sides.

To one unacquainted with certain things which are matters of recent history in the photographic world, the lectures might have been nothing but a dry exposition of the uses of light and shades and draperies to produce desired effects, or, upon the other hand, freedom from such artificial effects in the production of a picture.

In essence it was the contest between what has come to be known as the recognised or established school and the school which some ten years ago was dubbed the "Secessionists." The "Secessionists" have been scoffed at because they dared to contend that the use of cameras was not a mechanical act, but that the photographer could employ his camera as the unassisted medium of personal expression in art, and that the resulting pictorial expression was not short of art itself, whatever the medium, but led out into the artistic as certainly as did the brush in the hand of the painter.

"With Other Photographers" was the matter-of-fact subject which was to be the medium of the conveyance of the argument of the established school of photography, and Ryland W. Phillips, of Philadelphia, was the expounder. As scene after scene was projected upon the screen, Mr. Phillips gave minute explanation of the attainment of the desired result.

He explained the position of the sky-light, the accomplishment of desired shadows by the skilful use of screens, the posing of the subject, the arrangements of draperies with the idea of producing an ideal picture.

Not only did Mr. Phillips show the finished portrait, but the interiors of studios were thrown on the screen from photographs, illustrating every step in the accomplishment of the photographer's work, including the picture of the subject in position, the screens in place, and the actual moment when the picture

was caught by the artist. The lecturer was repeatedly applauded as he illuminated some point which evades the ordinary photographer. The contrast was also presented between the "raw" and retouched negative.

In addition to exhibiting his own work, Mr. Phillips used slides made from the work of other noted photographers, which he criticised to the instruction of the audience.

As the representative of the "Secessionists," Mrs. Gertrude Käsebier, of New York, had been invited to address the association. Mrs. Käsebier's address was prefaced by the throwing on the screen of several interior views of her New York studio, showing the entire absence of any of the ordinary accessories which are supposed to be indispensable to the best results, from the view-point of the established school. In fact, the views looked precisely like those of a well-furnished drawing-room.

In thus fitting her studio, the idea of Mrs. Käsebier is to place her subject in the most natural surroundings, and while thus a part of a picture which in its make-up is natural rather than artificial, the subject is caught by the camera.

In explaining the later portraits, the artist incidentally showed the utter disregard for the conventional methods of admission of lights, and also showed the attempt to portray the subject simply rather than elaborately draped, and to represent with fidelity how the subject actually looked rather than how an idealic picture might look, taking the subject as a basis of construction.

At times the speaker brought a smile from the audience by saying, "Now this, as you can see, is made from a new negative, before we have assisted honest nature to be dishonestly beautiful."

That the speaker was not without support in the audience was shown by the considerable applause which she received at times. And that the audience was intensely interested was shown by the fact that, notwithstanding the discomfort which some sustained while listening in the crowded room, there was, save for the applause, approximately absolute silence, with no one leaving the room until the last word fell from the speaker's lips.

FRED MARRIOTT.

AT KODAK PARK: MR. GEORGE EASTMAN AS HOST.

Perhaps the greatest experience of the entire Convention for at least 2,000 of the delegates and visitors was the visit on Thursday to the Kodak Park plant of the Eastman Kodak Company. All the visitors had been through other plants earlier in the week, and during the forenoon of the Tuesday had seen

some of the wonders of the Bausch and Lomb Optical Company's great plant, but what they all wanted to see was the inside of that aggregation of immense buildings collectively known the world around as Kodak Park.

From this plant comes all the Eastman film that goes not

only to every part of the civilised world, but beyond, into the previously unknown wilderness. As one Conventioneer remarked, adapting the expression to the needs of the moment, the sun never sets on the Eastman film, a product of Kodak Park. North and south and east and west, to every part and the most distant points of the United States and Canada, to say nothing of lands across the sea, its fame has gone, and to every photographer, professional and amateur, it is as a word learned in childhood.

That explains why, earlier in the week, all the visitors who found it possible to do so called the first half of Wednesday afternoon a closed date.

"That's when we go to Kodak Park," they said, "and we want to go there if nowhere else."

And they went, more than 2,000 of them, according to estimates made by officials of the Photographers' Association of America. When the visitors arrived they found several tents erected on the lawn, with seats for all who came. At every point in and around the tents, and later about the works, were men wearing badges bearing the legend: "Ask Me; I Belong Here." The visitors asked, and every question was answered. Not many queries were heard in the tents, but they came in an almost unceasing stream later, when the inspection of the plant was in progress.

As soon as the tents were comfortably filled luncheon was served. Before and during the luncheon and after the inspection music was supplied by Dossenbach's Park Band.

After luncheon a line was formed including all the visitors who had arrived, and there were 1,240 present, and the inspection of the plant was begun. Everywhere along the line and through the plant were men wearing the tag inscribed: "Ask Me; I Belong Here." Of these, including those in the dark-rooms which formed a division of their own, there were not far from 375. Of this number 150 were from the company's force of travelling salesmen, twenty-five were from the drafting room, twenty-five to fifty included the superintendents and other attachés, and a group of fifteen included the managers of different divisions. In the dark-rooms were many who wore illuminated tags bearing the same inscription, the black showing distinctly against the red light. Mr. George Eastman, inventor of the Kodak and head of the great company that bears his name, was present, and wore one of the tags.

At the head of the column were Charles F. Hutchinson and Claude Van Houten, of the Kodak Park plant. Along the entire line men were stationed to direct the way and give such other assistance as might be needed. The column entered the plant proper through the gate to the north of the office building. Here a copy of the company's souvenir book was handed to each visitor.

From this gate the column proceeded to the compression ice plant, and thence to and through the machine shop, box factory, glass plate box factory, Velox and Azo cutting and packing room, Velox and Azo reeling, drying, and coating rooms, paper storage department, fan room, past the new plate building, to the "dope" department, filling room, coating room, distilling department, engine room, ice machine room, past the big chimney to the nitric acid and sulphuric acid plants, nitrating department, washing and drying room, patent papers building, coating department for these papers, glass and emulsion warehouse, auxiliary paper storage warehouse, men's dining hall, portion of emulsion cooling department, upper end of room in which all spool films are packed, London shipments room, locker rooms, and finally into the time room.

During the trip the visitors were informed that when completed the new plate building, which will cover an area 357 feet by 338 feet, will add five and a-quarter acres to the floor space of the plant, and will be the biggest building of its kind in the world. They were also informed that in the distilling depart-

ment all the solvents that are used in manufacturing the film are recovered and made ready for further use.

The acid department, in which both nitric and sulphuric acid are made, were full of interest for the visitors. Perhaps for the first time they learned that the Eastman Kodak Company is the largest manufacturer of silver nitrate in the world, and that they were looking upon a plant that has a capacity sufficient to convert 4,000 pounds of silver into silver nitrate every week.

In the men's dining room, which has a capacity of 400, the visitors were told that the women's dining room was on the floor above, and that the two have a combined capacity of 1,000. The time room was also very interesting, because of its arrangement and capacity. The time clocks are arranged with reference to the letters of the alphabet, and in such numbers that the entire force, now numbering about 2,200, can be checked out and paid off in ten minutes.

After the trip the column proceeded to the tents and broke up. Expressions of astonishment were heard on every side, and compliments without number were paid to the officials of the company. Mr. Eastman was there, and hundreds hastened to greet him, to grasp his hand, and to congratulate him upon what he has accomplished, and upon what has been built up, under his direction, at Kodak Park.

The remainder of the time the visitors stayed at the park was given up to visiting among both the men and women of the party. There were various officials of the Eastman company that the visitors desired to meet, and the introductions were made. A large number of the visitors had never met Mr. Eastman, and his hand was shaken hundreds of times.

Then there were Manager J. H. Haste, of the Kodak Park plant; Manager Frank W. Lovejoy, of the State Street offices; Assistant Treasurer Frank S. Noble, and the man of whom everybody has heard, and whose hand all of the visitors wanted to shake, L. B. Jones, the company's advertising manager. Those who were not personally acquainted with Mr. Jones were introduced, and those who knew him, shook his hand again.

A few left before three o'clock, but it was not until the rain came half an hour later that any perceptible decrease in the number of people was noticeable. Part of the crowd went out on the lawn and had a group picture taken. Before many had gone L. F. Hammer, of St. Louis, stood up on a chair and waved his hands.

"Speech by Hammer," somebody shouted, and the crowd gathered about him.

"Ladies and gentlemen, especially the latter," Mr. Hammer said, "I've got something to say that ought to be said at this time. We have all been through this wonderful plant, and have seen what Mr. Eastman has done; we have partaken of his generosity, and have had the great pleasure of meeting the man who has done so much for photography. Let us show our appreciation by giving three cheers for Mr. Eastman."

The three cheers were given, and were followed by a "tiger," while the women waved their handkerchiefs.

Then the rain came, and the cars cityward were crowded. At the same time, despite the rain, other visitors were coming, and until four o'clock, thirty minutes before the time fixed for the close of the visit, the officials were asked to permit the newcomers to go through the plant. As one of the visitors said, it was one of the greatest days in the history of photography in America.

Again, the day following the visit to Kodak Park, Conventioneers were the guests of Mr. Eastman and the Board of the Eastman Kodak Company at Ontario Beach.

In all conventions of photographers there never has been anything like it, and even in Rochester, the convention city, such a large number of people never before have been entertained so lavishly. It was a grand, good time from the moment the

ong line of 2,249 guests began to file on to the verandahs of Hotel Ontario until the owl car brought the last merry-maker home.

Carrying pass books, which contained everything needful for enjoying the park and all of its attractions, the guests began going to the park early in the afternoon, and when at six o'clock the bugle sounded the dinner call, there was a crowd which occupied every inch of space on the walks surrounding the hotel.

At the conclusion of the dinner the great throng gave three

cheers for Mr. Eastman, and the men in his immediate vicinity made vociferous demands for a speech. Mr. Eastman, after being lifted to the table, much against his will, made a brief speech, in which he spoke of the pleasure he felt in entertaining the photographers.

There was another speech by Joxie Collings, of the Eastman Kodak Company, when he presented to President Barrows, of the Photographers' Association, a gold watch and chain from the association. This presentation was also the signal for an ovation.

ON THE COMPARATIVE REDUCING POWER OF THE PRINCIPAL DEVELOPERS AND OF THE MEANS OF INCREASING AND REDUCING CONTRASTS IN NEGATIVES DEVELOPED WITH THEM.

THE various developers employed for photographic purposes have, as is well known, very different reducing properties. Some act with great energy and allow of development being completed within a very short time, whilst others, on the other hand, exert much slower action, and give rise to complete development only within a relatively long period. Moreover, the images produced with the different developers differ to a notable extent. Writers upon the subject of development have prescribed very different means for reducing or increasing the energy of the developer with the object of improving the result of over or under exposure or of varying the degree of contrast. We have, therefore, endeavoured to ascertain the differences which actually exist between developers from the point of view of their photographic reducing power, in order to ascertain if there is any actual foundation for the belief that certain developers are better suited for the development of very feeble effects of light, that is to say, of details in the deepest shadow of the subject photographed. We have also studied and compared the various means for increasing or reducing the contrast in the negative.

In a first series of experiments developers, according to established formulæ, were prepared of the following substances:—diamidophenol, metoquinone, pyrogallic acid, paramidophenol, metol, hydroquinone, metol-hydroquinone, edinol, glycin, adurol, hydramine, and paraphenylene-diamine. Plates coated with the same extra-rapid emulsion (the Lumière "Sigma" plate) were exposed under the graduated scale of the Chapman Jones sensitometer for a time sufficient to bring out some only of the patches in the sensitometer, say up to No. 15. These plates were developed each in a solution of the reagents above mentioned, the time of development in each case being sufficient for obtaining the maximum of detail in the shadows. It was ascertained that all the developers, whatever the formula employed, whether with an insufficiency or an excess of alkali, whether containing bisulphite (acid diamidophenol) or bromide, produced the same number of the sensitometer provided that a sufficient time of development was given. In a number of cases, however, this number was obtained on the plate only by resorting to a time of development which also gave rise to more or less intense fog.

Certain slow developers which exert a solvent action upon silver bromide, either by virtue of the developer itself (paraphenylene-diamine) or owing to the presence of potassium bromide or ammonium chloride, do not allow of the development of faint impressions of light to the same degree as do other developers. If all the developers not containing a large proportion of solvent of silver bromide are employed so as to give, at the same exposure, the same number of the sensitometer,

they show very pronounced differences so far as concerns the intensity of the developed images. In order to study the influence of the composition of the developer on the intensity of the contrast obtained, we employed as the formula for each substance that which is usually adopted, but omitting the bromide, in order to throw special light on the effect of increasing proportions of this constituent.

In the case of each developer we have studied the influence of the following factors on the increase or reduction of the contrast:—

- Temperature.
- Dilution.
- Proportion of sulphite.
- Proportion of carbonate or caustic alkali.
- Proportion of added bromide.

Influence of Temperature.

Experiments were made with the developer at the following series of temperatures—41F., 50F., 68F. and 86F. With all the developers the lower temperature necessitates increase in the time of development, but to varying extents, according to the nature of the developer. Some few developers, such as hydroquinone and adurol, give considerably greater contrast at a low temperature, but as a general rule temperature *per se* exerts only a slight effect upon the contrast obtained. The following were the results:—

Developer.	Reduction of contrast with rise of temperature.	Increase of fog with rise of temperature.
DEVELOPERS WITHOUT ALKALI.		
Metoquinone	No appreciable variation	Considerable
Diamidophenol	No appreciable variation	Considerable
DEVELOPERS WITH ALKALI.		
Pyro	Slight	Very considerable
Paramidophenol	Slight	Very slight
Metol	Slight	Slight
Hydroquinone	Very great	Very great
Metol-hydroquinone	Slight	Slight
Hydramine	Slight	Very slight
Adurol	Very great	Great
Edinol	Slight	Very slight
Glycin	Slight	Considerable
Eikonogen	Slight	Slight
Pyrocatechin	Slight	Very slight

Influence on Dilution.

Exposures which had been given under identical conditions were developed, employing solutions which contained one volume of the normal developer in admixture with 1, 2, 3, and 5 volumes of water. With the majority of the developers dilution has the effect of necessitating a greater time of

development (but without causing an increase in fog), and of lessening the contrast in the negative to a degree dependent upon the developer. The following are the results obtained:—

which work with alkali produces, as a rule, no appreciable alteration in contrast. In the case of metoquinone, which normally is used with an alkali, the addition of carbonate slightly in-

Developer.	Time of Development at various dilutions, that with normal developer being reckoned as 1.					Reduction of Contrast by Dilution of Developer.
	Volume of Water.					
	1	2	3	5		
Metoquinone	1	1.6	3.5	4	5	Very slight up to 3 times dilution: greater with further dilution.
Diamidophenol	1	1.5	2.0	2½	3	Considerable up to 3 times dilution: no appreciable action with further dilution.
Pyro	1	—	2.0	2.1	3	Considerable up to 3 times dilution: slight action with further dilution.
Paramidophenol	1	2	2.8	5½	6½	Same as for pyro.
Metol	1	1½	2	4	10	Considerable up to 3 times dilution: dilution beyond this point has no further effect.
Hydroquinone	1	1½	2½	3¾	5	Slight up to 5 times dilution.
Metol-hydroquinone	1	—	1½	1¾	2	Slight up to 3 times dilution: dilution beyond this point has very slight further effect.
Hydramine	1	1½	2	3	3½	No effect.
Adurool	1	1½	2	2.8	4	Slight up to 3 times dilution: dilution beyond this point has no appreciable effect.
Edinol	—	—	—	—	—	Slight effect on dilution: reduction of contrast is more marked on dilution with more than 2 volumes.
Glycin	1	1.2	2	2½	4	Considerable up to 5 times dilution.
Eikonogen	1	2.4	2.5	4.4	—	Considerable up to 3 times dilution: development very slight beyond this point.
Pyrocatechin	—	—	—	—	—	Slight up to 3 times dilution.

Influence of Sodium Sulphite, Carbonate, and Caustic Alkali.

The proportion of sulphite exerts an action on the contrast in the negative only in the case of developers such as diamidophenol, diamido-resorcin, and metoquinone, in which the sulphite takes the place of the alkali. With these developers the contrast is slightly lessened when increasing the normal proportion of sulphite for a given quantity of developing substance. Inversely, if the proportion of sulphite is reduced the contrast is slightly increased, and the time of development at the same time lengthened. The variations in the proportion of sulphite produce results which are more marked in the case of diamidophenol and diamido-resorcin than in the case of metoquinone.

With these three developers just mentioned it is thus feasible to reduce the contrast either by adding water to the developer or by increasing the proportion of sulphite. In practice, the best result is obtained by employing both methods simultaneously; that is to say, we get negatives of a lesser degree of contrast and quite free from fog (when employing diamidophenol) by diluting the developer with about three times its bulk of a 5 per cent. solution of anhydrous sulphite of soda.

Gradual increase of carbonate or caustic alkali in developers

increases the contrast, whilst a contrary effect is noticed in the case of pyrogallie acid, metol, and hydroquinone.

Influence of the Proportion of Bromide

Addition of potassium bromide to the various developers increases the contrast produced, whilst at the same time it lengthens the period of development. Moreover, if the developer tends to give veiled results small proportions of bromide will completely remedy it in this respect.

The effect produced varies with the nature of the developer. In a general way the maximum effect is obtained with a small quantity of bromide, beyond which the only effect is increase of the time of development. For each developer we have tried the effect produced by varying quantities of bromide, as follows, viz. :—

0.5	1	.25	.5	1 gm per 100 ccs.
These are respectively equal to:—				
½	⅔	1/10	2/5	4½ grs. per oz.

The preceding experiments show that all the developers examined, whatever their composition (with the exception only of those containing solvents of silver bromide), allow of development of faint impressions to the same degree.

Developer.	Per 100 ccs. of Developer.		Note on the effect produced on contrast.	Ratio between time of development with solution containing .05 gm. bromide per 100 ccs. and that with solution containing 1.0 gm. bromide per 100 ccs.	Influence of Bromide on Fog.	
	Minimum quantity of bromide, producing appreciable effect on contrast.	Quantity of bromide producing the maximum effect of contrast.			Without bromide.	With bromide.
Metoquinone ... ..	.1	.25	Slight	3.4	Somewhat strong fog	.05 gm. bromide per 100 ccs. suppresses fog.
Diamidophenol ... ..	.05	.25	Considerable	4.75	Very slight fog	" "
Pyro ... ..	.1	1.0	Strong	2.66	" " " " " "	" " " " " "
Paramidophenol ... ..	.5	.25	Considerable	2.8	No fog	No fog.
Metol ... ..	.1	.25	"	3.25	Rather strong fog	" "
Hydroquinone ... ..	.05	.25	Strong	2.8	" "	.1 gm. bromide in 100 ccs. suppresses greater part of fog: with more bromide, further action on fog.
Metol-hydroquinone ... ..	.05	.25	Considerable.	3.5	" "	" "
Hydramine ... ..	.05	.25	"	2.8	" "	" "
Adurool ... ..	.05	.5	Strong	2.5	Slight fog	.1 gm. bromide in 100 ccs. suppresses fog.
Glycin ... ..	.05	.5	"	4	" "	" "
Eikonogen ... ..	.05	.1	"	5	No fog	No fog.
Pyrocatechin ... ..	.05	.25	Slight	3	" "	" "
Metoquinone (with soda carbonate)	.05	.25	Considerable	3	Slight fog	" "
Edinol... ..	.05	.25	"	4	Very slight fog	.05 gm. bromide per 100 ccs. suppresses fog.

Contrast can be modified by the following methods:—

Reduction of Contrast.

Among the means for reducing contrast the following must be mentioned:—

1. Dilution of the developer—addition of water three to four times the bulk of the normal developer.
2. Addition of sulphite of soda or simultaneous addition of water and sulphite, *e.g.*, addition of three times the bulk of the normal developer of 5 per cent. anhydrous sodium sulphite solution.
3. Increasing the proportion of alkali.
4. Raising the temperature of the developer.

Method No. 1 applies to all the developers we have used with the exception of hydramine. The developers least sensitive to his effect of dilution are hydroquinone, metol-hydroquinone, metoquinone, adurol, and edinol.

Method No. 2 serves only with developers requiring no alkali, and the best results are obtained in the case of diamidophenol. As already stated, it is best to combine methods Nos. 1 and 2.

Method No. 3 has no effect in the case of the majority of developers. The only instances in which the results are appreciable are with pyro-metol and hydroquinone.

Method No. 4 may be used in practice only in the cases of hydroquinone and adurol: other developers, when used at a higher temperature, give only a very slight reduction of contrast.

Increase of Contrast.

The following methods on improving contrast and thus remedying the effect of over-exposure may be mentioned:—

1. Reducing the alkali in the developer, or in the case of developers working with alkali reducing the quantity of sulphite.
2. Lowering the temperature of the solution.
3. Addition of bromide.

Methods Nos. 1 and 2 are merely the corollaries of the methods already given for reduction of contrast. A lessened proportion of alkali may be obtained by addition of an acid or of sodium sulphite to the developer.

Method No. 3 applies to all developers, and is the means which is of the greatest practical use. Moderate proportions of bromide are sufficient to produce the maximum effect. Developers which best lend themselves to the maximum increase of contrast are pyro, hydroquinone, adurol, glycin, and eikonogen.

The following are the formulæ employed for the various developers which have been made the subject of the above examination:—

DIAMIDOPHENOL.

Diamidophenol	44 grs.	5 gms.
Soda sulphite anhydrous.....	260 "	30 "
Water	20 ozs.	1,000 ccs.

METOQUINONE (NORMAL).

Metoquinone	80 grs.	9 gms.
Soda sulphite anhydrous.....	1½ ozs.	60 "
Water	20 ozs.	1,000 ccs.

METOL.

Metol	35 grs.	4 gms.
Soda sulphite anhydrous.....	165 "	19 "
Potass carbonate	130 "	15 "
Water	20 ozs.	1,000 ccs.

HYDROQUINONE.

Hydroquinone	90 grs.	10 gms.
Soda sulphite anhydrous ...	1 oz.	25 "
Potass carbonate	330 grs.	38 "
Water	20 ozs.	1,000 ccs.

METOL-HYDROQUINONE.

Metol	80 grs.	9 gms.
Hydroquinone	80 "	9 "
Soda sulphite anhydrous ...	800 "	90 "
Soda carbonate anhydrous ...	480 "	54 "
Water	20 ozs.	1,000 ccs.

One part of this stock solution is mixed with two parts of water.

PYROGALLIC ACID.

Pyrogallie acid	44 grs.	5 gms.
Soda sulphite anhydrous ...	130 "	15 "
Soda carbonate anhydrous...	60 "	7 "
Water	20 ozs.	1,000 ccs.

PARAMIDOPHENOL.

Parami dopn	44 grs.	5 gms.
Soda sulphite anhydrous ...	330 "	38 "
Caustic lithia	18 "	2 "
Water	20 ozs.	1,000 "

EDINOL.

Edinol	90 grs.	10 gms.
Soda sulphite anhydrous.....	2 ozs.	100 "
Soda carbonate anhydrous ...	2 "	100 "
Water	20 "	1,000 ccs.

GLYCIN.

Glycin	150 grs.	17 gms.
Soda sulphite anhydrous.....	265 "	30 "
Potass carbonate	70 "	8 "
Water	20 ozs.	1,000 ccs.

HYDRAMINE.

Hydramine.....	45 grs.	5 gms.
Soda sulphite anhydrous ...	130 "	15 "
Caustic lithia	27 "	3 "
Water	20 ozs.	1,000 ccs.

ADUROL.

Adurol	115 grs.	13 gms.
Soda sulphite anhydrous ...	1 oz.	50 "
Potass carbonate	1½ "	75 "
Water	20 ozs.	1,000 ccs.

EIKONOGEN.

Eikonogen	265 grs.	30 gms.
Potass carbonate	1 oz.	50 gms.
Soda sulphite anhydrous ...	1½ "	60 "
Water	20 ozs.	1,000 ccs.

PYROCATECHIN.

Pyrocatechin.....	90 grs.	10 gms.
Soda sulphite anhydrous ...	1½ oz.	25 "
Soda carbonate cryst	1 oz.	50 "
Water	20 ozs.	1,000 ccs.

A. AND L. LUMIÈRE.
A. SEYEWETZ.

PHOTOGRAPHS OF CASUALS.—The Committee of the Bethnal Green Workhouse are adopting up-to-date methods in the identification of the men who sojourn in that institution. A camera is to be purchased at a cost of £5 in order that photographs of the men allowed out on pass may be taken. At the present time, in the event of such men returning, they cannot be traced without great difficulty.

MOTORING AND PHOTOGRAPHY. It may be doubted (writes a contributor to the "Birmingham Evening Despatch") whether any readers have taken a photograph of themselves travelling in a motor car at forty miles an hour. Such was the feat accomplished by a

well-known Birmingham man a few days ago. At the side of one of the country lanes not five miles from the centre of the city he placed a camera of his own construction. The body of the camera was of the ordinary kind, but there was attached to it a rubber tube some three or four yards long. This was placed across the road, and the motorist starting from a point some distance away set the car off at a great speed. He then drove the wheels of the car over the tube, and thus "snapped" the picture. The mechanism was so arranged that when the first wheel passed over the tube the plate was exposed.

SOFT VIGNETTES IN ENLARGEMENTS.

THE majority of photographers who do any enlarging frequently experience a difficulty in obtaining soft and pleasing results when vignetting. It is very annoying to find that, after all our care to keep the vignetter moving during exposure, on developing the bromide paper we get a more or less distinct line showing the shape of the opening in the vignetter used. This is especially noticeable in cases where vignetting has to be resorted to with a negative which was never intended for that purpose, the background being several tones too dark to suit that particular style of printing. Nothing looks worse than a portrait with a dark background vignettted so as to show a distinct oval-shaped mass of dark with the head looming in the centre, and the usual expanse of pure white all round; but this is the kind of result which will always be obtained while using any of the ordinary vignettters, the reason being that the edges (no matter how much they may be cut up) always cast a hard shadow on the bromide paper, and the light coming through a lens and travelling in a straight line does not diffuse under the edges of the vignetter as it does when printing by contact, when sufficient room is left between the negative and the vignetter.

Such being the case, it is evident that some material other than that usually employed is required to make suitable enlarging vignettters; and, after experimenting with various transparent and semi-transparent materials, I have come to the conclusion that an enlarging vignetter should be semi-transparent, and have found that ordinary celluloid, matted on one side, answers the purpose very well. This allows a certain amount of light to pass through, but entirely destroys the image, softening the edges of the vignettted portion, and giving an all-over tint to the part usually represented by white paper. This gives an effect not unlike that obtained when vignetting in the camera. If this tint is not required, the vignetter can be covered with opaque paper, having about half an inch of clear celluloid round the opening, which will give a very soft vignette and still leave

the margins of the paper white. Personally, I prefer to use the celluloid uncovered, and have the paper tinted right up to the edges, which almost gives the effect of a solid print, but without hard detail near the margins. Even negatives with light backgrounds give a different result with this vignetter, the effect obtained being softer and more harmonious than when the ordinary opaque vignetter is used.

The celluloid sold by dealers for glazing and matting P.O.P. prints answers the purpose very well. The opening is cut in the centre as usual. A convenient method of cutting is to use a wheel cutter and the zinc shapes sold for the purpose of cutting oval and circular prints. Since the celluloid is so thin, it is best to support it by cutting an opening in two pieces of cardboard, the cut-out parts being about a quarter of an inch smaller each way than the outside size of the celluloid. The celluloid is then placed over one piece of the cardboard, and kept in place by a touch of mountant, the second piece of cardboard being pasted all over and laid on top. The whole is then placed under a weight until it is hard. This gives the vignetter bound in a cardboard frame, which keeps it stiff, and makes it much easier to handle.

The vignette is used in the ordinary way between the lens and the bromide paper on the enlarging easel, and kept moving as usual; but, even if it is kept stationary, a definite line does not result; in fact, in whatever way it is used, the effects obtained are softer than is usually the case with ordinary opaque vignettters. The fact that this vignetter is of no use for contact printing proves that it is different from others; and, although this difference may be very slight, still, it is there; and whilst the soft results obtained by its use may not appeal to everyone, nor be suitable for every vignettted enlargement, still, it is an added power in the hands of the photographer, and even the pictorial worker may on occasion find a use for it, if for no other reason than to soften down distracting detail near the margins.

J. PEAT MILLAR.

MIXTURES OF DYES AS SENSITISERS OF GELATINE PLATES.

IV.

[The following is an abridged translation of a thesis by Guido Daur, presented for the degree of Doctor of Philosophy at the Münster University. The experimental work was done on the suggestion of Professor Miethe, to whose colleague, Dr. E. Stenger, the author of the papers renders his thanks for much advice and assistance. The full text of the paper occupies a book of 105 pages, published by E. Grieser, Frankfort a/M.—Eds. "B.J."]

29. *Pinaverdol-erythrosine*.—The great difference between sensitizers such as ethyl-red and pinaverdol is shown by the properties

other hand, completely overpowers the effect of erythrosine. The curves for the two separate dyes are shown in Fig. 29, so that they

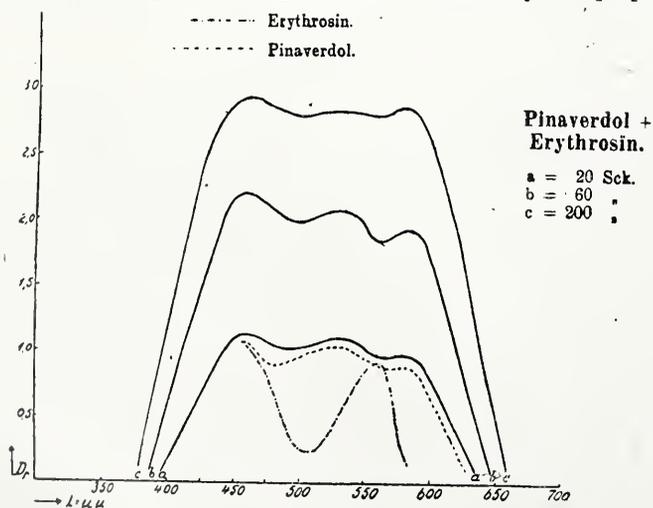


Fig. 29.

of this mixture. Ethyl-red, as has been seen, exerts hardly any action when combined with erythrosine, whilst pinaverdol, on the

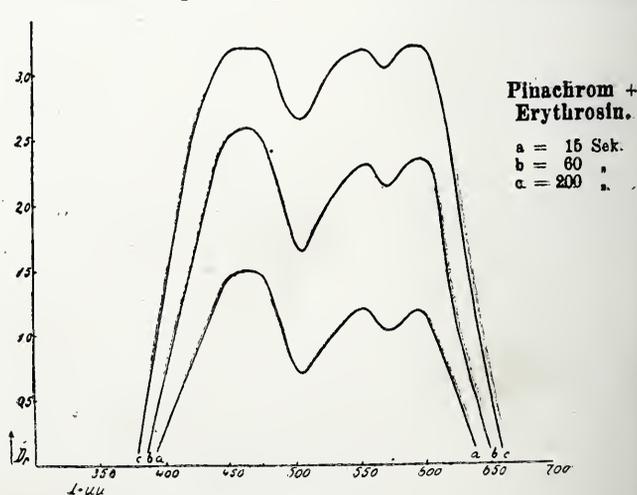


Fig. 30.

are comparable at 450. It is seen that the pinaverdol minimum of 560 coincides with the erythrosine maximum; nevertheless the resulting curve is that of pinaverdol. There is no shifting of the maxima.

30. *Pinachrome-erythrosine*.—The curve (Fig. 30) has largely the pinachrome character; the gap in the green is somewhat deeper than with pure pinachrome. On the other hand, the erythrosine appears to have influenced the maximum at 550 somewhat. The second pinachrome maximum is 5 $\mu\mu$ nearer the red end of the spectrum. The minimum appears somewhat enlarged by the increase of the first maximum. The colour-sensitiveness, which in the case of the pinachrome curve corresponds with that of the mother emulsion, is inferior in the case of the two dyes with short exposures, increases gradually, and at 200 seconds exceeds the sensitiveness in the blue. Water-washed plates develop heavy fog, and those bathed with alcohol were required for the measurements.

31. *Isocol-erythrosine*.—The curve is almost identical with that of erythrosine, but there is no filling up of the gap in the green. The second maximum of 530 comes out very faintly at 520, and the third maximum of 630 becomes evident only on fairly long exposure,

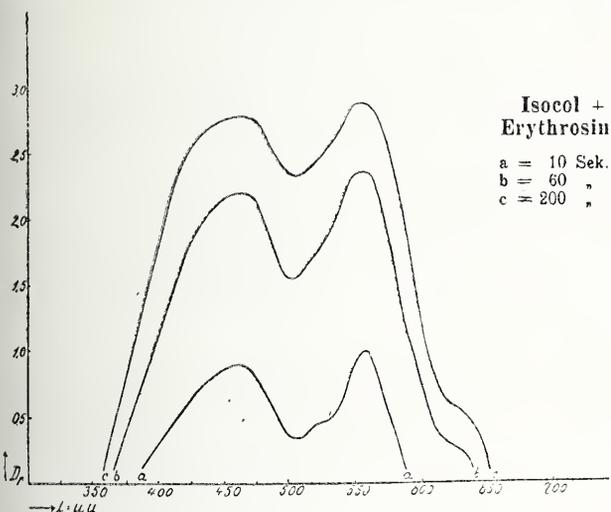


Fig. 31.

extending the curve to 650. The ratio of colour-sensitiveness to that of the mother emulsion is about 1 in the case of erythrosine, and is not appreciably improved in the case of the two mixed dyes. The water-washed plate was satisfactory, and was used for the measurements.

32. *Dicyanine-erythrosine*.—The plate, that washed with alcohol, showed three distinct maxima. Fog amounted to .48. As seen from the figure, the extremely slight colour-sensitiveness is remarkable, and even that to blue is not high. The green gap has its deepest point at 520; the erythrosine maximum, which is shifted 10 $\mu\mu$

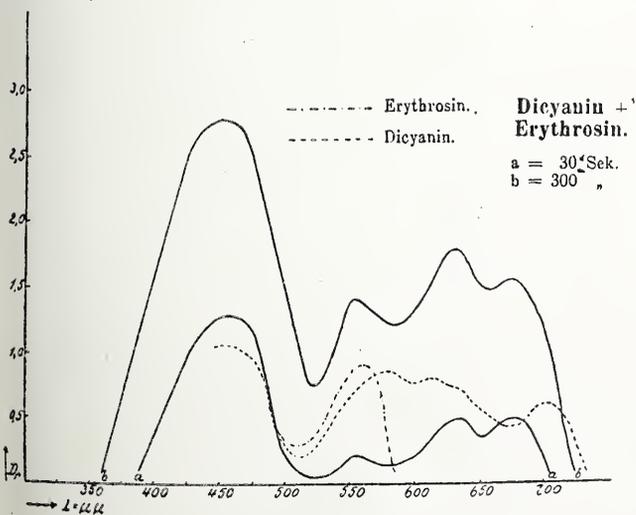


Fig. 32.

towards the blue, rises steeply up to wave-length 550. The dicyanine maximum of 610 comes out strongly; on short exposure it is somewhat more marked than the other maximum, but on longer exposures far exceeds these. There is a shift of the dicyanine maximum from the red from 700 to 725—that is, 25 $\mu\mu$ towards the blue.

33. *Mixtures of chinoline-red, glycin-red, and formyl-violet with eosines and isocyanines*.—Fig. 33 gives the curve of the sensitisers hitherto used for a time of exposure of 200 seconds. Chinoline-red, with its maximum at 570, shows the best action, and may be placed

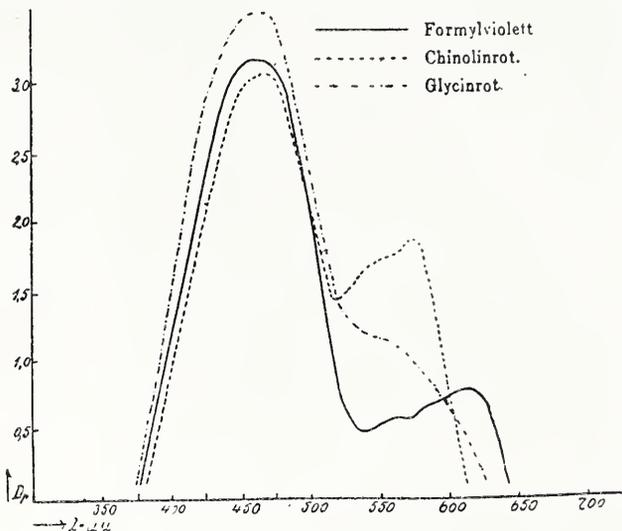


Fig. 33.

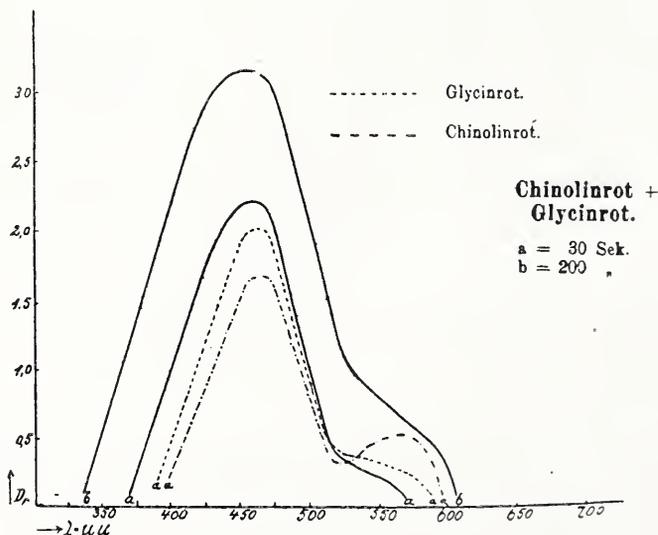


Fig. 34.

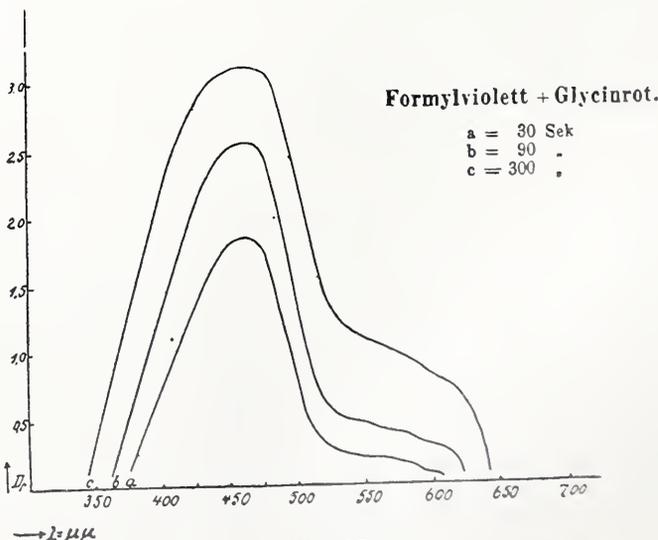


Fig. 35.

alongside aureosine as regards strength. According to Valenta, the best formula for sensitising is:—

Chinoline-red, 1 : 500 2 ccs.
Water 100 ccs.

Glycin-red is a far weaker sensitiser with chinoline-red, and shows

its best action at a dilution of 1:25,000. The added sensitiveness is far inferior to that in the blue, and does not reach beyond 620.

Of the three dyes the weakest action is given by formyl-violet used in accordance with Valenta's formula at a dilution of 1:20,000, with a slight addition of ammonia. It shows two maxima at 560 and 610; the curve rises steeply from the latter, and extends to 630.

34. *Glycin-red-chinoline-red*.—This mixture, as seen from Fig. 34, gives a glycin-red curve; there is no sign of the effect of the other dye. The curves are for exposures of 30 and 200 seconds, those for the separate dyes being for 30 seconds' exposure. It will be noticed that the mixture gives a greater sensitiveness to the blue.

35. *Formyl-violet-glycin-red*.—In this mixture the glycin-red decides the shape of the curve, the gradual fall from 500 being typical of this dye. The formyl-violet, maximum 610, has prolonged the curve somewhat in the yellow part of the spectrum.

36. *Formyl-violet-chinolin-red*.—The curves are for exposures of 60, 150, and 300 seconds, both for the mixture and for the single dyes. The chinoline-red proves the stronger sensitiser, the action being slight, with short exposure, more marked on longer exposure, and reaching its maximum at 570. The gradual fall is broken by

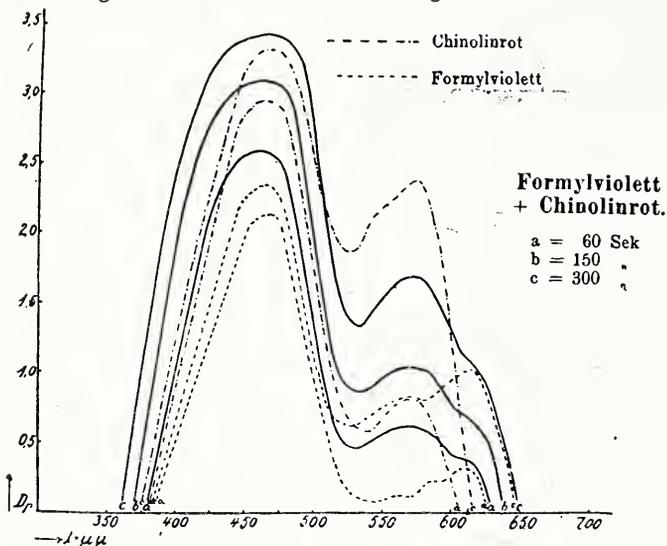


Fig. 36.

the formyl-violet, maximum at 610. With this mixture also sensitiveness to the blue is greater with the mixture than with either single dye. The colour-sensitiveness is distinctly inferior to that of chinoline-red.

37. *Formyl-violet-erythrosine*.—As anticipated, the strong sensitising powers of erythrosine are seen in the character of the curve—i.e., rather deep gaps at 500, from which the curve rises steeply with a maximum at 560, whence it quickly falls. On longer exposure the effect of the formyl-violet comes in. The maximum of the latter at

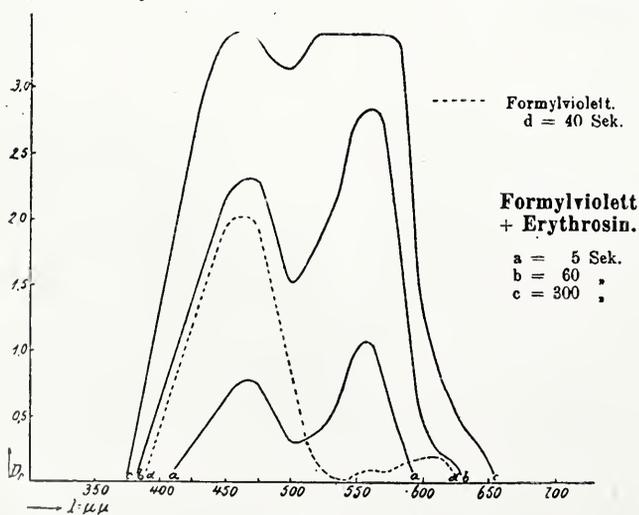


Fig. 37.

610 causes the erythrosine curve to bend outwards, thus prolonging it slightly. The colour-sensitiveness relative to that to blue is good; on short exposure the curve remains at 450 at a point close to the green maximum. The plate shows some strong red coloration.

38. *Chinoline-red-erythrosine*.—Here the curve is of the erythrosine

type, though its maximum in the green is altered somewhat. The chinoline-red maximum of 570 is apparently shifted 10 μm towards the blue.

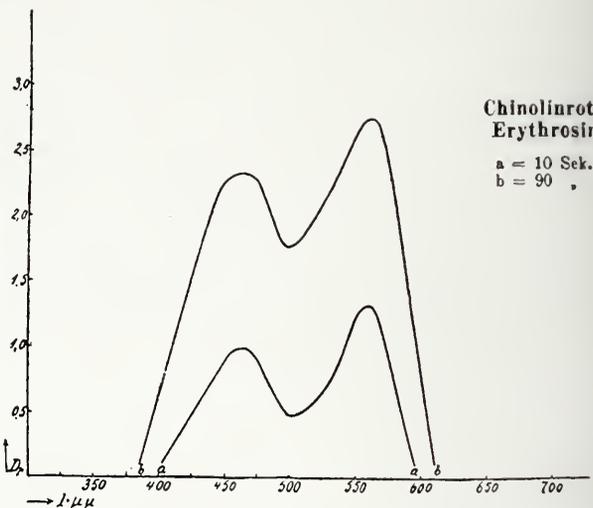


Fig. 38.

39. *Glycin-red-erythrosine*.—Here, again, the curve is that of erythrosine, the relative sensitiveness in the green to that in the blue being good, as also the general sensitiveness.

These results confirm the fact that a weak sensitiser, when used in

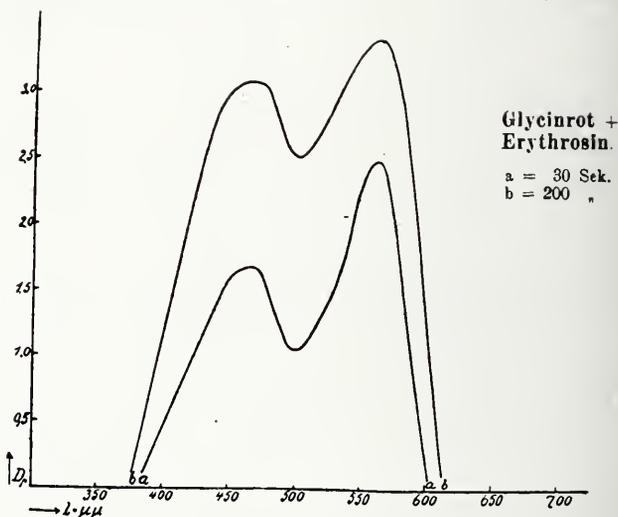


Fig. 39.

combination with a strong one, exerts as a general rule no influence on the curve of the latter, and affects only the relative colour-sensitiveness compared with that to the blue.

40. *Aureosine-glycin-red*.—It is seen that aureosine is here more powerful than its fellow dye, and fixes the course of the curve.

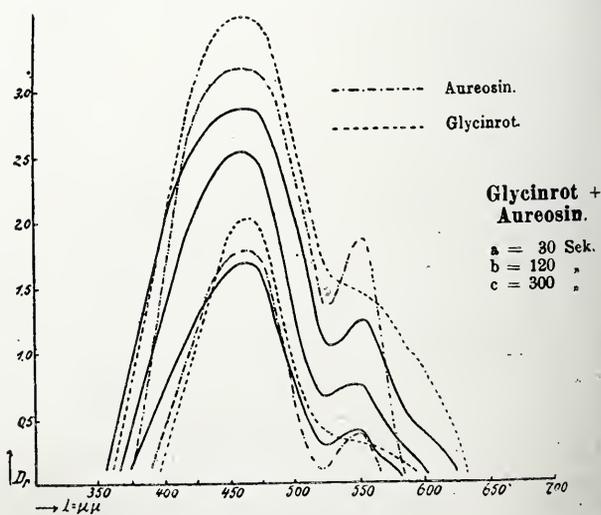


Fig. 40.

short exposures (30 seconds) the curve falls from the blue maximum less steeply than with aureosine alone. The gap at 520 in the blue

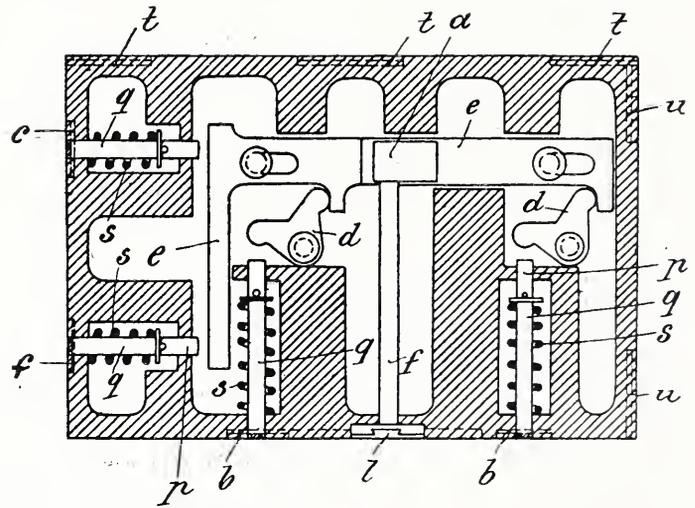
Photo-Mechanical Notes.

Mechanical Mounting for Half-tone Blocks.

A RECENT patent specification (No. 27,770, 1908), describes the device constructed by E. Wiessler, of 7, Erzgießerei Strasse, Munich, for the purpose of holding printing surfaces thereon, and more particularly to mounting-blocks of the type wherein these grippers are moved, against the action of the springs, by means of cams and bell-cranks arranged under the block. The object of the invention is to simplify the mechanism of these blocks, and the invention consists in using a cam-operated slide to act in part directly, and in part indirectly, by means of bell-cranks, on the grippers of the block.

Within the block there is a shaft *f* provided with a cam *a* adapted to displace the slide *e*. The latter has lateral projections by means of which it rotates two bell-cranks *d* during its movement towards the left of fig. 1. The shaft is rotated by means of a key, not shown in the drawing, adapted to engage a slotted disc *l* fixed to the shaft.

During part of its displacement towards the left slide *e* acts on



the inner ends *p* of two rods *g*, which carry abutments or holding devices *c* located at or near one of the upper edges of the block. At the same time the bell cranks *d* act on rods *g* carrying similar abutments *b*. The rods and abutments are by this means thrust outwards, from two contiguous sides of the block, against the action of spring *s*, which are placed on the rods between the walls of the block and collars carried by the rods.

While the abutments *b* and *c* are thus thrust outwards the plate with the printing surface is placed on the block. Then the shaft *f* is released, so that the springs *s*, acting on the collars referred to, can thrust the abutments *b* and *c* against the plate and hold the latter firmly against fixed abutments *t* and *u*, with which the block is provided.

Colour and Crime.

It has been suggested that the introduction of improved colour sensitive plates, and the diffusion of correct information about colour filters and their marketing, will make much easier the task of the forger of those bank notes that have hitherto relied largely on their intricate colour to prevent imitation. There is no doubt a grain of truth in this, but no well-executed note will ever be reproduced by the use of photography alone; it will still need so much hand work that it is probable that the real service of photography would be simply to supply the outline in order to ensure correctness of form and position, and this could often be done even with the common wet plate better than with any colour-sensitive dry plate.

Lenses and Process Work.

In the early days of process work, a long focus rapid rectilinear was the general type of lens chosen; in fact, at that time the recently introduced anastigmats were even condemned. Of course, by now, opinion has quite changed, and it is realised that an anastigmat lens is better than a rapid rectilinear for any purpose, though, if small stops are always used, as in process work, it is possible its advantages may be purchased too dearly. What is

green is distinctly improved by the glycin-red. The aureosine maximum of 550 does not, however, come up so strongly. The glycin-red influences the slow fall of the curve, which latter terminates at 600 to 620. On longer exposure the action of the aureosine is less marked; the maximum 550 no longer corresponds with that of the aureosine alone.

41 and 42. *Pinaverdol* was selected as an isocyanine which might be combined with other dyes, and was mixed with formyl-violet and

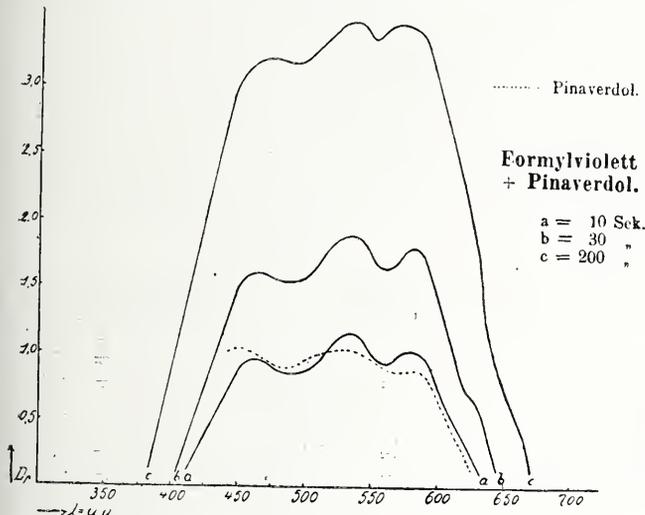


Fig. 41.

chinoline-red. In the case of pinaverdol-formyl-violet (Fig. 41) the expected prolongation of the pinaverdol curve was not obtained. The curve is that of pinaverdol showing the effect of the formyl-violet maximum of 610 at 630, due to a shift towards the red. The curve extends to 650. It will be seen that the maximum of 530 is more pronounced than any of the others, whilst that at 580 exceeds the sensitiveness in the blue.

Pinaverdol-chinoline-red (Fig. 42) has again the character of pinaverdol, and does not even show the filling up of the minimum

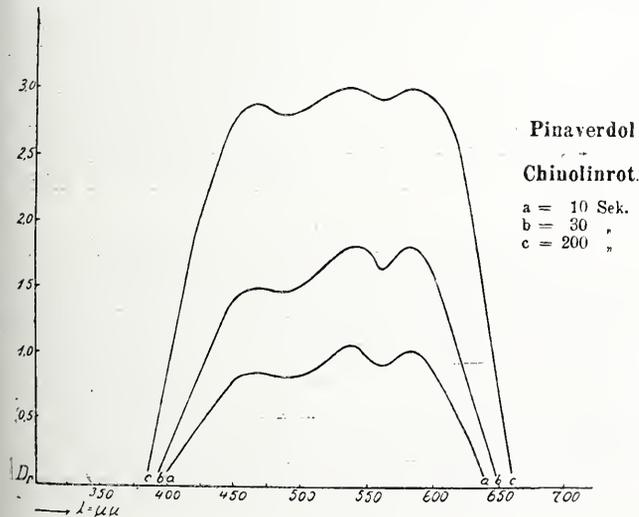


Fig. 42.

tween the two pinaverdol maxima which might have been produced by the chinolin-red maximum of 570. Pinaverdol being too strong a sensitiser for use with weak sensitisers, such as formyl-violet and chinoline-red, a trial was made on glycin-red in conjunction with the somewhat weaker pinaverdol. G. DAUR.

(To be continued.)

ENSIGN FILM COMPETITION.—Mr. Mintern Hiam, 63, Beresford Road, Canonbury, N., is the winner of the "Ensign" Roll Film Competition for August. Houghtons Limited offer a three-guinea camera every month for the best negative on "Ensign" film. The entries close on the 3rd of the month. Entrance is free, and a competition form is enclosed with every spool of "Ensign" film.

necessary to remember is that the value of R.R. lenses has, in consequence of the multiplication and cheapening of the anastigmat, much depreciated, so far as the amount they would fetch on selling now is concerned. The lens itself may be just as valuable for working purposes, and, in fact, French rectilinear lenses without name on mount may even have increased in price, but the R.R. with a name which cost perhaps £15 or £20 not so many years ago, is not saleable at £5, because the maker to-day recommends an anastigmat, and sells it for the same or very little increase in price.

PHOTO-MECHANICAL PATENTS.

The following patent has been applied for:—

HALF-TONE PRINTING.—No. 17,303. Improvements in half-tone plates for printing purposes. John Oliver, 24, Norfolk Row, Sheffield.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following patents have been applied for between July 26 and 31:—

PAPER.—No. 17,324. Improvements in the manufacture of sensitised albuminised paper for photographic purposes. Charles Hollingsworth, 106, Hop Exchange, London.

STEREOSCOPY.—No. 17,537. Stereoscopic Christmas or other folding card. Frederick William Munro, 5, St. Paul's Place, Canonbury, London.

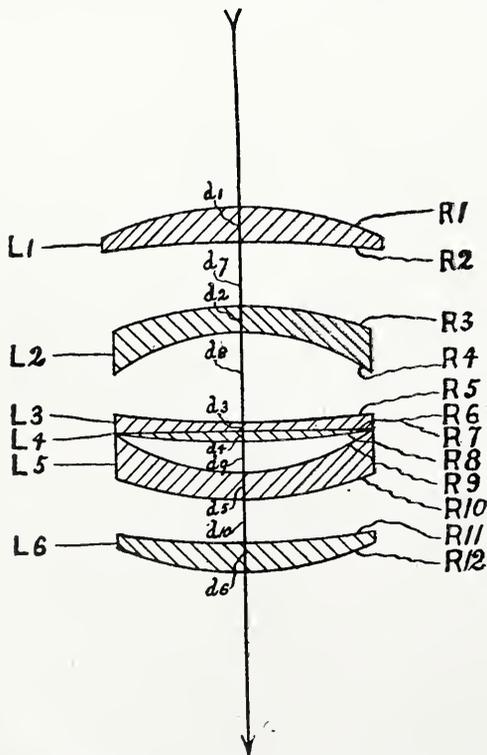
WASHER.—No. 17,689. Photographic plate, film, and print washer and drier. John Evan Jordan, 126, Newport Road, Cardiff.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

FIVE-LENS OBJECTIVES.—No. 14,673, 1908 (July 10, 1908). The invention relates to an improvement on the method of constructing



Patent No. 27,180, 1906, allowing of the construction of an anastigmat lens with a very large aperture whilst retaining its corrections for astigmatism, spherical aberration, achromatism and coma.

The general form of the lens described in the Patent No. 27,180, 1906, is retained, but there is used instead of the lens L₁, a pair of lenses which may be cemented together, one element consisting of a negative lens of high dispersion and the other of a positive lens of low dispersion. By this means a lens is made with an aperture of approximately *f*/4 which will give good definition, practically free from astigmatism over an angle of about 60 deg.

Figure I. is a drawing showing the optical portions of a lens constructed according to this invention. L₁ L₂ L₃ L₄ L₅ L₆ represent the six lenses, the lens L₁ being furthest from the photographic plate R₁ R₂ . . . R₁₂ represent the radii of curvature of the various surfaces, the central thicknesses of the various lenses are denoted by the letters *d*₁ *d*₂ *d*₃ *d*₄ *d*₅ *d*₆ respectively. The axial thickness of the air space between the lenses L₁ and L₂ is denoted by *d*₇, that between L₂—L₃ by *d*₈, and that between L₄ and L₅ by *d*₉, and that between L₅ and L₆ by *d*₁₀.

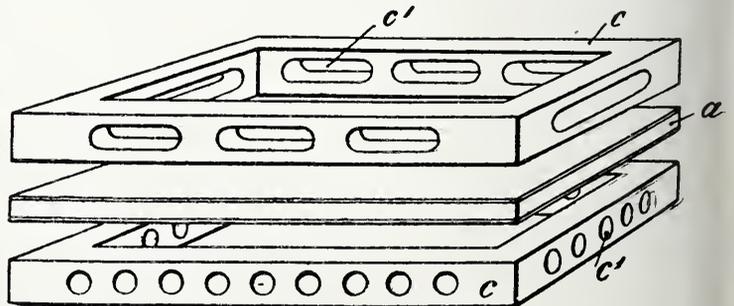
The optical data for constructing a lens of 10 inches focal length, the effective aperture about two-ninths of the focus, are as follows:—

Radius of Curvature in Inches.	Glass Constants.	Thickness of Lenses and Air Spaces in Inches.
R ₁ = 2.97	μ _D = 1.6065	d ₁ = .265
R ₂ = 9.72	✓ = 58.1	d ₇ = .55
R ₃ = 3.21	μ _D = 1.6193	d ₂ = .24
R ₄ = 1.86	✓ = 37.4	d ₈ = .75
R ₅ = 9.92	μ _D = 1.6193	d ₃ = .082
R ₆ = ∞	✓ = 37.4	d ₄ = .09
R ₇ = ∞	μ _D = 1.5193	d ₉ = .25
R ₈ = 7.87	✓ = 58.7	d ₅ = .265
R ₉ = 1.92	μ _D = 1.5703	d ₁₀ = .37
R ₁₀ = 3.25	✓ = 41.1	d ₆ = .267
R ₁₁ = 8.51	μ _D = 1.6065	
R ₁₂ = 3.74	✓ = 58.1	

Conrad Beck and Horace Courthope Beck, 68, Cornhill, London, E.C.

DRYING GELATINE PRINTS ON GLASS.—No. 26,298, 1908 (December 6, 1907). The invention is a frame for holding the glass plates on which to lay down gelatine prints which are to be stripped off with a gloss when dry.

The frame is placed over the glass and covers the edges by a width of from 1 to 2 centimetres. In this manner the drying of the edges of the print is retarded, and the frame is only removed when the middle of the proof is dry, when the drying of the edges takes place after a short interval. In this manner a uniform contact between the surface of the print and the glass is ensured until the end, which is important in obtaining a large uniform brilliancy.



The frame covering the edges may be of wood and of a suitable thickness. In the sides of the frames holes may be pierced in such manner that a current of hot air may be passed through the openings in the frames. These frames can also be made in metal—in zinc, for example. But in this case it will be necessary to cover them with felt at the places where they touch the paper. By placing one above the other several plates on both sides of which proofs are stuck, piles can be made, so that a number of proofs can be dried in a very limited space. Figure 1 represents two frames between which is a glass with proofs attached. Nicholas Ziegler, 5, Rue Brantome, Asnières, France.

PAPER COLOUR PRINTS FROM SCREEN-PLATE TRANSPARENCIES.—No. 15,050, 1908 (July 16, 1907). The author proposes a process of preparing prints in natural colours as the result of making an exposure on a panchromatic plate through a mosaic three-colour

screen-plate of geometrical pattern. From the screen-negative made in this way through a mosaic filter a transparency is made by contact. A print is taken from this on a special surface prepared as follows:—A rigid paper support is impressed with a three-colour pattern identical with that used as a filter in taking the original negative, the colour elements, however, consisting of the complementaries, namely, pink, yellow, and blue. This paper support bearing the three-colour pattern is coated with sensitive gelatino-bromide emulsion. It is laid in registration with the positive made from the original negative and the image developed and fixed. As a result, the transparent portions allow of the colours on the screen below being seen and producing the natural colours photographed in the first instance. Owing, however, to the degradation caused by the black deposit of silver which is used to obstruct the colours not forming part of the picture the author proposes to adopt the so-called "gouache" method of painting, namely, to bleach the black deposit and so obtain dilution of the colours with white instead of degradation with black. In order to secure a bleached image which will not afterwards darken in the light, the author uses a 1 to 2½ per cent. of bichloride of mercury, draining or blotting off the excess without washing. The excess of bichloride prevents the image from becoming brown in the light. Bichloride of copper in dilute solution may be used for the same purpose, afterwards thoroughly washing and impregnating the print with a weak mercuric chloride solution to prevent after darkening. Edmond Charles Guislain Caille, 49, Rue Rivay, Levallois-Perret (Seine), France.

CINEMATOGRAPH-PHONOGRAPH.—No. 27,717, 1908 (December 21, 1908). According to the invention a movement electrically controlled by the gramophone is imparted to an indicating hand, and at the same time the entire electrical mechanism is rotated in a contrary direction to that in which electrical mechanism is moving the indicating hand.

This rotation of the entire electrical mechanism is secured by gearing connected direct to the cinematograph mechanism; or it may be produced by means of electrically operated gearing in electrical connection with the cinematograph. When the gramophone and cinematograph are both moving at the designed relative speed to each other the movement imparted to the hand by the gramophone-controlled mechanism will be equal to that given to it in a contrary direction by the cinematograph controlled portion of the device, and, in consequence, no movement of the indicating hand will take place. If, on the other hand, one or other of the two instruments (cinematograph and gramophone) is working too fast or too slow, this variation from synchronism will at once be shown by a movement either to the right or left of the central or synchronous point marked on a fixed dial, and the amount of such movement will correctly give the number of revolutions necessary to again establish synchronism. Francis Alexander Thomassin, 20, Gleneagle Road, Streatham, Surrey, and Henry Raymond Nathan, 12, Little Newport Street, Leicester Square, London.

The following complete specification, etc., is open to public inspection, before acceptance, under the Patents Act, 1901:—

COLOUR PHOTOGRAPHS.—No. 17,198 of 1909. Process for producing coloured portraits and photographs and accessories used in connection therewith. Maurel and Achour.

New Trade Names.

ION.—No. 314,215. Plates and films included in Class 1 prepared for photographic purposes. The Imperial Dry Plate Co., Ltd., Ashford Road, Cricklewood, London, N.W., manufacturers of photographic materials. June 24, 1909.

FORTHCOMING EXHIBITIONS.

September 10 to October 23.—The Photographic Salon. Latest date, August 30. Sec., Reginald Craigie, 5A, Pall Mall East, London, S.W.

September 23 to October 30.—1.—Royal Photographic Society. Latest date (carrier) September 1, (hand) September 2. Sec., J. McIntosh, 35, Russell Square, London, W.C.

Analecta.

Extracts from our weekly and monthly contemporaries.

Prints Adhering to Glass During Glazing.

Writing on the subject of glazing cards and their adhering to the supports in "Photography and Focus" for August 10, "H. W. P." says: "Readers will feel grateful, I doubt not, for a simple hint by which this sticking can be annihilated. It is this: use formaline. Since I was first put up to its use by a professional photographer I have never had a print stick. It is not expensive. A Winchester quart stoppered bottle can be got from the druggist for a few pence. It is well washed out and four ounces of formaline are poured in, and the bottle filled up with water. This forms the stock solution, which will last a long while. It gradually loses its strength, but as long as it smells of formaline it is safe to use it, and that will be for some months, as far as the ordinary use by an amateur photographer is concerned.

"When the prints are sufficiently washed they are drained for a moment and then plunged, one by one, under the surface of this dilute formaline solution in a dish. They should be left in for five minutes after the last was put in, and shifted once or twice, to make sure that the liquid can act on all of them. They are then put back into the washing water for a minute or so, given one more change, and may be squeegeed straight away, without any fear of sticking. The formaline is poured back into its stock bottle for use on another occasion.

"It ought to be added that, to ensure success with this or any method, it is important to have the pulp boards, ferrotype, or glass, on which the squeegeeing is done, perfectly clean, and preferably with the slightest trace of grease. I use pulp, and give the boards a thorough washing with soap and water after every three or four lots of prints have been squeegeed on to them. They are then rinsed and allowed to dry, and then are rubbed over with a duster which has been slightly moistened with paraffin oil, and finally polished with a clean duster.

"Ensyna" for X-Ray Negatives.

Chance (writes Dr. H. D'Arcy Power in "Camera Craft") enabled me to find a valuable field for this new paper (Ensyna). The leading X-ray expert in this city recently remarked to me, whilst showing a plate of wonderful gradation, "If I could only get a print that would fully reproduce all we see in that negative"; and he went on to tell me that he was never able to get perfect reproductions of the finest gradations in his X-ray negatives. It immediately occurred to me that the surface image of Ensyna, with a very short fixing and no toning, ought to preserve detail and gradation that would not survive in papers differently treated. I asked to try the most difficult negatives he possessed, and succeeded in marking on Ensyna prints in which every particular of the negative was fully reproduced. It seems to me that for micro-photographs and X-ray work we have in this paper an excellent printing medium. In short, while I am unable to see that Ensyna adds anything to the armamentarium of the pictorialist, that of the technical photographer is enriched by its production.

THE HOLIDAYS: WHERE TO STAY AND WHAT TO SEE.—With the return of the holiday season, the comprehensive volume bearing the above title again reaches us, the present edition being fully up to the standard of previous years. It is divided into six sections, corresponding to the chief railway systems, each section containing—amongst a variety of other useful information—a list of hotels, boarding houses, country, farmhouse, and seaside lodgings; train, boat, and omnibus services, together with special particulars regarding tourist tickets, etc.; also a list of golf links, and brief notes on the towns and districts accessible by each route. The maps, which are very distinctly printed, are an important feature of the book, whilst the section "Where to Stay in London" will appeal to those visiting the metropolis. The book may be obtained at the railway bookstalls and from newsagents for the price of 1s., or direct from the publisher, Mr. Walter Hill, 67-69, Southampton Row, London, W.C., post free for 1s. 6d.

New Apparatus, &c.

The Dallmeyer Telephoto Calculator. Made by J. H. Dallmeyer, Ltd., Denzil Road, Neasden, London, N.W.

The suggestion made some time ago by Mr. Clifton at a meeting of the Royal Photographic Society—namely, to make use of a graduated tape in estimating the magnification given by a telephoto lens—

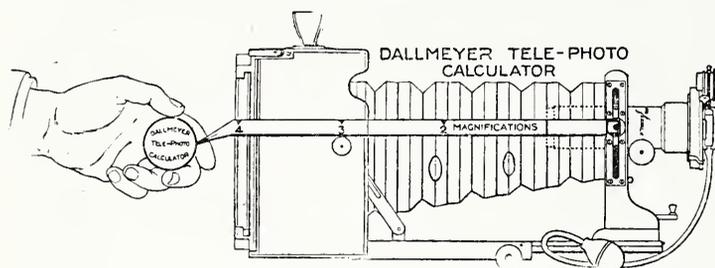


Fig. 1.

has been carried out in the very compact form represented by this little attachment. It consists of a spring stop measure, marked with a scale of magnifications corresponding with the negative attachment. The free end of the tape is provided with a small hook, which can be attached to the lens front, the camera extension thus serving to indicate at a glance the magnification at which the lens is working. The little accessory weighs a shade over one ounce, and, as shown in the second drawing, which is a full-size reproduction, may be carried in the waistcoat pocket. The reverse side of the tape is

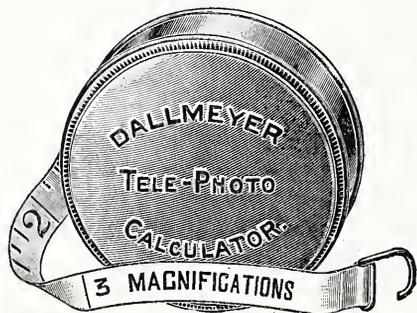
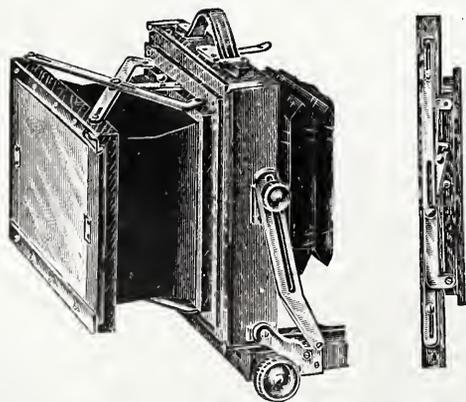


Fig. 2.

graduated in inches. In ordering the calculator it is necessary to specify the focal length of the negative lens, the distance from the back surface of the negative to the point on which the hook of the tape will be fastened, and also the approximate total thickness of the glasses composing the negative. Graduated for a particular lens, the price of the apparatus in brass is 2s. 9d. Additional scales may be marked at a cost of 1s. each, and a morocco case for the calculator is supplied at 2s. 6d.

LARGER NEGATIVES WITH MEDIUM SIZE CAMERAS.—In reference to the article last week by Mr. F. P. Renter, the Midland Camera



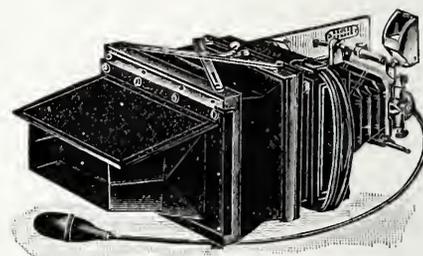
Model B.

Closed.

Company, Slaney Street, Birmingham, draw our attention to the adapters made by them whereby a larger plate may be exposed in

cameras of a given size. Thus, half-plate, 5 x 4, or postcard negatives by means of the adapter may be taken in quarter-plate cameras; whole-plate in half-plate. The adapter is made in two patterns, one in black wood, with nickelled fittings, and black leather focussing hood for hand cameras of the folding pattern, and in polished mahogany with brass fittings for stand cameras of the ordinary type. Perhaps the adapter most useful to our readers is the "B" model, fitting a half-plate camera, and including a whole-plate focussing screen and double dark slide. The price of this is 35s., extra double slides (whole-plate), 14s. 6d. No charge is made for fitting the adapter to cameras of standard make.

The second illustration shows the "A" or hand camera model, the adapter being provided with ground glass, with focussing hood, and single metal slide. The price of this pattern, to take postcard



Model A.

negatives in quarter-plate cameras, is 15s.; 20s. with double slide of the solid or pull-out pattern, with aluminium shutters. If extra slides are required they can be had in postcard size, at 2s. single, 6s. double, or in the half-plate size 2s. 6d. and 8s. 6d. For both amateur and professional purposes these adapters should prove of great service on many occasions, since their collapsible construction renders them very portable, whilst the anastigmat lenses now in universal use will suffice to cover the larger plate if stopped down a little, giving a considerable width of angle, or the single half of the lens may similarly be used to cover the larger plate.

CATALOGUES AND TRADE NOTICES.

PERFECT PRINTS ON SELTONA.—The Leto Photo-Materials Company, Ltd., 1, Crutched Friars, London, E.C., have just issued an eight-page pamphlet, written by Mr. W. L. F. Wastell, and describing the (very simple) procedure necessary in making perfect prints on Seltona paper. Dealers will find this a most valuable piece of literature to place on their counters. Mr. Wastell does not spare his praise of the excellent qualities of Seltona as a printing paper for amateurs, and rightly, too; the paper deserves all that is said of it. Supplies of the booklet are sent free on application to the Leto Company.

GEVAERT PRINTING PAPERS.—In issuing its first list of products Messrs. Gevaert, Ltd., have offered a few interesting particulars of the great factory at Antwerp where the papers are manufactured. The arrangement of the sizes of paper made and of the prices of the packets is very concise and easily referred to, and both users and dealers will appreciate the condensation carried out. Dealers, too, will note the facsimiles in colour of the Gevaert labels for P.O.P., C.C. bromide, and gaslight. The list is sent free on application to 26-27 Farringdon Street, E.C.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

SATURDAY, AUGUST 14.

South Suburban Photographic Society. Excursion to Belvedere.

TUESDAY, AUGUST 17.

Handsworth Photographic Society. Council Meeting.
Kinning Park Co-operative Camera Club (Govan). Club Meeting.
Hackney Photographic Society. Questions and Answers.

Commercial & Legal Intelligence.

A BRIDGNORTH BANKRUPTCY.—Thomas Bromwich, photographer, Bridgnorth, Salop, appeared at the Shrewsbury Bankruptcy Court last week, with liabilities amounting to £337 12s. 2d., and put the deficiency at £302 5s. 1d. In reply to questions put by the Official Receiver, debtor said he began business thirty years ago, and at one time had an income of £600 a year, but in recent years he had not been so successful, and the takings declined to about £150, out of which he had to pay an assistant—required on account of failing sight—and to meet other expenses. The craze for picture postcards, he considered, to some extent, had been responsible for his undoing, as these took the place of carte and cabinet photographs. Debtor sold his furniture in December last, and out of the proceeds of £132 he paid several pressing creditors.

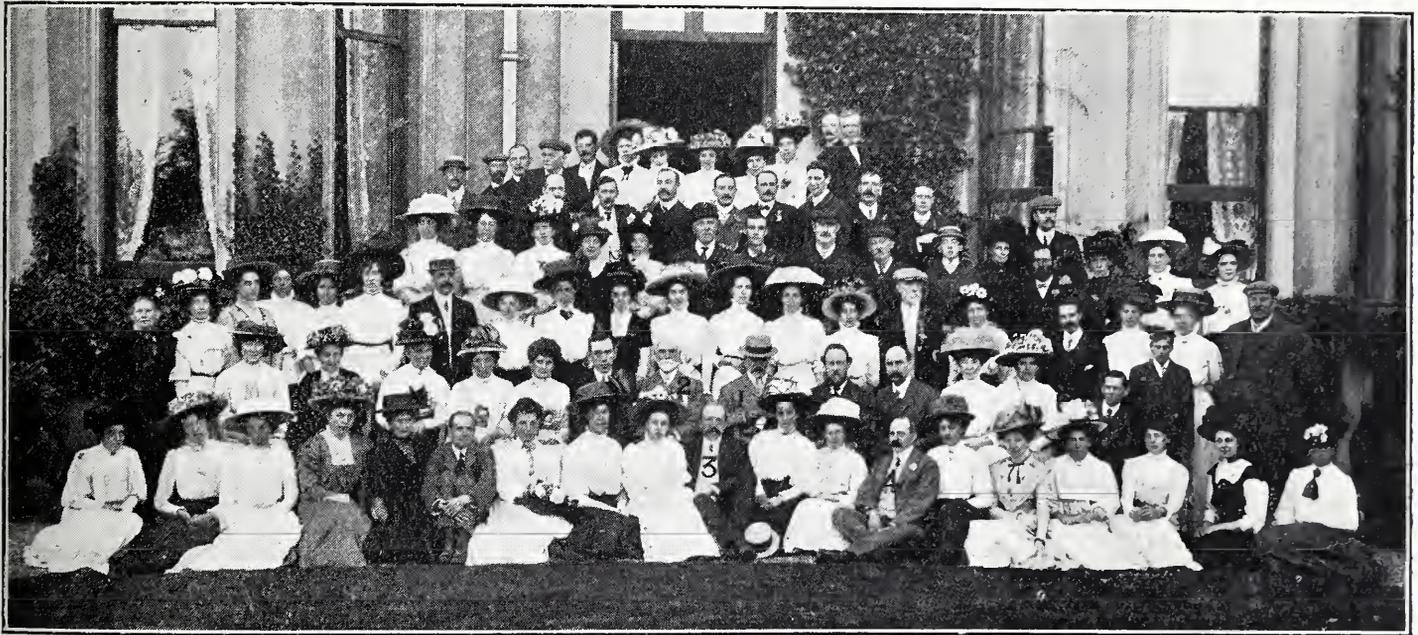
The Official Receiver (Mr. Cariss) remarked that it appeared to have been a case of "first come, first served." It would have been much better had debtor treated all his creditors alike.

The examination was formally adjourned for debtor to give an explanation with regard to the expenditure of a sum of £50 which he received on account of his furniture.

Roch, Paris; P. Azaria, 5, Rue Boudreau, Paris; J. Bariquand, 2, Rue A. d'Aubigne, Paris; and A. C. Bromhead, 5 and 6, Sherwood Street, Piccadilly Circus, W., manager to English branch. Private company. The number of directors is not to be less than two nor more than five. The first are: L. Gaumont, P. Azaria, J. Bariquand, and A. C. Bromhead. Qualification, one share.

News and Notes.

THE PLATINOTYPE CO. EN FETE.—They never do anything by halves at the Platinotype Co. When the whole of the staff spent last Friday at Eastbourne as the guests of the company, the company "did them well" from the early hours to little short of midnight. And they in turn entertained themselves and the company, not to mention one or two visitors representing the photographic press. Tired but happy they detained at Penge after seventeen hours of sunshine, laughter, and other forms of recreation. Somewhere in the seclusion of Penge, Surrey, the company's staff pass the major part of the year in turning out platinotype



Photograph by]

MAKERS OF PLATINOTYPE PAPERS.

[Weston & Sons, Eastbourne.

With the exception of the wives of several heads of departments and excepting also three photographic pressmen, all those figuring in the above group are engaged in the works of the Platinotype Co., founded thirty-five years ago by Mr. William Willis. The group was taken on Friday last in the grounds of the Grand Hotel, Eastbourne, on the occasion of the annual outing. The four persons numbered in the group are (1) Mr. William Willis; (2) Mr. John Willis; (3) Mr. W. H. Smith, Works Manager; and (4) Mr. W. E. Dunmore.

WATCH REPAIRER AND PHOTOGRAPHER.—At the Ashby-de-la-Zouch County Court, on July 30, an application was made for an administration order by John Goulson, watch repairer and photographer, 20, Belvoir Road, Coalville, who said his average earnings were from 20s. to 28s. a week, and he had a wife and two children, none of whom were earning anything. He attributed his position to slackness of trade, lack of capital, and keen competition. His furniture was the property of his wife, it having been purchased for her by her father ten years ago. He had no stock-in-trade, and his shop fixtures were valued at £5. His debts amounted to £42, and there were seven creditors, two having judgments against him, one for £13. He offered 9s. a month until 12s. 6d. in the £ had been paid. There was no opposition, and the application was allowed.

NEW COMPANIES.

GAUMONT COMPANY, LTD.—Capital, £12,000, in £10 shares. To cover the business of manufacturers of and dealers in cinematographic and photographic apparatus and appliances, carried on by Société des Etablissements Gaumont, under the style of the Gaumont Company, in Great Britain, India, and British Colonies and Dependencies. The subscribers are: L. Gaumont, 57, Rue St.

type papers from a factory which constantly grows in size. Once a year only do they appear before the public they serve so well, and then, alas for them, only to be made the butt of the photographer. We apologise to the many fair ladies for the scant justice done them in the engraving. It is only our absurdly prejudiced view that some curmudgeons of readers might object which restrains us from making them a series of full-page portraits.

RETURN OF PICTURES FROM THE DRESDEN EXHIBITION.—Mr. E. O. Hoppé, who has for two years past carried on the duties of English Commissioner for the above exhibition, asks us to announce that though in all other matters he continues to transact the business of the exhibition, all correspondence and business in connection with the return of the pictures will be undertaken by Mr. C. Wille, Deutsche Bank, George Yard, Lombard Street, E.C.

CINEMATOGRAPHY IN NATURAL COLOURS.—"The Tsar at Cowes," a new and brilliant series of animated pictures in the actual tints of nature, is now being included in the "Kinemacolor" exhibit at the Palace Theatre. Since the invention of the Urban-Smith system of bringing all the hues of the spectrum to the bioscope, no spectacle

has lent itself so readily to reproduction in colour as the splendid review in the Solent, and here is shown the complete pageant—from the approach of the escort of British battleships to the Russian Royal yacht, "Standart" (easily distinguishable by the double black eagle on the yellow standard flying at her mainmast), meeting the "Victoria and Albert" and coming to an anchorage with the Imperial armoured cruisers, "Admiral Makharoff" and "Rurik" immediately astern.

A PRIZE FOR CINEMATOGRAPHS OF BIRDS IN FLIGHT.—In connection with the International Aeronautical Exhibition now being held at Frankfurt-on-Main a competition has been organised by the Frankfurt house of the firm of Carl Zeiss, in which three prizes of 600, 300, and 100 marks will be awarded for the best series of photographs recording the flight of a bird. The photograph should show the different phases of flight and should contain the full period of movement on the one film. In making the awards regard will chiefly be paid to the number of exposures made within the period of movement of the wings, and also as regards the number of complete periods succeeding each other. Films which may be judged equal in these two respects will be further adjudicated as regards sharpness of the photographs. The films should be sent in not later than September 1. The competition is being arranged by Professor Grützner of Tübingen. Other judges will be announced later.

Correspondence.

- ** We do not undertake responsibility for the opinions expressed by our correspondents.
- ** Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

THE ROYAL PHOTOGRAPHIC SOCIETY.

To the Editors.

Gentlemen,—Will you kindly favour me by announcing in your next issue, if possible, that the address of the society is now 35, Russell Square, and that, although the house cannot be completely in order for some weeks, the dark-rooms will be so far arranged that they will be usable by the 16th inst.—I am, yours faithfully,

J. McINTOSH, Secretary.

35, Russell Square, London, W.C.,
August 9, 1909.

STEREOSCOPIC PHOTOGRAPHY.

To the Editors.

Gentlemen,—Referring to your comment on my letter in "Ex Cathedra," you remark that trimming is as wasteful as masking (we presume you mean when the masking is done to cover defects of centring. This we have never contested, as it is, of course, a simple fact, but the system we use—i.e., adjusting the separation of two plates until they come into the right fields of view—entirely obviates cutting, trimming, and even hacking of Autochrome stereoscopic work with a diamond, a procedure which the veriest tyro in stereoscopy would pronounce futile. No one capable of working glass could cut and pare stereoscopic pictures on plates correctly, except, perhaps, by some gauged mechanical grinding contrivance. However, these things we have no need to do—what we state we do—i.e., that not a grain of plate on paper is superfluously wasted in our process. We know that, given one fixed lens centre, plates may be adapted to get the correct amount of picture, but this is ridiculous, as no stereoscopist with any information on the subject will submit to confine his work to one only lens separation. In our process we fix our lenses at any separation of centres we feel is correct and suitable to the subject, we then proceed to adjust the plates until the centre of the object is central in both. Hence our contention that the cones of the fields of view are true, that there is no limitation of inter-lenticular separation, that there is no loss of

space in the finished print between the pictures through covering defects by masking, and for quickness, reliability, and accuracy it is the only process worth considering, especially for stereoscopic autochrome work. Hence our assertion that trimming (by which we include masking, centring, mounting, etc.) are time-wasting, obsolete worries, which render the general practice of stereoscopy unattractive and non-commercial, and may be relegated to that classification of things in which may be found the spectacle lens and cigar-box which we whittled out with a penknife to form a camera in boyhood days.—Yours faithfully,

9. Mary Street, Dublin.

August 7, 1909.

GILBERT DYAS.

TUITION VERSUS APPRENTICESHIP.

To the Editors.

Gentlemen,—One hears complaints of photographers' assistants of their want of efficiency and thoroughness in their work, but I am more and more convinced that the fault lies mostly in the present system of apprenticeship. I am not in the way of knowing so much of the young man's training, but with the girls my experience tells me that they have only poor chances of learning their work.

If a girl wishes to take up photography in serious fashion how can she gain a good all-round knowledge if, as an apprentice, she is kept only to the routine of mounting and spotting? She may probably give her services for a year or more, by way of payment, but she rarely gains adequate instruction in return for such payment, and the result are not satisfactory either to the budding assistant, the photographer who may employ her, or the public, if she eventually sets up a studio of her own. I write now to suggest that photographers should seek for pupils rather than apprentices, undertaking to give definite tuition in certain branches in return for a definite fee, using the studio and workroom as a technical school; and I should like to have the opinion of other photographers on the question.—Yours faithfully,

CAMERIST.

CARBON PHOTOGRAPHS.

To the Editors.

Gentlemen,—I have been much interested in the case heard at Southampton last week, and consider the public owes a debt of gratitude to Mr. S. G. Kimber, F.R.P.S., for his public spirit. Successful amateurs are proverbially of gentle manners and a retiring disposition, and many of them would not risk being pointed at, even in their own town, as "one of the best, if not the best, amateur photographers in this part of the country." The pity of it is that the general public, on whose behalf Mr. Kimber has risked this undesirable notoriety, don't care one straw what a picture is called, or how it is made, so that they like its appearance and get it cheap.

Q.

REVERSING PLATES.

To the Editors.

Gentlemen,—In your Enquiry column of last week there is an answer to "J.M.J.," who has been trying to make a reversed transparency in the camera by my formula, but failed. He says: "I used the exact amount of sulphuric acid in the potassium bromide, 5 per cent. dilution, make the difference between success and failure?"

Now if "J. M. J." has been using potass bromide instead of bichromate of potash, I am not surprised at his non-success. The reversing solution is:—

Bichromate of potash	100 gr.
Sulphuric acid	3 gr.
Water	10 oz.

This may be diluted for use with two to three volumes of water. The only difference between Carnegie's formula and mine is, that he uses the ammonium bichromate instead of the potassium, and advocates the exposure of the glass side of the plate towards the lens, which is always desirable.—Yours truly,

Thornton Heath,

August 10, 1909.

E. FENSI

Answers to Correspondents.

All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.

For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

A. Dean, 14, High Street, Rugby, Warwick. Two Photographs of the interior of the new Speech Room at Rugby School.

Photograph of the Hon. George Wyndham, M.P.

Photograph of Wedding Group, including the late Rev. C. Pickering Clarke, M.A., Vicar of Holy Trinity, Wimbledon.

Miss Norah Shelley, 16, Old Town, Clapham, London, S.W. Photograph of the late Rev. George Tyrrell.

W. Debenham, 72, High Street, Cowes. Photograph of H.I.M. the Czar of Russia and H.R.H. the Prince of Wales. Photograph of H.I.M. the Czar of Russia, H.R.H. the Prince of Wales, Prince Edward of Wales, and the Czarévitch of Russia. Photograph of Group of Their Majesties the King and Queen, the Czar and Czarina of Russia, the Prince and Princess of Wales, and their Families.

Frederick Beeston, 49, Bradford Road, Brighouse, Yorkshire. Photograph of the First Governors of Secondary School for Girls, Brighouse.

CHROMATE STAIN.—In making a thick bichromated film of gelatine on glass insoluble by the prolonged action of light, there remains after washing a greenish stain; could you kindly tell me in "Answers to Correspondents" if this can be removed and how?—A. EDGAR.

The stain can be removed by soaking the plates in a solution of sulphite of soda. Dilute hydrochloric acid may also be used for the purpose.

LOCAL-PLANE SHUTTER.—I have a reflex camera of unknown make (and no illustration in the advertisements in the "B.J. Almanac" shows anything just like it), half-plate size; I want to know how to find the speed of shutter, the milled knob which alters the width of slit also works an indicator with the figures: 10, 20, 30, 40, 50, and the T (for time); the tension spring also records at: 1, 2, 3, 4, 5, T (time), 6, 7, 8, 9, 10. When the slit indicator is at 10, the width of the slit is half-inch, can you tell me how to calculate the speed from these figures?—SPEED.

It is quite impossible for us to say from the above data what is the speed of the shutter. At the lowest tension and widest slit in is probable that the speed is from 1-10 to 1-20 of a second. Alterations in the width of the slit will give higher speeds in proportion to the width. We should advise you to make an exposure or two with lens at $f/6$ to see what combination of slit and tension will give you speed enough for moving subjects.

COPYRIGHT, ETC.—I should esteem it a favour if you would answer me the following questions, either through the "Journal" or by mail. 1. If a customer brings you to copy a photo taken by another photographer are you liable to proceedings for infringement of copyright? Ought the order to be refused? If the order is accepted and a form signed by your client releasing you from all responsibility for infringement you would, I presume, in case of an action, be held liable yourself, and you in turn would have to recover from your client, or would the letter of guarantee exonerate you? 2. If I photo some friends entirely free of charge and give them copies have I the right to use the photos without permission for advertising purposes, say on letter heads, or in pamphlet form, as specimens of my work, even if in some cases the sitters are not of age? 3. What is the method adopted in studios at home for hanging or fixing a number of backgrounds where space is limited? I mean a kind of holder for backgrounds in use. 4. How to avoid the straight dark line in standing portraits where the background touches the floor, when a continuous

foreground is not used? 5. What is the cause of reticulation of the film when a plate is intensified by the bichloride of mercury method, and why does the mercury not deposit the feathery crystals mentioned in the various formulæ? I have noticed that when the mercury does deposit the crystals the reticulation of the film seldom or never occurs. I, of course, add hydrochloric acid to the decanted liquid.—MERCURY, Shanghai.

1. Yes, certainly, if there is a copyright in the picture. If there is any doubt in the matter it is safer to refuse the order. The letter of guarantee will not exonerate you. You would have to recover from your customer. 2. Legally, yes, so long as the sitters are not held up to ridicule in any way. In any case it will be best to obtain their consent before making use of the photographs in the way you mention. 3. Assuming that you refer to backgrounds on stretchers, we should advise the plan described by Mr. W. Foster Brigham in the "B.J." December 15, 1905, p. 989. ("B.J. Almanac," 1907, p. 698.) A square stand or frame standing on two broad feet is provided with a series of three pairs of cross arms sticking out both back and front of the frame, each cross-arm having a series of slots cut in the upper edge to hold the projecting pins fixed to two opposite sides of the background stretcher. This is not easy to describe in words but you will see in a figure in the "Almanac." 4. One good way is to have a narrow piece of skirting board the same colour as the background to place along the floor. The upper edge of this may be chamfered off. 5. Non-deposition of the crystals can be due only to the quantity of bichloride not being sufficient to form a super-saturated solution, to omission to cool the solution made in hot water, or to not allowing a little time for the crystals to separate. Reticulation is most frequently caused by an extra strong mercury solution, but it sometimes arises from other (unknown) causes.

P.O.P. POSTCARDS.—Will you kindly inform me, through the medium of your paper, the cause of the yellowish markings on the enclosed cards?—L. A. F.

We should say that prints have been incompletely fixed. Evidently they have lain over each other in the fixing bath, as shown by the straight bands in which the stain is produced.

ALPHA.—We do not know of a list which can be called complete.

SPOTS ON C.C. PRINTS.—Could you inform me as to the cause of the enclosed prints fading as they have done? These had only been mounted four days, and were put away in a drawer after being spotted. If they were not quite dry, would that cause it? The prints were toned some in gold and some platinum. Those toned in the platinum were very thoroughly washed between baths and passed through an alkaline water before fixing, also well washed after fixing, dried and trimmed and mounted wet with starch and put away. Any reason you can give would be esteemed a favour.—TROUBLED.

Dampness immediately after mounting is one of the surest causes of such spots. It is advisable to put prints to dry in a warm place as soon as mounted. It does not seem to matter if they become damp afterwards, but immediately after mounting the print is very sensitive. As regards the working of C.C. papers, we advise you to turn to the "Almanac" of 1907, pp. 786-9, in which is a series of articles dealing with the cause of spots, etc.

SPOTTY BROMIDE PRINTS.—Would you be kind enough to let me know through your valued journal the cause of spots on enclosed bromide prints? It is carbon-surface paper. I have used it before and had splendid results until this last batch, of which I have used about three dozen pieces, and have not had one free from spots, some of them much more distinct than others. I develop with amidol, and fix in acid bath.—PERPLEXED.

It is uncommon to meet with these white spots. When they are not the fault of the paper (and it is rarely that they are), they are generally the result of dissolved air in the developer. Try soaking the paper in cold boiled water for a couple of minutes before pouring on the developer, and if that does not improve matters, hear what the makers can say.

H. W. GAULD (Brandon, Manitoba).—1. Yes, the consumption of current is very low. 2. Certainly, it is largely used here for that purpose and in the way you name. The largest firm of

enlargers here use it exclusively. 3. Fragility of the tubes and liability to go wrong. 4. Cooper Hewitt.

J. T.—1. A wood dish can be used, but it is not by any means as suitable because it is difficult to make it perfectly clean. We advise you to use porcelain. 2. The outlet limb of the syphon must be longer than the inlet. You had better fit the syphon tube to tank No. 2, and conduct the water from No. 1 into No. 2, either by a straight projecting pipe near the top of tank No. 1, or better by a syphon tube, the outlet limb of which is made to dip into tank No. 2.

VARIOUS.—1. What method do you consider best for shading off parts of prints, such as trousers of a full-length figure, or necktie? Dabbing on Prussian blue with finger or wool I find prints blotchy. 2. Can matt varnish be advantageously flowed over a second time, or more, with a view to increasing depth of shading, or can it be painted on with a brush and repainted? 3. In rubbing black powder on ground glass, if it is too thick in some places is there any way of getting off a part (except water) to even it over? 4. What is best for removing Indian ink lettering from negative film? 5. What is best for removing retouching medium and pencil from negative before intensifying it?—**OPAQUE.**

1. With the trousers they may be vignettted, and in the case of the necktie, dabbing with Prussian blue will probably be the best. It should not print blotchy if the work is skilfully done. 2. More than one coat cannot be successfully applied unless the first one is protected with some medium that is not solvent in it, such as albumen, gelatine, or gum. 3. The best way will be to wash it all off and begin again. 4. Soaking the negative for a time in water and then rubbing the ink off with cotton wool, or the finger. 5. Rub it off with turpentine or benzole on a piece of cotton wool.

MERCER BROS.—Both the lenses are excellent for cabinet pictures. It is quite against our rule to express an opinion on the comparative merits of different makers' apparatus.

PATENT QUERY.—I enclose sample of an autograph card which I am trying. These can be copied from any size photograph or taken direct from sittings. The method of producing them is entirely my own. What I want to know is, can I protect it in any way? If so, would you kindly tell me how to proceed?—**DAWES.**

The only thing you can do is to patent your method of producing the pictures, if it is original. We have seen many similar pictures before, but of course we do not know if they were made by the same method as yours. We should say that, commercially, the thing is not worth the cost of a patent.

O. B.—Apply to Doulton's, Lambeth, stating your requirements as to size and weight.

ROBERTS.—1. Certainly not, as you were not given any valuable consideration for taking the photographs. 2. Under the Copyright Act we do not think they can. You should have obtained the assignment of the copyright to yourselves in writing at the time of the sitting, or, failing that, have shown by the presentation of copies, etc., that the photographs were being made at your invitation. Still, we doubt if the parties can restrain you from making use of the photographs.

W. W.—We are much surprised that your local chemist could not supply you with the hypochloride of lime, and still more that he never heard of it. Had you asked for it under the name of chlorinated lime (which is the name given for it in the pharmacopoeia), or for chloride of lime, or bleaching powder, you would have got what you require. The nearest oilshop will supply it, if you ask for chloride of lime, or for bleaching powder—they are all one and the same thing, under different names.

G. F. J.—So far as we are aware there are no patents in existence relating to photo-ceramics. What have been taken out in connection with this branch of photography, so far as we know, have expired. That, however, will not preclude you from taking out a patent for a ceramic process, provided it is really new and novel—or even if it is a substantial improvement on what has been done before.

FAULTY LENS.—Will you please say if you think the lens with which the enclosed portraits were taken is at fault? It was sold to me as a whole-plate. It is three and a quarter inches dia-

meter, and seems to be about nine inches focus from the stops to the ground glass. There is no maker's name on it and is, by the appearance of the mount, a pretty old one. You will see that the corners are all very dark with no detail in them, though the centre of the picture is quite sharp.—**S. BROWNING.**

It is evident that the lens does not cover the whole-plate. It is not to be expected that a lens of the Petzval type of nine inches focus will take a whole-plate portrait sharp and well-lighted to the corners. We should imagine that the lens was made in the Daguerreotype days for the half-plate size, and judging from the examples sent it will do very well for that—for sitting figures. But by reason of the roundness of the field it will not do for standing ones unless it is well stopped down.

LANTERN.—1. There is no copyright in the Bartolozzi engravings neither is there in those of Hogarth, and you can reproduce lantern slides from them if you copy from the originals. But there may be copies of them in which there is a copyright, and you would get into trouble if you copied those. 2. To obtain permission to photograph any of the pictures in the National Gallery application must be made in writing to the Trustees. This is rarely granted to others than professional photographers who want the reproductions for publication purposes.

ALBUMEN PROCESS—I shall be greatly indebted to you if you will kindly enlighten me in the following: I am anxious to make some stereo transparencies by the albumen process. I prepared a dozen plates according to instructions given in an article in the "Journal" many years ago. They were evidently failures so they were at once cleared off. Then I made another dozen prepared according to a more recent one, which, by the way, does not differ much from the first, and acted strictly according to the instructions, so far as I am aware, but this last lot turned out just like the first—the film too thin. There was only a slight opalescence in it, and it would be impossible with that to get a picture. If an image (?) could be developed upon the plates, would, of course, be too thin to be of any use.—**J. BOWEN.**

If the plates were prepared according to either of the articles they are doubtless all right. The film of an albumen plate should be only slightly opalescent, much less so than that of a collodion one, and infinitely less so than a gelatine one. If you develop the plates you will probably find them all right.

VALUE OF RESIDUES.—I sent a parcel of waste to ——— they weighed three pounds and a quarter. They were paper ash residues from washing waters and from fixing baths, and were thoroughly dry. Will you please say what I should have received for them as I am very dissatisfied with the return made by the refiners?—**DISAPPOINTED.**

We cannot give any idea whatever, as the weight of the stuff is no criterion as to the amount of silver it contained. The only way of arriving at that would be to have made an assay. That were done before the residue was sent you would know exactly what should be received for it. We may tell you that the firm is a highly respectable one, and you may rely upon that you have got its full value. You must bear in mind that the price of silver at the present time is very low—only about 2s. an ounce for standard—and that got from photographic wastes is rarely up to that.

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SUMMARY.

The "B.J. Almanac."—We would advise our friends who have any suggestions for the forthcoming issue that such should be addressed to us without delay. (P. 641.)

Mr. Thomas Bolas, in an article on p. 643, describes the results of recent researches on the properties and preservation of solutions of sodium sulphite.

Mr. Harry E. Smith has improved his process of toning P.O.P. prints to sepia without gold by means of thiomolybdate. He has worked out a bath of ammonium phosphate and carbonate, in which prints are immersed direct from the frame, after which they are fixed, and toned in the thiomolybdate. (P. 646.)

A writer in a German contemporary has called attention to the use to be made of stencils in the decoration of postcards in colour. While there is nothing really novel in the method, we give a description of the *modus operandi* on p. 645.

A review of the principles of the process of printing without light, given as catatype, and of the methods by which it is carried out is given on p. 647 from a recent treatise on the subject by Dr. E. Stenger.

A review of the principal features of the photo-mechanical section at the Dresden Exhibition appears under "Photo-Mechanical Notes" on p. 653.

Major-General Waterhouse has pointed out that a description of portable camera was given by Robert Boyle in 1669. (P. 642.)

The names of the Selecting Committee for the forthcoming Salon have been announced by the Linked Ring. (P. 641.)

The programme of lectures to be delivered at the New Gallery during the forthcoming exhibition of the Royal Photographic Society is published on p. 652.

The Royal Photographic Society has issued revised regulations as to the admission of members to the Fellowship. (Pp. 641 and 652.)

The gum process, enlarging apparatus, and print-trimmers compare with other inventions under "Patents of the Week." (P. 654.)

The demerits of an enlarging camera of "1,000-times power" are laudably insisted upon in a circular issued by a firm practising a variety of the free-portrait business. Our contemporary the "Star" as shown up this ingenious argument. (P. 658.)

Some notes on the chief precaution to be taken in the manipulation of collodion paper appear as an editorial article on p. 642.

EX CATHEDRA.

The Salon Selecting Committee.

Just too late for announcement in last week's issue we received the names of the committee appointed by the Linked Ring which is to undertake the selection of pictures to be shown at the forthcoming Photographic Salon. These are as follows:—

J. Craig Annan.	George Davison.
Fredk. H. Evans.	J. Dudley Johnston.
Walter Benington.	M. Arbuthnot.
F. J. Mortimer.	Reginald Craigie (<i>ex officio</i>).

It will be seen that the above-named gentlemen form a fairly well-balanced committee. Although no intimation is made of the fact, we hope that the Linked Ring continues to have the help of M. Demachy and his colleagues as regards the French work. In any case, we may say, for the information of pictorial workers here and on the Continent, that though the aim of the committee may prove to be at an advanced or unorthodox type of photographic picture, yet their work of selection will be done in a modest spirit, and the works of all comers will be considered for inclusion in the exhibition.

* * *

The "B.J." Almanac, 1910.

The receipt within the past day or two of several orders from dwellers away on the fringe of the Empire for copies of the forthcoming "B.J. Almanac" leads us to remind our friends at home that the preparations for the next issue of this publication are now being made. It may be mentioned that there are in the "Almanac" some 500 and more pages of letterpress, the production, revision, proof-reading, and indexing of which do actually give those responsible for it something to do in odd moments when more fortunate beings are basking in the heat of a long-expected summer. This apropos of the intimation that any suggestions or corrections, such as we greatly appreciate from our readers, should be sent in immediately, in order to permit of advantage being taken of them.

* * *

F.R.P.S.

It is satisfactory to find that the Royal Photographic Society, in revising the regulations relating to the admission of members to the Fellowship, have made a clean sweep of the greater part of the quite superfluous conditions, and at the same time have shown that their desire is to broaden the basis on which members may claim to be elected Fellows. They specifically include "professional" portraiture in the heads under which applicants may submit their qualifications, whilst technical and "process" applications of the camera are likewise emphasised as departments of photography for original or special work in which the Fellowship may be granted. Apart from the exact letter of the regulations, the intention of the Society appears to make it easier for persons of widely different qualifica-

tions to be admitted as Fellows. At the same time much depends upon the standard taken by the Admissions Committee, and again upon the view taken by the Council of its Committee's recommendations.

* * *

A Portable Camera in 1669.

According to a note by Major-General Waterhouse published in the current "Photographic Journal," the Hon. Robert Boyle, in addition to being the Father of Chemistry and the brother of the Earl of Cork—how one was expected to laugh at this chestnut of the professorial humorist!—must also be acknowledged as the inventor of the portable box form of the camera obscura. General Waterhouse has discovered a passage in Boyle's paper of 1669 on "The Systematic or Cosmical Qualities of Things," in which occurs a very quaint description of the formation of an image on a translucent screen by means of a lens. Boyle's theory of the action of a lens, though not altogether opposed to modern knowledge, reads very curiously in these days. It is that "there must be all day long in all parts of the air where this phenomenon can be exhibited, either certain effluvia emitted every way from the objects or certain motions of insensible corpuscles, which, rebounding first from the external object, and then from the paper, produce in the eye the images of these objects, so that the air is everywhere full of visible species, which cannot be intelligibly explicated, without the local motions of some minute corpuscles, which, while the air is enlightened, are always passing through it."

* * *

Trimming Prints Square.

When trimming down a large print, there is often a difficulty, in the absence of a big trimming shape, to make sure of all the cutting being done truly to square. In these circumstances it is useful to remember that if one corner of the print be cut or marked to a true right angle the other three corners may be obtained in correspondence by measurement. In doing this we work on the principle familiar to us from the days when we learnt our Euclid, that a rectangle has its opposite sides parallel and its angles right angles. If we make sure of one right angle, and secure the parallelism of the opposite sides, as we easily can do by measurement, we shall arrive at a proper rectangularity of the print. In other words, our method is to trim first the base line (parallel with an horizon or vertical line in the subject), and then the top line (opposite to the base), by measuring off at each end of the base line an equal perpendicular distance and cutting (or drawing) between the two points thus obtained. We have now to deal with the two ends of the print. For the first we lay off a perpendicular by very careful adjustment of the set-square to the base line, and this having been done, we again measure two equal distances along the base and top line respectively, and on joining the two points thus given we get the two right angles at each end of the last side.

* * *

Phosphate in the Sulphide Toning of P.O.P.

In the communication to the Royal Photographic Society, which we reprint on another page of this issue Mr. Harry E. Smith has recorded a further improvement in the use of his thiomolybdate method of obtaining pleasing sepia tones on silver print-out papers. It is now directed to place prints before fixing (that is, from the printing frame) in a solution composed of ammonium phosphate 10 per cent. solution, three parts, and ammonium carbonate solution, made as given in the paper, one part. After ten minutes in this bath prints are transferred to the hypo bath, to which is added a fair dose of ammonium carbonate, and then, after washing, are sulphide-toned simply by immersion, without bleaching, in the prepared thiomolybdate bath. The

advantage of the preliminary phosphate bath is that the high-lights of the prints are kept pure even when exposed under trying conditions. Even without the bath many papers will show no deterioration in this respect in ordinary circumstances, but the very simple use of the alkaline phosphate bath, in conjunction with the hypo made up with ammonium carbonate, is an improvement in the method and should further recommend it where a permanent, but at the same time cheap, sepia tone is needed on P.O.P.

A NOTE ON THE COLLODIO-CHLORIDE PROCESS.

THERE can be no question that the collodio-chloride process of photographic printing is more extensively employed on the present day than ever before. Some look upon it as being a comparatively new process, whereas it is a very ancient one. As a matter of fact, it was invented and published by the late Mr. G. Wharton Simpson, then editor of the "Photographic News," in the year 1865, but, like some other good processes—for example, platinotype and carbon—it lay practically dormant for many years. We should like to think that such should be the case it is a little difficult to conceive, but so it was.

The C.C. process, while it yields most excellent results, is also a very simple one to work, and the pictures obtainable by it are not surpassed by those of any other silver process. Moreover, they are as permanent—theoretical, more so—than direct silver prints by other processes. A certain Scottish photographer, now deceased, used C.C. in his business from about the time of its introduction to the time of his death, and he told us a few years ago that he had not known of a case of his pictures fading. The paper he used, from the first, he obtained from Germany. During the last few years, however, we have heard of cases of deterioration of C.C. prints, and of their showing spots, etc., within a brief period, and therefore it will be well to inquire as to the probable cause.

It may be as well to mention here that the collodion emulsion will not adhere to quite plain paper, as it tends to split or peel off, hence a substratum is necessary. That used by the inventor, Mr. Simpson, and the earliest workers was arrowroot, and the paper employed was the Saxony Rives, as then used for albumenising. Now the papers used are substratumed by the makers, similarly as are those used for gelatine P.O.P.s, and the raw papers are not of the same quality as those just alluded to. Of course, the pigment used in the surfacing may be quite inert, but it must be kept in mind that it has to be mixed with a medium to fix it to the paper. If that be one that contains a compound with the free nitrate of silver, which is essential in this process, it may possibly have some influence on the stability of the prints. The paper being a less pure kind than that first used is of minor importance, as the sensitive film is practically insulated from it by the substratum.

The old collodion prints that have withstood the test of time—some forty years or more—were toned in the gold sulphocyanide bath, which yielded excellent tones as permanent results. Of late years, however, a method of double toning has been introduced, with the view of obtaining colder and blacker tones than are given by gold sulphocyanide alone. This is by first toning them to a certain depth in a gold bath, and subsequently continuing the toning in a platinum solution. Excellent tones are obtained in this way which could not be got with gold toning alone. It is a noticeable fact that in the majority of cases of deterioration that have been brought to our notice, this has been the method of production. No doubt it would seem that there is nothing that should have a deleterious effect in depositing a certain amount of

platinum on a gold-toned print, seeing that both metals are the most stable of all. It is in the manipulation, we think, that the want of stability must be sought for.

Let us now look at the way the compound toning is carried out, according to the formulæ issued with the different papers. For the gold toning any of the well-known baths can be used, such as the acetate, borax, or sulphocyanide, the carbonate, etc. There is nothing in any of these baths that need be suspected. But when we come to the formulæ for the platinum baths, it will be found that all of them contain an acid. Indeed, an acid is necessary in all platinum toning baths, and in liberal proportions, too. The following is the formula for the platinum bath issued with a well-known brand of paper, and it is almost identical with one given with another well-known paper. It stands thus:—

Potassium chloroplatinate	12 grs.
Citric acid	180 grs.
Water	20 oz.

In some other formulæ phosphoric acid is given in place

of citric. In any case, the prints, when they are taken from the toning solution, contain a considerable amount of free acid. It is here, we surmise, the trouble arises when prints are found to deteriorate. If this acid is not completely removed from the prints before they are put into the hypo solution sulphur will be set free in the paper, and, as one may fairly assume, may sooner or later act injuriously on the pictures, since, after all, the actual foundation of the image is silver. We have little hesitation in saying that when the C.C. process is worked with care—particularly when platinum toning is employed—it is one of the most, if not the most, permanent of all silver printing-out processes. But with perfunctory manipulation it may be different, as the pictures when finished may contain within themselves the elements of their ultimate decay, particularly if they are exposed to continual moisture. A trouble sometimes heard of with regard to this process is that the prints after mounting show spots, and the remedy suggested for this is to dry them quickly after mounting. This remedy tends to show that the evil remains, but is held in check by the absence of moisture in the prints.

SODIUM SULPHITE AND ITS PHOTOGRAPHIC USES: OLD FACTS AND NEW RESEARCHES.

THE June issue of the "Journal of the Chemical Society" contains a long and detailed account of a research on "Sodium Sulphite and its Equilibrium with Water," the authors being Messrs. H. Hartley and W. H. Barrett. Our account of this paper may be usefully prefaced by short notes as to the leading uses to which sulphite of sodium has been applied in connection with photography, and these notes may be supplemented by practical considerations arising out of the paper.

As far as I am aware, the earliest definite recommendation to use sodium sulphite as a constituent of the developer came from M. Carey Lea, of Philadelphia, in 1880, or twenty-nine years ago. The ferrous oxalate developer is one of the many methods of working which we owe to M. Carey Lea, who was one of the leading investigators in the mid-photographic period, the original instructions for the preparation of a ferrous oxalate developer being a part of two sequent articles on "New Developers and Modes of Development" which Lea contributed to the "B.J." during 1877, the articles being on pages 292 and 304.

In the course of these articles on "New Developers and Modes of Development" there is much which has since been "rediscovered," more especially as to acetone and as to the possible use of sodium sulphite as a substitute for an alkali, but at this stage Lea made no definite recommendation of sulphite. He then realised certain facts in relation to sulphite, but he does not appear to have then recognised the practical value of a sulphite as a preservative of the developer, but a recognition of the practical value came three years afterwards, or in 1880.

Carey Lea's Sulphite Developer of 1880.

This was a ferrous oxalate developer containing sodium sulphite, and as it is an admirable developer for under-exposures, it may be worth while to quote the instructions given for its preparation on page 292 of the "B.J." for 1880. Potassium oxalate, 440 grains; Sodium sulphite, 60 grains. Dissolve in as much hot water as will make six ounces, and then add 160 grains of ferrous sulphate. Shake until solution is complete. This is stated to keep better than the plain oxalate developer. Lea mentions the keeping of a sample for a month, and it was still good.

Berkeley's Sulphite-Pyrogallol Developer.

I well remember Mr. Herbert B. Berkeley at the Technical Meeting of the Photographic Society of Great Britain (now

"Royal"), that was held in January, 1882. Mr. Berkeley held in his hand a bottle of pyrogallol developer containing sulphite. This developer had been prepared eight months previously, and it was still good. The advantages which Mr. Berkeley claimed for sulphite were that it not only protects the pyrogallol (pyrogallol acid) from oxidation, by virtue of its remarkable power of first seizing on the free oxygen, but also that it acts as a preventive of the brownish-yellow stain which up to that time had been a notable disadvantage of the "pyro" developer.

In the following number of the "B.J." (January 27, 1882) there was a leading article on the subject, together with a long account of Mr. Berkeley's experiments. From this time forward the use of sulphite of soda, as an addition to the developer, became general.

Abney's Use of Sodium Sulphite for Fixing Prints.

The hyposulphite of sodium (as it is popularly called) has a bad name as a fixing salt, and Sir William Abney has pointed out that a solution of sulphite of sodium has sufficient solvent action on silver chloride and on other insoluble salts of silver to make sodium sulphite a satisfactory fixing agent for silver prints. The sulphurisation of the print is impossible when pure sulphite of sodium is used, and the method is in all respects satisfactory if the sulphite is reasonably free from sulphate and other impurities. Any considerable amount of sulphate (5 per cent. or more) materially reduces the solubility of the silver chloride. For use, one part of the crystallised sodium sulphite should be dissolved in 4 parts of water, and a quart of this should be allowed for each sheet (18 x 25) of paper, double the time being allowed that is required for the apparent disappearance of the silver chloride. Considering the busy and superficial tendencies of our time, this method of fixation is not likely to come into general use.

The Recent Researches of Messrs. Hartley and Barrett.

In the opening section of the paper, references are given to the principal investigations on sodium sulphite, and apart from the true or anhydrous salt, mention is made of the two crystallised hydrates: the hepta-hydrate, or usual commercial crystallised form, $\text{Na}_2\text{SO}_3 \cdot 7\text{H}_2\text{O}$; and Muspratt's deca-hydrate, which

is only formed under exceptional conditions, and has no industrial importance.

A method is then described by which the anhydrous form, Na_2SO_3 , may be obtained in a condition of complete purity. Into a solution of pure sodium carbonate of suitable and known strength a current of sulphur dioxide was passed until the increase in weight showed that the conversion into sodium-hydrogen sulphite was complete; whereupon a quantity of sodium carbonate solution equal to that originally used was added. On heating to a temperature a little over 100 degrees Centigrade, the anhydrous salt was deposited, and a further yield was obtained by evaporating the solution in a stream of hydrogen. The various precautions that were taken need not be detailed, but the notable fact is that the sulphite was obtained completely free from sulphate: further, it appears probable that by slightly modifying the method, a commercial product might be obtained of high purity and nearly free from sulphate, the presence of sulphate being more than a mere loss of strength, as sodium sulphate retards development in a remarkable manner, more especially in the case of thickly coated plates.

Our authors find that the completely pure and really anhydrous sodium sulphite does not suffer deterioration by oxidation provided that moisture is excluded, although the usual crystals (hepta-hydrate) oxidise very readily in the air. Here we have confirmation of the view put forward by MM. Lumière and Seyewetz that the only hope of accuracy in the photographic use of sodium sulphite rests in the employment of the anhydrous salt.

Tables and curves showing the solubility of the modifications of sodium sulphite, and certain physical characteristics of the solutions, form the main portion of Hartley and Barrett's paper, but as far as photographic work is concerned it may be sufficient to give the following particulars.

Solubility of Sodium Sulphite.

The solubility of the anhydrous or true salt varies very little with the temperature, but the solubility of the crystallised (hepta-hydrate) increases rapidly as the temperature is higher. Thus a saturated solution prepared at a temperature of 37.2 Centigrade (98.9 Fahrenheit) contains 44.08 parts by weight of the true or anhydrous sulphite in association with 100 parts by weight of water. If instead of this we take a solution saturated at 18.2 Centigrade (64.7 Fahrenheit), the composition will be 25.31 of the true sulphite, and 100 of water.

As 64.7 F. may be looked upon as sufficiently near to the "ordinary temperature," we may take it that according to the determination of Hartley and Barrett a saturated solution prepared under usual conditions will contain 4 of water and 1 of true sulphite, or 3 of water and 2 of the crystallised sulphite. Is it necessary to remind the photographic reader that the really pure crystallised salt, $\text{Na}_2\text{SO}_3 \cdot 7\text{H}_2\text{O}$, consists of equal weights of true sodium sulphite and of water?

Ambiguity in Prescriptions when Sodium Sulphite is Ordered.

Considering the above-mentioned fact, it appears highly desirable that when sodium sulphite is ordered in a photographic prescription, it should be stated whether the true anhydrous salt is intended, or whether the crystallised (hepta-hydrate) is intended. Failure in this respect often causes uncertainty: indeed, not only uncertainty, but error in copying, as the copyist may halve or double, according to his estimate or guess of what is intended.

I much like the definite and luminous way of putting the case adopted by Mr. Boursalt:—

Metal	50 grs.
Hydroquinone	25 grs.
Sulphite of soda, anhydrous	$\frac{1}{2}$ oz.
(or crystals)	1 oz.
Water to make up to	20 ozs. (fl.)

Defects of Commercial Sodium Sulphite.

Those of importance are:—

1. Presence of sulphate. This may be due to the use of sodium carbonate containing sulphate in the original preparation of the sulphite; or it may be due to the subsequent oxidation of the sulphite, but in most cases it may be conjectured that both causes contribute to the defect. As far as my own experience goes, the very best commercial specimens of sodium sulphite contain about 3 per cent. of sulphate, while the bad specimens may contain as much as 60 per cent. Quite apart from the fact that the presence of sulphate necessarily involves a deficiency of sulphite, the sulphate itself is a disturbing factor in development, and in other uses of the salt. Sulphate of soda withdraws water from wet gelatine, and prevents dry gelatine from swelling, but it does not permanently harden the gelatine. Valuable as it may be as an addition for retarding development, its unrecognised presence is a disturbing element.

2. Deficiency in true sulphite. This fault is a necessary consequence of any impurity; but it is important to remember that the crystals may show the correct amount of sulphite on titration or volumetric testing, and yet the sample may be short of ideal, as the crystals may have been somewhat over-dried. In other words, we may have a product containing some eight per cent. of sulphate, which shows the correct amount of sulphite on titration, by reason of some of the water of crystallisation being driven off. If this is done by heat, and under certain conditions, the crystals scarcely show any trace of efflorescence. This fact may account for statements which have been made as to the almost theoretical purity of samples which proved to be unsatisfactory on subsequent examination.

3. Water in sodium sulphite sold as anhydrous. Such samples as I have examined have not been so defective in this respect as to merit reproach, two, or even three or four, per cent. of water being so small an amount as not to interfere to an important extent with the uses or keeping qualities of the compound.

The Testing of Sodium Sulphite.

Many short instructions for testing sodium sulphite have been given, but instructions sufficiently detailed to be really and fully useful to the ordinary practitioner would involve rather a long special article. It may, however, be mentioned that a careful and observant person may form a tolerably just notion of the value of a sample of sodium sulphite by dissolving a few grains in water, adding barium chloride together with a moderate excess of hydrochloric acid which has been proved to be free from sulphuric acid. Really pure sodium sulphite would give no milkiness, turbidity, or deposit under these circumstances but really pure sodium sulphite is non-existent as a commercial article, so in practice the opinion must be based on the amount of the deposit, not on its presence or absence.

An Ideal Sodium Sulphite, Fully Protected Against Oxidation.

The experiments of Messrs. Hartley and Barrett suggest the practicability of putting a really pure sodium sulphite on the market, or, if not pure, at least of constant or invariable quality. A pure or constant sulphite would be of secondary value if packed in such a way as to make deterioration a possibility, and the sealed tube method of protection, a method which has of late come into extensive use for certain pharmaceutical and other commercial products, suggests itself as safe and convenient, also as not too expensive considering the advantages. A cardboard box containing four sealed tubes, each including two ounces of the anhydrous sulphite, would be equivalent to one pound of the crystallised salt. The sealed tube now generally used for therapeutic preparations has an extended parallel neck, easily cut off by making a file scratch, and the cut-off part can be closed by a small rubber cap.

THOMAS BOLAS, F.C.S., F.I.C.

THE USE OF STENCILS IN THE DECORATION OF POSTCARDS.

[The current issue of "Das Bild," the monthly journal of photography issued by the Neue Photographische Gesellschaft, of Berlin, contains the following notes illustrating the ornamentation, by application of colour and jewelling powders, of a bromide postcard which, in its ornamented state, is presented as a supplement. In the absence of this original, we have made a wash reproduction, which will serve to show the parts to which the respective colours are applied by means of the stencils.—Eds. "B.J."]

BEFORE proceeding with the making of the stencils, by means of which colour is applied to considerable numbers of postcards,

follows that the simplest means of securing the effect should be employed in order to reduce the series of operations on the large scale to the fewest possible. A coloured original having thus been produced by hand, the next step is the cutting of the stencils, by aid of which comparatively unskilled labour will be able to produce a similar effect. The stencils themselves may be cut from the commercial semi-transparent stout tracing paper, or the latter prepared by soaking a well-sized writing-paper with linseed-oil varnish, hanging it up to dry over-night, so that the excess of varnish can drip off. The paper should be



Fig. 1.



Fig. 2.



Fig. 3.



Fig. 4.



Fig. 5.



Fig. 6.



employed whilst it is still somewhat tacky and transparent. If kept too long, the paper assumes an efflorescent appearance, and becomes less transparent, in which state it is obviously less suited for its purpose. A second important point in cutting the stencils is to use a sharp stencil-cutter's knife of hard steel, a sharply cut stencil being essential to the success of the process. The stencils having been cut in the manner shown in the drawings, it is well before varnishing them to make a trial on a piece of card, in order to see that they have been cut in proper register. They are then varnished with a preparation made from

a specimen should be suitably coloured by hand in order to gain an idea of the effect required. In doing this, it naturally

brown shellac dissolved in spirit. The mixture must be made up of fair consistency, otherwise several applications are necessary. Two should suffice if the varnish is properly prepared. The test-card having proved to be in correspondence with the effect desired in the decorated print, the worker is in a position to commence operations. For this purpose the stencilling brushes specially manufactured should be employed, the excellence of the results depending to a great extent on the use of the proper tools. The colours employed are the aniline dyes obtainable for the special purpose of colouring bromide prints.¹ A moderate amount of colour is taken in the stencilling brush, a stencil laid in register on the print, and the latter taken over the portion left exposed by the stencil with, as far as possible,

¹ A series of colours specially prepared for the decoration of bromide prints is made under the name of "Bertha" by the Vanguard Co.—Eds. "B.J."

a circular motion. Excess of colour in the brush has the effect that the dye runs under the stencil. Each brush should be kept for its special dye, since traces of one colour left in the brush will impair the purity of another applied with the same brush. The chief masses of colour are first applied, and then, without the aid of a stencil, the brighter red of the lips and other points of bright colour—such as flowers, etc.—applied with a finely pointed brush.

The "jewelling" of cards is a form of decoration very largely employed at the present time, and is done by means of a suitable gold or silver bronzing powder which is caused to adhere to spots on the print which are made with a pointed glass rod dipped in fish-glue solution. The jewellery powder, being immediately dusted on to the print, adheres to points thus treated.

R. HABICHT.

THE SULPHIDE TONING OF P.O.P. PRINTS.

(A Paper in the current "Journal" of the Royal Photographic Society.)

As mentioned in a previous communication, P.O.P. prints may be toned by sulphiding with compound thio-salts, such as thio-molybdates and thio-tungstates, and rich tones result. The process, as already stated, is to fix first, and then wash the prints, afterwards sulphiding them.*

Tests of Sulphide-toned P.O.P.s

I stated in my previous notes on the subject ("Photographic Journal," June, 1908), that I did not think it necessary to wash the prints before fixing, though I pointed out that it might be done as a measure of precaution, and that the soluble silver salts in the prints might be converted into haloid salts of silver by the usual methods, such as a bath of sodium chloride. I further said that I had found it difficult to trace any subsequent difference in the purity of the high-lights, in prints washed and not washed before fixing. While this is so for a considerable time, subsequent severe tests with different brands of P.O.P. papers (prolonged exposure to bright sunshine, and keeping the prints in the atmosphere of a chemical laboratory for a year) show that there is a difference, more with some papers than with others, and therefore there is room for improvement here. For preventing subsequent yellowing of the high-lights, sodium chloride gives good results; but it seems in many cases to have a not altogether desirable influence on the final tone.

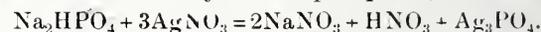
I have recommended that it was a safe plan to wash the prints before placing in the sodium chloride bath, as well as giving a wash after this bath and before fixing. Whatever opinions may be held on this point, it is, I think, fortunate that further experiments have shown that a bath may be substituted for the sodium chloride, which certainly renders these two washings unnecessary; so that one eliminates the possibility of subsequent yellowing of the high-lights, owing to the first washing water not being changed as quickly as possible. Where a preliminary wash is given, if this point is not attended to, "It is then that the greater part of the mischief is done," to quote from "Photographic Printing Processes," by the late Mr. Hector Maclean.

A Preliminary Phosphate Bath.

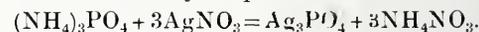
After trying many baths, I consider that a 10 per cent. solution of ordinary sodium phosphate (Na_2HPO_4) is better than the sodium chloride bath; or a bath of 5 per cent. strength glacial phosphoric acid (crystal) may be used. These methods seem satisfactory; but in both cases a wash before fixing is necessary, which makes the process rather long; and I thought

it advisable to endeavour to find a bath into which the prints could be placed direct from the printing-frame, and then direct from this into the fixing-bath.

If the silver nitrate in the print is converted into silver phosphate by a bath of ordinary sodium phosphate, the reaction is:—



so that here (to quote from Roscoe and Schorlemmer) we have the fact of two neutral or slightly alkaline solutions, when mixed, yielding a strongly acid liquid. This renders a wash before placing in the fixing-bath necessary in order to avoid decomposing hypo in the print. To avoid this wash, I was led to try ammonium orthophosphate $(\text{NH}_4)_3\text{PO}_4$ with which (putting on one side all consideration of the organic silver compounds in the image) the reaction may be presumed to be—



Silver phosphate is to some extent soluble in aqueous ammonium nitrate. A bath of ammonium phosphate, therefore, would appear to be very suitable for treating P.O.P. prints with, direct from the printing-frame, since it combines with the free silver nitrate in the print without forming any free acid, the products of the equation being silver phosphate and ammonium nitrate, so that this first bath of ammonium phosphate not only converts the silver nitrate into a salt very easily fixed out, but probably to some extent fixes it out at the same time, though not entirely so, as, in the test tube, dilute solutions of silver nitrate and ammonium phosphate of course give a precipitate, the solvent action of the ammonium nitrate not being great enough to prevent the separation of the silver phosphate. If, however, the ammonium sulphate solution be made alkaline with ammonium hydrate, the precipitate first formed is quickly and entirely dissolved.

The Use of Ammonium Carbonate with Phosphate.

Instead of using plain ammonium hydrate to render the ammonium phosphate solution alkaline, it is advisable to go one step further, and use a solution of ammonium carbonate. The use of ammonium carbonate in this connection was first advised by Mr. J. Spiller, and Sir William Abney refers to this fact in his Treatise on "Photography" (Tenth Edition, page 205) where it is stated that ammonium carbonate dissolves out certain compound left in the whites of the print, otherwise insoluble, and which readily decomposes under atmospheric action.

The solution of ammonium carbonate that can be recommended is that commonly found on the reagent shelf, made up

* Without bleaching.—Eds. "B.J."

as directed in Clowes' "Qualitative Analysis," viz.:—400 grammes of solid ammonium carbonate is dissolved in three-fourths of a Winchester quart of cold distilled water, and when dissolved the remaining fourth part of the Winchester is filled up with .880 ammonium hydrate. Ammonium carbonate has also the further advantage of being a good solvent of silver phosphate. (A Winchester quart bottle contains about 2,400 ccs.

The presence of the ammonium carbonate does not appear to interfere with the conversion of the silver nitrate into silver phosphate, for if in a test tube one adds to a solution of silver nitrate a solution consisting of aqueous ammonium phosphate of 10 per cent. strength, to which has been added a third part of its bulk of the reagent ammonium carbonate solution, the yellow precipitate of silver phosphate at once comes down. A very little excess of the reagent, however, is required to dissolve up the precipitate to a clear solution, which augurs well for the efficient clearing out of the silver nitrate from the print. As the print after ten minutes in the ammonium phosphate and carbonate bath is, of course, quite alkaline (and one finds in the test tube, on adding hypo to a clear solution of silver phosphate in alkaline ammonium phosphate solution as above, that the solution remains perfectly clear), there would seem to be no chemical reason for washing prints that have been treated with the alkaline phosphate bath before placing them in the hypo.

Formulæ and Working Directions.

I have not yet found any difference in prints washed after this phosphate bath and those put into the hypo direct; the prints being exposed to bright sunshine, with a portion covered with black paper, so that any slight change in the purity of the high-lights or the tone may be more readily noticed. The process that can be recommended, therefore, is to put the prints straight from the frame into a bath composed of:—

Ammonium phosphate (10 per cent. solution) 3 parts.

Ammonium carbonate (reagent solution) 1 part.

This bath is allowed to act for ten minutes, and the print

is then transferred direct to the hypo bath, which is of the following composition:—

Hypo (three ounces to the pint of water) 4 parts.

Ammonium carbonate (reagent solution) 1 part.

After fixing for fifteen minutes the print is thoroughly washed for one hour, and then sulphided with the "Cubrome" thio-molybdate solution. The addition of the ammonium carbonate to the hypo makes certain of its work in dissolving the white compound, mentioned by Mr. J. Spiller, being completely carried out, and also precipitates any calcium in the tap water, with which hypo solution is usually made up, so that there is no risk of calcium phosphate being formed in the substance of the print. In making up the ammonium phosphate and carbonate bath it may be advised to dissolve the ammonium phosphate in its proportion of water and then add the carbonate solution to this. It will be noticed that the ammonium phosphate, unlike sodium phosphate, generally makes a clear solution with tap water until the ammonium carbonate solution is added. Possibly this is because any calcium phosphate formed with the calcium carbonate in the tap water is kept in solution by the by-product of the equation (ammonium carbonate), in which calcium phosphate is rather soluble.

It is true that on addition of the ammonium carbonate reagent solution the free ammonium hydrate in it causes a slight milkiness, probably owing to the separation of the calcium as hydrate; but this may be disregarded, though, of course, it may be avoided by the use of distilled water.

In making up the hypo bath, it will be noticed that the addition of the ammonium carbonate solution causes a slight milkiness; but there would appear to be no necessity whatever to filter the hypo because of this, as it is quite harmless, and generally very slight.

Even if any calcium phosphate were formed in the substance of the print, when this is placed in the hypo bath, which would seem very unlikely, it would not stop there long, calcium phosphate being very sensibly soluble in the ammonium carbonate solution.

HARRY E. SMITH, F.R.P.S.

PROCESSES OF CATATYPE PRINTING.

I.

[Although little is heard of the commercial development of the catatype process invented some eight years ago by Professor Ostwald and Dr. O. Gros, there is still evidence that these methods of preparing prints from negatives without exposure to light are engaging attention from experimenters, and, therefore, the very useful review of catatype methods, written by Dr. E. Stenger in the work recently published by Knapp, entitled "Moderne Photographische Kopiervverfahren," may be translated in an abridged form as showing the principle of the method and the difficulties encountered in bringing it to the commercial stage.—Eds. "B.J."]

PROFESSOR OSTWALD and Dr. O. Gros, of Leipsic, were the first to apply in the year 1901 (patent of November 18, 1901) the well-known phenomenon of catalysis to the making of prints from photographic negatives, calling the process itself catatype. By catalysis chemists understand the quickening of a chemical change by means of the presence of a body which remains unaltered at the end of the reaction. Ostwald and Gros took the view that light does not actually give rise to the change in photo-sensitive films, but that it acts in a certain way as a catalyser only, causing the change to take place in a short time, whilst without the action of light a much longer period would be required. Photographers will see at once that the fog which takes place in dry plates unexposed to light, the change in printing-out papers and the spontaneous insolubilisation of bichromated gelatine films are examples of this theoretical view. As already said, these changes do not take place so quickly as when the materials are exposed to light, but proceed slowly, and require time for an appreciable effect. Among the catalysing

bodies known to chemists platinum takes a prominent place, whilst the silver formed on photographic negatives behaves similarly. The catalysing action of finely divided silver in the presence of gelatine and a bichromate has already been pointed out by Howard Farmer as far back as 1893.

The Medium in a Catatype Process.

We may turn at once to the concrete case in which the silver of a negative acts as a catalyser. In this instance the silver must act with the greatest degree of speed on a body with which it is brought in contact. In those places where silver exists in the negative the body which comes in contact with the latter is altered, whilst in those in which the negative is clear glass the body will remain unaltered. If this unaltered body which forms the medium between the negative and the printing film acts chemically upon the latter, there will thus result an action in those places where a portion of it is left unaffected: that is to say, where there is little or no silver, to an extent propor-

tional to the freedom of the negative from silver. Where in the ordinary printing process the light passes unobstructed through the negative, and produces an action on the film of the printing medium, there, in the catatype process, the residue of the body is left unaffected by the negative. The body which in the catatype process plays this part is a solution of hydrogen peroxide, a substance which is closely allied to water, but possesses a larger proportion of oxygen, so that in contact with metallic silver it is decomposed into oxygen and water.

Possible Catatype Methods.

In other words, a negative, the film of which is treated with hydrogen peroxide, contains this substance in its unaltered form only in those places which are free, or almost free, from a silver deposit; that is to say, a negative so treated contains in itself an invisible positive image consisting of hydrogen peroxide. If this invisible image of hydrogen peroxide is brought in contact with the reagent capable of reacting chemically with the peroxide there must result a positive print without any action of light in a way comparable with the taking of an impression on paper from an inked plate. The production of a print in this way may be explained as follows:—The gelatine film of the printing paper may have in it a substance which under the influence of hydrogen peroxide is converted from the colourless form into a highly coloured modification. A process may also be based on the fact that a soluble dye existing in the film may become insoluble, and the production of the print may therefore be based on the removal by washing of the soluble compound. In contrast with this direct method there are others which are indirect. If the hydrogen peroxide acts on a gelatine surface containing no added bodies it diffuses into the gelatine, producing there an invisible positive image of hydrogen peroxide, which may be developed in various solutions containing such colourless or coloured salts which, in conjunction with the peroxide, give rise to insoluble coloured bodies. The invisible image of peroxide is thus converted into the coloured image at the same time that it is itself destroyed. There are thus two distinct methods of working out the catatype process; the second is that which has proved to be the most adaptable in practice, in addition to which catatype has also proved to be applicable to the making of pigment prints. In this case it requires a printing film of gelatine containing a colouring matter, with which is mixed a substance which under the influence of the peroxide penetrating the film becomes altered in such a way that it tans or hardens the gelatine; in other words, plays the part which light does in the ordinary printing process.

Without attempting a detailed review of the voluminous patent literature relating to catatype, we may attempt to show what are the scientific principles upon which a number of the improvements which have been made are based, particularly as regards the reduction of the process to a form of practical and commercial value. The early experimenters found a great many difficulties in their path. The prints were marked by unsharpness, fogging, and bad gradation, and the process was generally erratic and difficult. It was then found that glass negatives are unsuitable for the process, owing to the fact that the peroxide, when decomposed, is reduced to water and oxygen gas, and the latter in the case of a film which is fixed to an impenetrable support, such as glass, gives rise to bubbles and blisters, and causes such a disruption of the negative as to make the latter useless. A negative made on a paper support is very suitable for the process.

Silver and Platinum as Catalysing Agents.

It was also found that silver alone is of comparatively small effect as a catalyser. A. Ebert observed that a finely powdered metallic silver does not act upon hydrogen-peroxide purely as a catalyser, but is itself oxidised (Eder's "Jahrbuch," 1906, pages 514 to 523). Lüppo-Cramer has done work in this direction, and Pinnow has shown the prejudicial effect upon the catalysing

action of silver on stains, etc., in the negative. Gros recognised the necessity of converting the silver into a catalysing substance, which was more permanent under the working conditions, in order to allow of a number of prints being obtained from a single negative by the catatype method. In a patent specification Gros has given a number of recipes for converting silver into permanent catalysers (Eder's "Jahrbuch," 1907, page 526), in which simplified and improved recipes for the same purpose are given. The full particulars need not be given, as the process has not yet come into practice. From a number of sources it has been shown that a platinised paper negative is the best original from which to work in the catatype process.

Properties of Peroxide.

Hydrogen peroxide in the pure state is a water-white, syrupy liquid, which boils at a temperature of 84 to 85 deg. C. under reduced pressure (about 1-11th of an atmosphere). Hydrogen peroxide in this pure state is difficult to prepare, and decomposes very readily, frequently with explosions of considerable violence. Aqueous solutions, as sold commercially, are, however, comparatively weak, and present no danger to the user, although a solution as strong as 30 per cent. is made by Merck of Darmstadt, being supplied in vessels coated with paraffin wax so as to avoid the traces of alkali from the glass, which give rise to the decomposition of the peroxide. For the process, solutions of peroxide in ether are used, and are made by shaking up the aqueous solution of the peroxide with sulphuric ether. On standing the mixture separates into two layers, part of the peroxide being taken up by the ether. These ethereal extractions contain usually from 1 to 2 per cent. of peroxide.

The patents for the catatype process which have been taken out since the year 1903 by the Neue Photographische Gesellschaft have led to the practical usefulness of the process, most of the work having been done by Drs. Heimrod and Friedländer and Herr Hirsch.

In preparing the original for the process the following conditions require to be observed as regards the catatype negative.

1. The catalyser should be present in the finest form of division and in good gradation.
2. It should be penetrable by the peroxide and by its products of decomposition, both of which should be easily removable again from the paper.
3. It should offer sufficient resistance to mechanical wear and tear.
4. It should be as free as possible from structure.

The Paper Original for Catatype Printing

These conditions are not so very difficult to fulfil. The N.P.G. has prepared a commercial catatype negative paper which, as regards its manipulation, differs in no way from the ordinary negative paper. The photographer employing it should use a soft-working developer, which gives a fine grain silver deposit. The employment of reducing or intensifying methods such as are customarily adopted is not desirable. In the case of making catatype originals from already existing glass negatives, the usual course is to prepare the duplicate negative on paper, and to use this, a glass transparency either of the same size or enlarged being made the intermediary in this process. After development of the negative the latter is rinsed and is fixed for about twenty minutes in a special catatype fixing-bath, several negatives being fixed together so long as they are moved about so that all receive full action. The fixing-bath should exert a tanning action upon the negative in order to give it the necessary resistance to the hot platinum toning-bath to follow. After this fixing the plates are laid in a bath of half the strength for a further ten minutes, and are then washed. The second bath is a necessary precaution against small blisters. The washing occupies half an hour in running water, after which the negative is gone over with clean cotton-wool and hung up to dry.

Platinising the Silver Negative

The dry silver image may be used at once, as it is as a cotype original; but metallic silver, owing to the action of the peroxide upon it, soon loses its power, so that the prints are lacking in fine detail. If a series of prints are to be made from a silver negative, the time adopted for each must be progressively prolonged in order to obtain a uniform set. A silver negative which appears to have lost its power can be completely renewed and made usable again by replacing the silver by platinum. It is advisable to effect this process at the start. The usual platinum toning-baths act only in a very partial way on the developed silver negative; but if used warm the bath acquires much more energetic action. In the case of the bath supplied by the N.P.G. it is necessary to use a temperature of 55 deg. C. for a bath, which is diluted nine times as directed. A higher temperature than this endangers the film. At a temperature of about 45 deg. C. toning requires about thirty-five minutes; at 55 deg. C., twenty to twenty-five minutes; and at 60 deg. C., about fifteen minutes. These figures apply to a freshly prepared bath: in one which has already been used the time of toning will be about ten minutes longer. A soft negative is platinised much more rapidly than a strong one, and on this account negatives which are free from hardness, though at the same time not flat, are the best for the process. It is all the better to transfer the developed negative direct into the platinum-bath; but if it has been allowed to dry it is soaked in water for a few minutes, and after toning is given a short washing. A certain amount of silver chloride is formed in the toning process owing to the substitution of the silver by the platinum. A weak bath of ammonia is quite sufficient to remove the silver chloride without affecting the activity of the negative; although a special clearing-bath is supplied by the N.P.G. which removes also other substances which may be formed. In this clearing-bath the bluish tone of the platinised negative changes into one of yellowish tint. As soon as there is no further alteration in colour the cleared negative is washed for five or ten minutes in running water, and is then ready for use.

The making of a negative thus suitable for printing by the cotype method is, it will be seen, not exactly simple; but, on the other hand, the actual printing operations are very rapidly carried out. The platinum negative is not only superior to the original negative as regards its catalytic power, but retains the latter also for a longer time. If the toning-bath

has been used for the full time the density of the platinum negatives will be just as great as at the first, although, if the original negative was somewhat over-dense, advantage may be taken of a shorter time of toning to improve it in this respect. Over-toning of the platinum-negative may in certain cases lead to prints of too hard gradation being obtained.

Alternative Methods of Printing.

As regards the printing methods, they are divisible into two sections, namely, those in which prints are obtained consisting of a manganese compound, and those in which the final image consists of a pigment. The first requirement in the practice of the printing is that the negative should be perfectly dry. The ethereal solution of peroxide, which, as already mentioned, supplies the means of obtaining a positive from the negative, is not miscible with water, and therefore would fail to penetrate into portions of the negative which contain moisture. In treating the negative, a brush or tuft of cotton-wool is used, a few drops of the preparation of peroxide sold as "Perisol" being sprinkled upon it, and the perfectly dry negative gone over with the solution. Using more or less pressure, the "Perisol" is rubbed into the film. After a few seconds the negative becomes dry. The following are the general rules to be observed. Light rubbing of the negative gives prints tending to softness, whilst a strong application affords harder prints. If the negative be laid on the printing-paper quickly so that it is only surface-dry, the results are softer, whilst a longer interval leads to prints of harder gradation. The longer the interval before the two are put in contact the greater the decomposition of the peroxide in the negative, particularly in the after-tones, so that the gradation in these portions may be to a certain extent lost. In the case of the manganese process described below, the longer the time of contact the harder is the resulting print; but the reverse is the case when making pigment prints, increase of the time of contact leading to softer results. By suitable choice of the working conditions a good deal may be done to improve the character of the prints, negatives which are flat and fogged giving prints of considerable strength by allowing the print to dry off before putting in contact, and giving a longer time for this latter part of the process. Negatives which give hard prints are, on the other hand, treated once or twice with the solution, and kept in contact for a shorter time.

DR. F. STENGER.

(To be continued.)

MIXTURES OF DYES AS SENSITISERS OF GELATINE PLATES.

V.

[The following is an abridged translation of a thesis by Guido Daur, presented for the degree of Doctor of Philosophy at the Münster University. The experimental work was done on the suggestion of Professor Miethe, to whose colleague, Dr. E. Stenger, the author of the papers renders his thanks for much advice and assistance. The full text of the paper occupies a book of 105 pages, published by E. Grieser, Frankfurt a/M.—Eds. "B.J."]

43. *Glycin-red-pinacyanol*.—This combination (Fig. 43) gave the result not previously noticed that the two plates, after sensitising in a bath containing the two dyes, were totally different as regards the sensitiveness curve according to whether they were washed in running water or in alcohol. In Fig. 43 the times of exposure are 30, 120, and 300 seconds, given to each plate. It will be seen that the plate washed in water has the glycin-red character, whilst those bathed in alcohol resemble pinacyanol. As seen from the curves in broken lines (plates washed in water), there is a slight rise at 580, obviously due to the pinacyanol. The maximum of the latter is much more plainly seen at 630. Colour-sensitiveness has suffered, and the general sensitiveness is poor; moreover, the region of sensitising is somewhat contracted. The pinacyanol curve drops from its maximum, gradually extending with medium exposure to 680. The curve of the two dyes, however, falls much more steeply, and

extends only to 650. In the case of the plate washed in alcohol (the curves of which are shown solid), sensitiveness in the green and orange is much better, although compared with that to the blue-green it does not equal the water-washed plate, but there is a broad gap in the blue-green reaching from 510 to 560, with its deepest point at 540. From here the curve rises fairly steeply to the first maximum at 590, which is a good deal inferior to the second maximum at 630. The water and alcohol plates resemble each other in that in each case the 630 maximum of pinacyanol is greater than that at 590. Both plates showed the same amount of fog—30.

44. *Dicyanine-glycin-red*.—As in formula 43, this mixture gave different results according to the manner of washing the plate. Here also the plate washed in water (dotted curves) had the glycin-red character, whilst that bathed in alcohol (solid curves) approximated more nearly to dicyanine. In each case the general sensitive-

ness was equally poor, that for colour very different. The water plate shows some sensitiveness for the blue-green and green, but none at all for the red, whilst the alcohol plate is almost insensitive

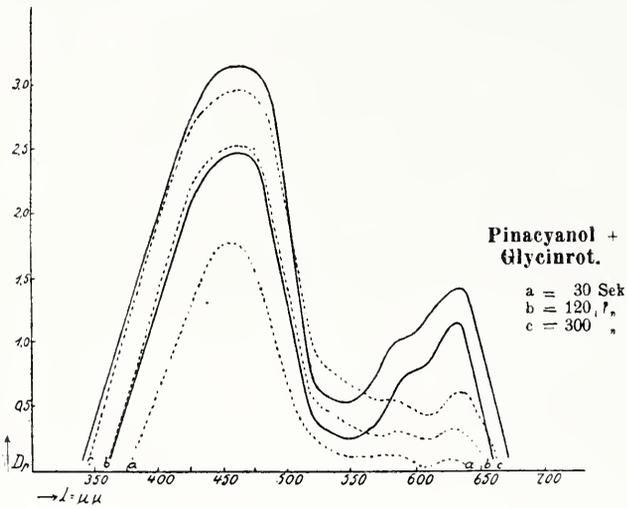


Fig. 43.

----- Bathed in water.
 ————— Bathed in alcohol.

to the blue-green and green, and commences to show sensitiveness in the orange and red. In the case of the alcohol plate, although there was no heavy fog, the plate showed light and dark bands, which interfered with the measurements, and, indeed, prevented them in many cases. In the case of the water plate, the effect of the dicyanine cannot be seen. On longer exposure (200 to 300 seconds) the glycin-red curve is prolonged about 25 to 30 μμ into the red. On

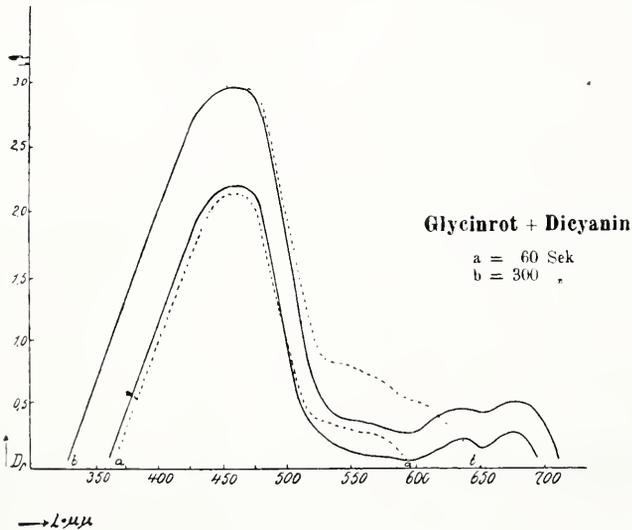


Fig. 44.

----- Bathed in water.
 ————— Bathed in alcohol.

the other hand, in the case of the alcohol plate, scarcely a sign can be seen of the glycin-red. After the steep fall of the curve to 535 the glycin-red does produce a slight influence up to 600. One notable fact is that there is no sign of any action of the dicyanine maximum of 580, which in every other combination shows itself. The 630 maximum, however, is plainly developed at 645, whilst the greatest action is effected by the dicyanine maximum of 700, which experiences a shift of 20 μμ towards the blue.

45. *Dicyanine-chinoline-red*.—Only the plate washed with alcohol could be used. It showed similarity with the glycin-red-dicyanine plate, also bathed in alcohol. The general character of the curve is that of dicyanine. The deep broad gap in the blue-green follows the same strong rise in the blue. A curve which rises from the bottom point at 520, after the manner of dicyanine, shows two rises at 560 and 590, one probably due to the chinoline-red and the other to its fellow dye. The two last dicyanine maxima show the accustomed shift, the first, 630, 10 μμ towards the red, and the second 700,

20 μμ towards the blue. Whilst the general sensitiveness leaves much to be desired, the relative sensitiveness in the orange-red compared with that in the blue is much better than with dicyanine and glycin-red.

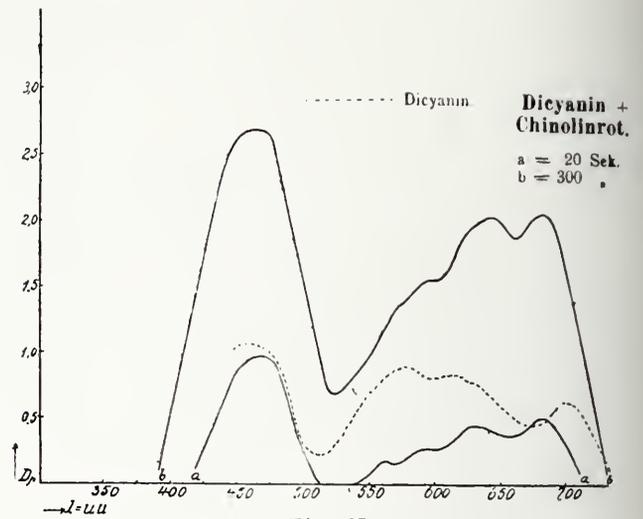


Fig. 45.

46. *Dicyanine-formyl-violet*.—Similar properties as regards sensitiveness are shown by this mixture (Fig. 46), the sensitiveness curve being almost the same. The gap in the blue-green is better. Even by longer exposure no sensitiveness is developed for the blue green rays, this showing first with 60 seconds' exposure. With this

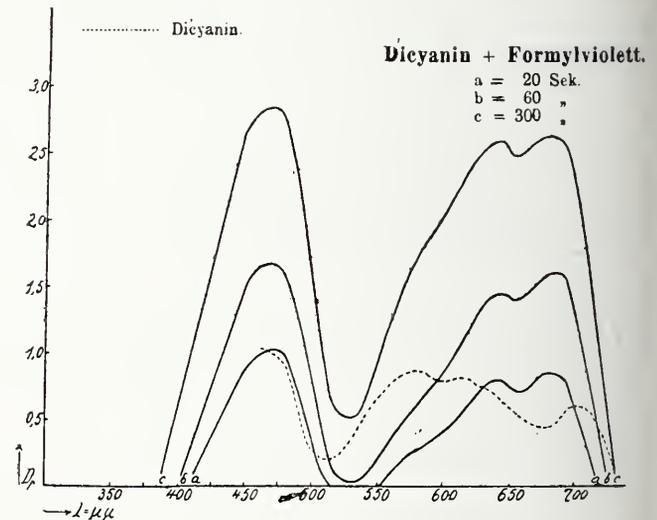


Fig. 46.

mixture of dyes also the 580 dicyanine maximum hardly appears, the maxima at 630 and 700 coming up strongly. Here again also there is the accustomed shift of these two maxima, which take their place at 640 and 680.

Summary and Results.

In order to bring together in an abridged form the facts obtained for the various mixtures of dyes, as shown in the foregoing curves the following thirteen tables have been drawn up, giving the properties of the various dyes when used in combination with others. The figure which follows the name of the dye at the head of the table indicates the position of its maximum.

I.—Aureosine 550.		
Combined with	Maximum of this sensitiser.	Maximum with mixture.
Eosine	540	550
Erythrosine	560	560
Rose-Bengal	550	560
Ethyl-red	530, 580	540, 580
Glycin-red	—	550

Aureosine (Table I.) is a weak sensitiser, which, when used with a strong sensitiser, has scarcely any effect. In admixture with ethyl

red the maximum of the latter moves from 530 to 540. With rose-Bengal the latter's maximum is shifted from 550 to 560. With eosine and erythrosine the dye improves the ratio of colour-sensitiveness compared with that in the blue.

II.—Eosine 540.

Combined with	Maximum of this sensitiser.	Maximum with mixture.
Aureosine	550	550
Rose-Bengal	550	550
Erythrosine	560	560
Ethyl-red	530, 580	540, 580
Pinacyanol	580, 630	580-590, 630-640

Eosine (Table II.) does not show its 540 maximum in the same place in any combination. In those with aureosine and erythrosine it effects a rise of the sensitiveness maximum in these dyes. When used with ethyl-red and with pinacyanol it causes a rise in the maximum of these dyes lying in the red of the spectrum.

A prejudicial effect is obtained only in the mixture of eosine and rose-Bengal.

III.—Rose-Bengal 550.

Combined with	Maximum of this sensitiser.	Maximum with mixture.
Aureosine	550	560
Eosine ..	540	550
Erythrosine	560	560
Ethyl-red	530, 580	560

Rose-Bengal (Table III.) is a sensitiser which imparts its characteristic curve in all combinations; weak sensitisers, such as eosine, in no way affect the curve; those of a somewhat stronger action produce only a shift to the maximum, about 10 $\mu\mu$ towards the red.

IV.—Erythrosine 560.

Combined with	Maximum of this sensitiser.	Maximum with mixture.
Aureosine.....	550	560
Eosine	540	560
Rose-Bengal	550	550
Pinaverdol	530, 580	530, 580
Ethyl-red	530, 580	520, 560
Pinachrome.....	550, 590	550, 595
Isocol	530, 580, 620	565, 630
Pinacyanol	580, 630	565, 635
Dicyanine	580, 610, 700	555, 630, 680
Chinoline-red	570	560
Glycin-red	—	560
Formyl-violet ..	610	560

Erythrosine (Table IV.) resembles rose-Bengal in its sensitising properties. In combination with ethyl-red, chinoline-red, glycin-red, and formyl-violet, the curve obtained is wholly, or almost wholly, that of erythrosine. On the other hand, it is weaker than pinaverdol or pinachrome, its effect being hardly marked when used with these dyes. As regards the shift of the erythrosine maximum, and that of sensitisers used with it, there is a certain rule: All maxima which lie to the left of wave-length 550 are shifted to the left, and those lying to the right are shifted to the right. The shift of maxima of greater wave-length than 550 to the right takes place only up to a certain wave-length, about 650, after which wave-lengths lying to the right thereof experience again a shift to the left. (See also dicyanine below.)

V.—Ethyl-red 530, 580.

Combined with	Maximum of this sensitiser.	Maximum with mixture.
Aureosine	550	540, 580
Eosine	540	540, 580
Rose-Bengal	550	560
Erythrosine	560	560
Pinaverdol	530, 580	530-540, 580-590
Pinachrome.....	550, 590	530-550, 580-590
Isocol	530, 580, 620	530, 580, 630
Pinacyanol	580, 630	540, 580 590, 635
Dicyanine.....	580, 610, 700	535, 580, 630, 680

Ethyl-red (Table V.) is not a strong sensitiser. In combination with eosine and erythrosine, its action is more marked than that of these two dyes. Its maximum at 580 is not shifted, though that

at 530, when the dye is used with eosine, aureosine, pinacyanol, or dicyanine, is shifted about 10 $\mu\mu$ towards the red.

VI.—Pinaverdol 530, 580.

Combined with	Maximum of this sensitiser.	Maximum with mixture.
Erythrosine	560	530, 580
Ethyl-red	530, 580	530-540, 580-590
Pinachrome	550, 590	530-540, 580-590
Isocol ..	530, 580, 620	530-540, 590
Pinacyanol	580, 630	585, 640
Dicyanine.....	580, 610, 700	530, 580, 630, 685
Chinoline-red	570	530, 580
Formyl-violet	610	530, 580

Pinaverdol (Table VI.) is a dye of great action on silver bromide. Even so strong a sensitiser as erythrosine does not develop when in combination with pinaverdol its maximum at 560. In combination with erythrosine, pinachrome, chinoline-red, and formyl-violet, the curve, so far as concerns the position of the maxima, is that of pinaverdol. Sensitiveness to colour, as compared with that to the blue, is at the same time improved. Particularly good is the mixture of pinaverdol with isocol and dicyanine, whereby this ratio is particularly improved.

VII.—Pinachrome 550, 590.

Combined with	Maximum of this sensitiser.	Maximum with mixture.
Erythrosine	560	550, 590-600
Pinaverdol	530, 580	530-540, 580-590
Ethyl-red	530, 580	530-550, 580-590
Isocol	530, 580, 620	540, 590, 630
Pinacyanol	580, 630	560, 590, 630
Dicyanine.....	580, 610, 700	550, 590, 680

Pinachrome (Table VII.) is the most powerful sensitiser after pinaverdol, since in all combinations, except those with pinaverdol, it produces its characteristic curve. Its maximum at 550 is frequently shifted towards blue or red, though its 590 maximum is not affected by any other dye.

VIII.—Isocol 530, 580, 620.

Combined with	Maximum of this sensitiser.	Maximum with mixture.
Erythrosine	560	550-560, 630
Pinaverdol... ..	530, 580	530-540, 590
Ethyl-red	530, 580	535, 580, 640
Pinachrome.....	550, 590	540, 590, 630
Pinacyanol	580, 630	580, 630-640
Dicyanine	580, 610, 700	530, 580, 640, 670

Isocol (Table VIII.) loses its characteristic curve in all mixtures except those with dicyanine: the shift of its maximum (620) 10 to 20 $\mu\mu$ towards the red is very characteristic of it.

IX.—Pinacyanol 580, 630.

Combined with	Maximum of this sensitiser.	Maximum with mixture.
Eosine	540	585, 635
Erythrosine	560	560, 630-640
Pinaverdol	530, 580	540, 580, 640
Ethyl-red	530, 580	540, 580-590, 635
Pinachrome	550, 590	560, 590, 640
Isocol.....	530, 580, 620	580, 635
Dicyanine.....	580, 610, 700	580, 635, 680
Glycin-red	—	580-590, 630

Pinacyanol (Table IX.) is about equal as regards sensitising power to erythrosine. With almost all sensitisers used with it, there is a shift of the orange maximum about 5 to 10 $\mu\mu$ towards the red end of the spectrum.

X.—Dicyanine 580, 610, 700.

Combined with	Maximum of this sensitiser.	Maximum with mixture.
Erythrosine	560	550-560, 630, 680
Pinaverdol	530, 580	530-40, 580-90, 685
Ethyl-red	530, 580	530, 580, 630, 680
Pinachrome	550, 590	550, 590, 680
Isocol	530, 580, 620	530, 580, 640, 670
Pinacyanol	580, 630	580, 630-640, 680
Chinoline-red	570	595, 630, 680
Glycin-red	—	635, 680
Formyl-violet	610	640, 680

Dicyanine (Table X.) is about comparable with pinachrome. Used in mixtures, there is a characteristic region of sensitiveness lying

near wave-length 650. Maxima lying to the left of this point are shifted to the right, those lying to the right are shifted to the left. The shifting of the maxima does not take place in the same way as in combinations with erythrosine, since here the maxima lying to the left of wave-length 530 are shifted to the right. The maxima 610 and 700 are very characteristic of combinations of dicyanine. The first is found to be shifted 20 to 30 $\mu\mu$ towards the red, the latter very regularly 20 to 30 $\mu\mu$ towards the blue.

XI.—Glycin-red.

Combined with	Maximum of this sensitiser.	Maximum with mixture.
Aureosine	550	550
Erythrosine	560	560
Pinacyanol	580, 630	585, 635
Dicyanine	580, 610, 700	635, 680
Chinoline-red	570	—
Formyl-violet	610	—

XII.—Chinoline-red 570.

Combined with	Maximum of this sensitiser.	Maximum with mixture.
Erythrosine	560	560
Pinaverdol	530, 580	530, 580
Dicyanine.....	580, 610, 700	595, 630, 680
Glycin-red	—	—
Formyl-violet	610	570, 610

XIII.—Formyl-violet 610.

Combined with	Maximum of this sensitiser.	Maximum with mixture.
Erythrosine.....	560	560
Pinaverdol	530, 580	530, 580, 620
Dicyanine	580, 610, 700	580, 640, 680
Glycin-red	—	—
Chinoline-red	570	565, 610

Glycin-red, chinoline-red and formyl-violet (Tables XI., XII., and XIII.) stand as regards their dyeing properties towards bromide of silver in the order: formyl-violet, chinoline-red, glycin-red. All three are weaker sensitisers than aureosine, nevertheless all three are able to cause a shift of the maxima of dicyanine, causing it to move 20 to 30 $\mu\mu$ towards the red in the case of the 610 maximum, and 20 $\mu\mu$ towards the blue in the case of the 700 maximum.

* * * * *

The following further conclusions may be mentioned:—

I. The application of the dye to the emulsion film varies according to whether the colouring matters act together or in succession. This applies, not to the position of the maxima, which is the same in each case, but as regards the relative degrees of action in the maxima compared with each other, and with that of the mother-emulsion.

II. All dyes suitable for the sensitising of gelatino-bromide dry plates may be placed in a series, so that if they are used in mixture the one which stands first in the series decides the character of the plate. The following is such a series for the dyes mentioned in the foregoing notes:—

Pinaverdol.	Isocol.
Pinachrome.	Ethyl-red.
Dicyanine.	Aureosine.
	Eosine.
Erythrosine.	Glycin-red.
Pinacyanol.	Chinoline-red.
Rose-Bengal.	Formyl-violet.

III. A rule of general applicability as to the shifting of the maxima of two sensitisers, when used in one and the same bath, can be easily stated, although it has been found that for single dyes, combined with one stronger or weaker, a shift takes place always in the same way, and almost always to the same number of wave-lengths. In all combinations a maximum in the red will shift towards the blue, one in the orange towards the red. The maxima in the green and yellow will be irregular as regards shift.

* * * * *

As regards the differences in the action of dyes when applied together in one solution or separately as single baths, attempts were made to answer the two following questions:—

1. Is there any alteration in the position of the maxima if the emulsion before coating is dyed with a mixture of two colouring matters, or if the dyeing is done by dividing the emulsion into two parts, to

one of which one dye is added and to the other the other, the two parts being mixed before coating?

2. Is there a difference in the relative intensity of the maxima among themselves and in comparison with the maximum in the blue, according to whether sensitising is done by one or other method?

It must be said at once that exact data obtained by photometric measurements could not be obtained, as the plates had to be coated by hand, and therefore the exact adjustment of the quantity of emulsion used for a plate was not possible. Further, the emulsion was not uniform on the plate.

The second question could thus be answered only by preparing a sufficient number of plates by both methods and comparing them as regards intensity of the maxima with the eye. The emulsion was made according to Eder's formulæ, and using ethyl-red in the proportion of 3 ccs. of 1:1,000 solution per litre of emulsion. For the other two colouring matters pinaverdol and dicyanine were selected, these being applied by bathing. The pinaverdol plate gave a very good result, but the dicyanine showed heavy fog. It was concluded (1) that the position of the maxima remains the same, whether the two dyes are used together for dyeing the emulsion or whether they are added separately to two separate parts of the emulsion. (2) That the relative intensity of the different maxima varies in this case as with bathed plates. In the previous case the separately dyed and mixed emulsion gave a better result than one containing a mixture of the two sensitisers.

G. DAUR.

THE FELLOWSHIP OF THE ROYAL PHOTOGRAPHIC SOCIETY.

NEW REGULATIONS.

THE Council of the R.P.S. have made the following regulations under which the Fellowship will, in future, be awarded:—

Fellows are elected by the Council, and only members of the Society are eligible for election to the Fellowship.

Applicants for the Fellowship must be recommended by two Fellows of the Society as proposer and seconder, such recommendations being taken as expressing only the personal and social eligibility of the candidate.

The qualifications of the candidate are first considered by a Committee appointed by the Council, which consists of eighteen Fellows or Members of the Society. This Committee meets in March and October of each year and reports to the Council upon the applications received.

The Council then considers each application with the Committee's report thereon, and elections take place in May and December of each year. No candidate is elected unless two-thirds, or a greater proportion of the members of Council present, vote in favour of his election.

Each applicant must submit a statement of his qualifications under one or more of the following heads:—

- (a) Original investigations, improvements or inventions adding to photographic knowledge in either theory or practice. References to publication and application of such original work must be given.
- (b) Educational work, e.g., writing, teaching, etc.
- (c) Technical work, e.g., the application of photography in the various arts and sciences, and in record work of all kinds. Process work, methods of reproduction, etc.
- (d) Pictorial work.
- (e) Professional portraiture.
- (f) Other qualifications.

The application should be supported by as much evidence as possible, such as copies of published papers, examples of work, etc. and by particulars of any examination passed, or of any honours or awards received for work directly or indirectly connected with photography.

The two latest dates in the year for receiving this form are March 1 and October 1.

ROTHERHAM PHOTOGRAPHIC SOCIETY.—The twentieth annual exhibition of the Rotherham Photographic Society will be held October 20-23. Open section. No entrance fees, except for lantern slides. The judges are Mr. C. Barrow Keene, F.R.P.S., Derby, and Mr. T. A. Scotton, Derby. Entries close October 11. The hon secretary is Mr. H. C. Hemmingway, Tooker Road, Rotherham.

LECTURES AT THE R.P.S. EXHIBITION.

THE following is the list of lectures to be given at the New Gallery, Regent Street, during the holding of the annual Exhibition of the Royal Photographic Society. The lectures commence at 8 p.m.

Thursday, September 23.—“Through the Federated Malay States with Cycle and Camera,” by Frederick Knockner, F.Z.S.

Saturday, September 25.—“Among the Cornish Fisher Folk,” by Valter Thomas.

Monday, September 27.—“A Visit to a Marine Biological Station,” by Francis Ward, M.D.

Thursday, September 30.—“The Romance and Humour of Invention,” by A. H. Dunning, F.R.G.S.

Saturday, October 2.—“Modern Ideas about the Sun,” by T. F. Connolly, B.Sc.

Monday, October 4.—“San Marino, the Pigmy Republic,” by the Rev. T. T. Norgate, F.R.G.S.

Thursday, October 7.—“Saints, Benedictines, Goths and Vandals,” by E. W. Harvey Piper.

Saturday, October 9.—“The Photography of Sport,” by Adolphe Abrahams, B.A.

Monday, October 11.—“Holy Days and Fête Days in Spain,” by R. Falconer Jameson.

Thursday, October 14.—“Pictures from Portugal,” by George E. Thompson.

Saturday, October 16.—“London Through the Eyes of Gossip Pepys,” by A. H. Blake, M.A.

Monday, October 18.—“Wild Birds and their Ways” (Second Series), by W. Bickerton, F.Z.S.

Thursday, October 21.—“The Home Life of some familiar Wild Birds,” by W. Farren.

Saturday, October 23.—“The Romance of Plant Life,” by F. Martin-Duncan.

Monday, October 25.—“A Trip Round the World, via Ceylon, through Australia and Canada,” by C. J. Marshall, A.R.I.B.A.

Thursday, October 28.—“The Catacombs of Rome, and the Early Christian Period,” by S. J. Beckett.

Saturday, October 30.—“Westminster Abbey,” by S. G. Kimber.

Photo-Mechanical Notes.

Process at the Dresden Exhibition.

In the very comprehensive exhibition now being held at Dresden it was certain that photo-mechanical work would not be forgotten, and, in fact, a large building, the Reproduktion Halle, is devoted to it. At the outset it must be remarked that the English representation is very disappointing, for only a few firms exhibit, and these not their best work. It is to be hoped that visitors to the exhibition will not judge our capacity from a comparison of the work shown with that of other countries.

The most striking things to be seen in the exhibition are as follows: (1) The excellent half-tone reproductions of Autochromes, Messrs. Hamcock showing a very large number of these, together with the originals. Some of the reproductions are more pleasing than the Autochrome, due to the exercise of taste on the part of the fine-etcher and printer.

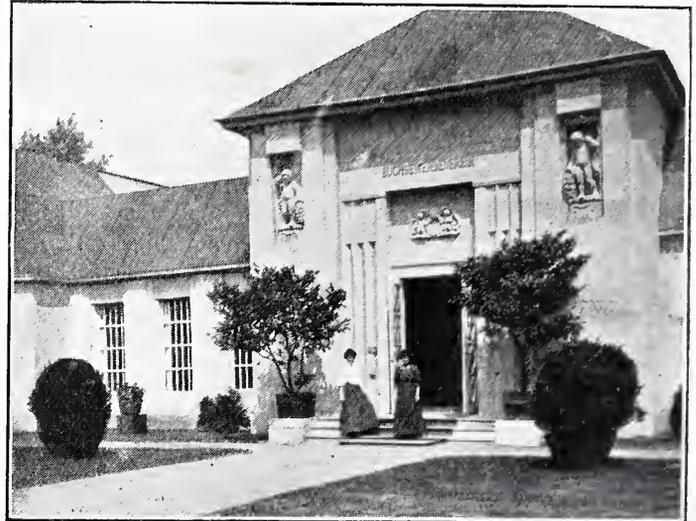
(2) The very fine coloured collotypes. Some of these are recognisable as the requisitions of a well-known London firm of print-sellers, who find they must come abroad to get satisfactory colour-collotype. Several of these coloured collotypes are in more than three colours, but some of the best of them—for example, the reproduction of old illuminated manuscripts by Albert Frisch, of Berlin—are only in three, and these are magnificently brilliant.

(3) The large number of coloured photogravures. Beside the ordinary “synchronous” method in which all the colours are dabbed on the plate and pulled in one impression, there are several printed in three colours, just like blocks, and the yellow, red, and blue proofs

are shown as well as the completed print. Messrs. Elson and Co., of New York, even show the originals and the three-colour photogravures side by side, and in some cases these are astonishingly good, though for the most part there is a want of sharpness that one feels would probably not exist in three-colour half-tone.

(4) The very large amount of combination work in which photography has aided lithography. Grained transfers, collotype transfers, half-tone, indeed, all sorts of photographic methods have been employed in conjunction with lithography, and were not the statement made, one would imagine some of the results to be all pure hand-work, as it is quite impossible to detect the photographic basis in many cases.

(5) The excellent apparatus shown. The writer was especially anxious to see this, as he had recently heard of two cases in which



The Reproduktion Halle, Dresden Exhibition.

Continental customers, formerly always purchasing their apparatus in England, were now purchasing it in Germany, not because it was cheaper (it was actually dearer), but because it was better. Their judgment must be approved; it is certain that our camera makers do not market any process camera so compact and so convenient as those of Falz and Werner or Hoh and Hahne, which are most carefully thought out in every detail. Particularly interesting is the small space occupied by the screen gear, and that at the side and not at the bottom of the camera, the lazy-tongs support for the bellows, the possibility of slightly angling the camera and copy-board when using long extension, so that less space is required and better balance maintained; and the narrow stands used, which also economise space and make for convenience in working.

Rolling Up Enamel Prints.

A reader of Messrs. Penrose's “Process Work,” writing from Christchurch, New Zealand, in answer to a querist who wanted a process for rolling up copper line jobs which have been printed in enamel, etc., describes a process he has used himself, enclosing an enamel print on zinc rolled up exactly as a litho stone is done—and just after the merest pass in the acid bath. The way it is done is to damp the plate with dissolved dextrine—British gum, not ordinary gum arabic—and roll up as usual. Use the dextrine thin and sparingly, damp with a sponge; this makes the plate slimy, but allows the roller to run freely, putting no pressure on other than its own weight. Any one who has a slight knowledge of litho work, or can do rolling up on zinc plates, will find the whole thing simple. Any good starting ink will do, but line zinc is merely rolled up with ordinary litho ink. The writer has not tried the effect on copper, but fancies that a fish glue print on the copper would take the ink in the same easy manner as the zinc. Hot water easily dissolves the dextrine to the proper consistency. Gum up in the usual way and damp as already stated.

A NUMBER of street photographers were fined at Blackpool recently for using water for other than domestic purposes.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following patents have been applied for between August 3 and August 7:—

EXHIBITING PHOTOGRAPHS.—No. 18,029. Improvements in or relating to the exhibiting of photographs, pictures, and similar artistic productions. William Wild, 7, Southampton Buildings, London.

CINEMATOGRAPHS.—No. 18,031. Improvements in or relating to cinematographs. Vittorio Benaglia and Ubaldo Grimaldi, 111, Hatton Garden, London.

CAMERAS.—No. 18,045. Improvements relating to photographic cameras to obtain sky and cloud effects. David Kay, 37, West Nile Street, Glasgow.

APPARATUS.—No. 18,079. New or improved apparatus for use in fixing, washing, or other like operations of photography. Sidney Samuel Frank, 70, Chancery Lane, London.

CINEMATOGRAPHS.—No. 18,093. Method of and apparatus for producing cinematographic pictures. Ewald Escher and Karl Kochendorger, 345, St. John Street, London.

FLASHLIGHT.—No. 18,213. New or improved telescoping match-holder, particularly adapted for use in flashlight photography. Bettie Hill McDonald, 31, Bedford Street, Strand, London.

FILM-PACKS.—No. 18,266. Improvements in film-packs. Johann Georg Schneider, 6, Lord Street, Liverpool.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

ENLARGING APPARATUS.—No. 20,227, 1908 (September 26, 1908). The invention consists in a form of construction, according to which the stage holding the negative carrier may be adjusted at an angle

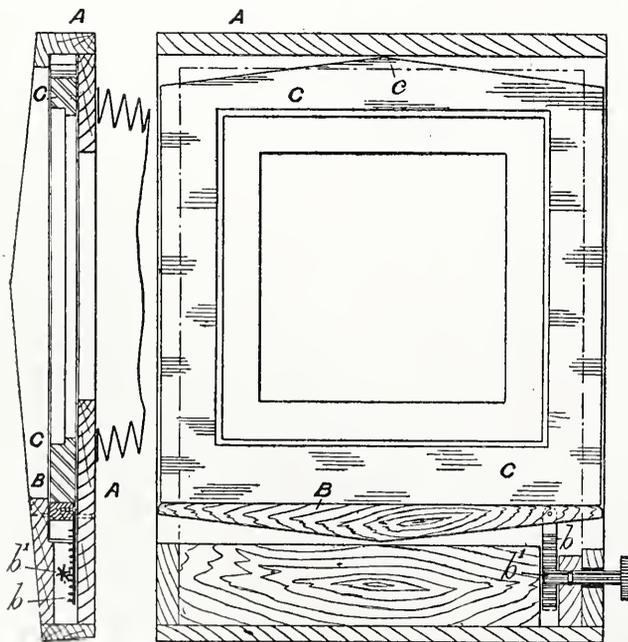


Fig. 2.

Fig. 1.

in its own plane, so as to compensate for the negative not being set straight on the negative. It consists in applying a rocking base piece to that part of the stage or negative receiver on which

the negative carrier rests, or in attaching to the bottom of the negative carrier a rocking piece, so that any distortion in the picture can readily be corrected by tilting the negative when placed in position for the enlargement.

The stage or negative receiver A is constructed of the usual rectangular form, but with a movable or rocking base piece B, by which the negative carrier C when placed thereon can be raised or lowered at one side or the other.

In the form shown in Figs. 1 and 2 the base piece B is pivoted in a suitable position at or near the centre, and provided at one end with a rack b and pinion b¹, by which it can be inclined in either direction to tilt the negative carrier resting thereon. Arthur Gray Pickard, director of the Thornton-Pickard Manufacturing Company, Ltd., of Altrincham, Cheshire.

GUM PROCESS.—No. 27,686 (December 19, 1908). The invention consists of a dry mixture, such as gum arabic 20 parts, sugar 1 part, potass bichromate 4 parts, together with pigment 20 parts, for use as a sensitising mixture for the gum-bichromate printing process. A mixture, such as the above, is dissolved in twice its weight of water to form a sensitising liquid, which is applied to paper, and the latter exposed under the negative and developed in water, just as in the gum process. The mixture is intended to be used in making three-colour prints by successive sensitising of the same piece of paper. Société Anonyme, La Photographie des Couleurs, 24, Comte rue de l'Hôpital, Antwerp; Joseph Sury, Wyneghem, Belgium; and Edmond Bastyns, 29, rue des Tanneurs, Antwerp.

PRINT TRIMMERS.—No. 4,743, 1909 (February 26, 1909). The invention consists of a form of guillotine trimmer, in which the top shear is not bent or cambered, but is straight and rigid. It has no handle and is uniform in length with the base. In use, the top shear is pushed down by simply placing the fingers upon the top edge

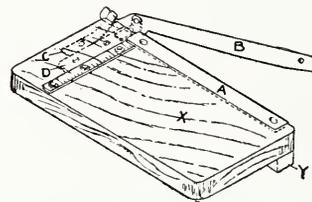


Fig. 1.

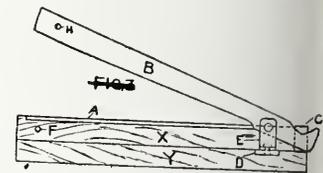


Fig. 2.

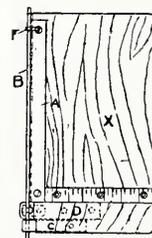


Fig. 3.

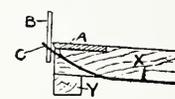


Fig. 4.

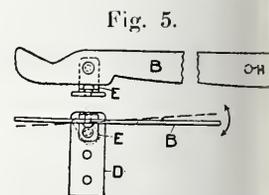


Fig. 5.

Fig. 6.

thereof. It works so freely that very little pressure is required to do this. It is fixed to the base with the usual double pivoted or turntable hinge, but is pivoted at such a distance from the end thereof as to allow a sufficient projection of the shear beyond the hinge for the spring to work upon.

It is controlled and actuated by one spring only, which is fixed to the base. When it is being pressed down to make the cut or trim, the spring keeps the top shear in proper cutting contact with the bottom shear, and on the cut being made, and the top shear released, the spring raises it, and keeps it in position for the next cut.

When the top shear is pressed down for cutting, a stop on the base prevents its going beyond the end of the cut, and when the trimmer is out of use, the top shear is pushed downwards and slightly outwards, when the stop engages in the hole in the free end of the top shear, and the same is thereby held firmly down and parallel with the bottom shear, and when pushed off the stop rises again into cutting position.

The spring and the hinge-plate are both fixed to the underside of the base. These can either be let in flush with the underside of the base or fixed thereon without letting in. In the latter case

fillet of wood (or other material) is attached to the underside of the base to protect the spring and hinge action, and this fillet has the effect of slightly elevating the trimmer at the back and so giving a desk-like slope towards the front, which is an advantage and convenience in working.

The trimmer is also provided with the usual graduated rule for measuring the size of print and obtaining a square cut; but such rule, instead of being permanently fixed in position, is fixed to the base with screws, passing through holes in the rule of such a size as to allow for adjustment, and held firm by washers under the screw-heads. In the drawings X is the base; Y, fillet attached to the base; A, bottom shear; B, top shear; C, spring; D, hinge-plate; E, hinge; F, combined stop and fastener; H, hole in top shear for stop. John Merrett, Trowbridge, Wilts.

CAL-PLANE SHUTTERS.—No. 15,548, 1908 (July 22, 1908). The invention consists of a blind shutter, for use in the focal-plane or on the lens in which the exposure is made by causing two blinds to travel in the same direction across the opening, the edge of one blind being an adjustable distance in advance of that of the other, so as to form a space between the two blinds. To effect the exposure, two of the rollers, one of each pair, and generally those situated in the lower part of casing, are connected by means of toothed wheels, while the shutter mechanism is in motion, but at all other times the rollers are capable of independent motion. To make this connection, the rollers in question have toothed wheels attached, and on a plate capable of partial rotation, about the axis of one roller, and permanently in gear with the wheel, attached to that roller, is an idle wheel, having similar teeth to those of the wheels carried by the rollers. The mechanism for releasing the shutter is connected with this swinging plate, and the whole is arranged so that the act of releasing causes the plate to be moved into such a position that the idle wheel, already in gear with one roller, meshes with the wheel attached to the other roller. This arrangement ensures the two rollers, and the blinds in connection therewith, travelling at equal velocity, or by changing the gear wheels, one blind may be made to travel at a greater or less speed than the other during the making of an exposure, but immediately afterwards, as soon as the releasing device is free, the idle wheel falls out of gear with one blind roller, and the capping blind is drawn into the aperture-closing position. Duration of exposure depends upon the distance between the two blinds when they are in motion. This distance is regulated by winding, during the process of setting, the upper blind, and a portion of its tapes upon the roller until the desired aperture is indicated by a dial provided for the purpose.

Setting the shutter is performed by a winding wheel, geared into the roller to which the blind is attached, in the upper part of the casing. Retention in the set position is ensured and release effected by a pawl, acting in conjunction with a ratchet wheel, connected with or formed by the winding wheel. For the purpose of making "bulb" exposures, the winding wheel is furnished with a stop pin or stud, designed to come into contact with a projection, fitted to, or formed on, a moving piece contained in the shutter case. Other studs are fitted to the winding wheel, which during the revolving of the wheel come into contact with the moving piece just mentioned, or projections connected therewith, and set the piece into such a position that the part intended to act as stop comes into the path of the stop pin of the winding wheel.

This moving piece is under the influence of a spring, and normally takes up such a position that it cannot obstruct the free working of the shutter mechanism. Frank Philip Whitehead and Walter Frederick Giles, trading as F. Whitehead and Co., Scientific Instrument Makers, 34, Pickets Street, Balham, London, S.W.

PHOTOMATOGRAPH MECHANISM.—No. 453, 1909 (January 7, 1909). The invention consists in apparatus for making film negatives or positives, and for projecting the latter, or to make reduced copies of the images on ordinary films. In connection with this latter, the invention also relates to the production in an improved way of the reduced image pictures from such films on to a strip, which may be in a loop form, and in which the pictures forming a single subject, or a series of subjects, following one another, lie side by side in rows either longitudinally or transversely of same, the strip being used either by reversal at the ends of same, accompanied by a lateral movement to bring the next row into position or by

a lateral movement without reversal, or when in a loop form by arranging the pictures longitudinally in a spiral or continuous line on same. The Rotary Photographic Company, Ltd., 12, New Union Street, Moorfields, London, E.C.; and Ferdinand von Madalaer 11, Stowe Road, Shepherd's Bush, London, W.

Analecta.

Extracts from our weekly and monthly contemporaries.

Carrying the Camera Case.

As my canvas half-plate camera case was beginning to look shabby (writes Mr. T. W. Pallett, in the "Amateur Photographer" for August 17), catalogues and shop windows were searched for another, and, having found the usual "open at the top" pattern rather awkward when carrying an extra lens, yellow screen, and other necessary adjuncts, the search was for the unusual—something in which the camera could lie alongside the dark slides, etc., so that it would not be necessary to move one article to get another.

Attaché cases were thought of, examined, and found unsuitable in size, and, more important still, too expensive.

Finally, a bag-maker in Bermondsey was consulted, with the result that the equipment is now more easily carried in a baize-lined half-Gladstone, on opening which every article is ready to hand.

The size is 18in. by 11in. by 5in., takes six double dark slides comfortably, costs no more than the ordinary leather case, and has the further advantage that it will take a change of clothing, so making a capital week-end bag.

Phosphate Papers.

Messrs. H. G. Bailey and T. J. Ward (writing in "Photography" for August 17) have made some experiments with "Ensyna" and also with Paget "phosphate paper" regarding time of washing, and have come to the following conclusions:—

It is important that the final washing of the prints should take place in running water, as, if left to soak in a dish, even after ten minutes' washing, there is enough "hypo" remaining to destroy the image completely if left soaking for another hour or so. This we have found to be the case both with ordinary "hypo" (15 per cent.) and also with the "Ensyna Acid Hypo."

Even if the paper is properly washed for thirty minutes in running water, the hypo is not completely removed, and we find on an average from a quarter to one-third grain remaining under these circumstances in a quarter-plate print, as estimated by titration with iodine.

This small amount may have no deleterious effect on a phosphate paper print, but the fact seems to have escaped notice that they may be stored loosely in contact, or face to face in an album, with either P.O.P. or bromide prints, and then would very probably lead to stains and fading in these in course of time. We therefore recommend that these prints be washed as ordinary P.O.P., viz., for at least an hour in running water, as suggested by you.

Another point which may be of interest is that if one is uncertain regarding the exposure of a very dense negative, it is best to expose until a very faint image is produced. This on development will give a brown colour, and, by relatively decreasing or increasing the exposure, the desired tone can then be obtained.

A point on which we differ from the editor is when he states that "very little difference (except in colour) can be detected between prints on phosphate paper which have had widely different exposures." We find that with an exposure of very short duration a contrasty print is obtained having, of course, a blue tone, while with prolonged exposure the contrasts are softened immensely, thus increasing the scope of the paper.

Further, to amateurs it may be of use to know that the metal developer as given by the Paget Company for use with their "phosphate paper" may also be satisfactorily employed with "Ensyna," the only difference being that in the latter case it requires approximately twice as long to complete development.

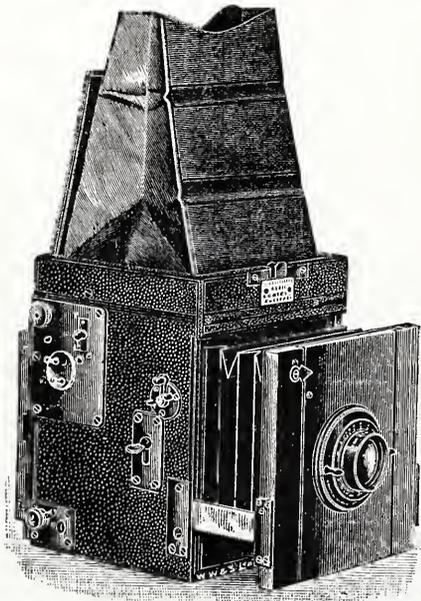
New Materials, &c.

KODAK SELF-TONING C.C. POSTCARDS.—Two grades of cards, glossy and matt, have just been introduced by the Kodak Co., the emulsion in each case being that familiar to users of the Kodak Self-toning C.C., and giving with great ease the fine range of tones obtainable with the latter paper. In a plain bath of hypo the new cards give excellent cold brown tones, about ten minutes' immersion giving a most pleasing purple brown tone. In fact, if a really warm brown tone is required it is best to wash the prints in three changes of water before placing in the hypo bath. Purple black tones are readily obtained by placing the prints first for a minute or two in a weak salt bath and then fixing as usual. The readiness with which the results are obtained and the fine tone and surface of the prints should recommend them to postcard users. They are sold in shilling packets of twelve cards.

New Apparatus, &c.

"BIRDLAND" OUTFIT.—When calling at Messrs. Sanders and Co., Shaftesbury Avenue, a day or two ago we were able to examine a complete outfit for natural history photography prepared by them and, at the time of our visit, on the point of shipment to New Zealand. The set comprised a half-plate "Birdland" reflex camera, fitted with 12in. Goerz Dagor ($f/6.8$) and Celor ($f/5.5$), with telephoto attachment for the latter. The camera was fitted with the two forms of hood, the ordinary vertical pattern and the triangular type for use when employing the camera in a higher position and focussing with a magnifier. The outfit also included a new form of the "Lodge" hiding tent, the supports for the latter being made of bamboo, and the whole tent of larger size, but yet folding when closed in a conveniently small space. The outfit altogether was certainly one every detail of which evidenced the care of the makers in consulting the wishes of nature-photographers.

THE $3\frac{1}{2} \times 2\frac{1}{2}$ "ARGUS" REFLEX.—Messrs. W. Watson and Sons, 313, High Holborn, London, W.C., have just placed on the market a $3\frac{1}{2} \times 2\frac{1}{2}$ size of their well-known and excellent "Argus" reflector camera. The camera is of the same substantial construction as the larger sizes, and measures over all about $5 \times 5\frac{1}{2} \times 6\frac{1}{2}$ inches. The



total extension is close on 8 inches, the front being very rigidly supported on a pair of metal runners. There is a rise of front of $\frac{3}{8}$ of an inch, as well as a fall of nearly half an inch, both movements being actuated by a rack and pinion. The hood is self-erecting, and folds back on its hinges, giving instant and complete access to the focussing screen. In the important matters of the shutter and mirror the makers adhere to the movements found successful and reliable in the larger patterns of "Argus," that is to say, a mirror which

falls again after exposure, and a shutter which is adjustable both by alteration of slit and tension, the latter while the shutter is set. Complete with rotating back and three solid double slides, the price of the $3\frac{1}{2} \times 2\frac{1}{2}$ "Argus" is £11 7s.; with three book-form slides the price is £12 10s.; or for the same price the camera may be obtained with a changing box for twelve plates. As a lens for the outfit Messrs. Watson supply their 5-inch Holostigmat for £6, in a suitable recessed mount. The whole forms a most excellent outfit in a size which we consider peculiarly suitable for a reflex camera on account of the great accuracy with which the subject can be arranged.

CATALOGUES AND TRADE NOTICES.

THE BOOK OF THE BROWNIES.—An altogether admirable booklet illustrating the excellent results to be obtained with such inexpensive cameras as the Brownie Kodaks has just been issued by the Kodak Co., and is sent free on application to 57, Clerkenwell Road, E.C. The reproductions include portraits and portrait studies, interiors, shipping and natural history subjects, and the letterpress accompanying them appropriately refers to the ease of Kodak-Brownie photography, and concludes by asking for an opportunity of demonstrating the fact to the reader. The booklet is one which dealers will surely benefit by distributing.

ENLARGEMENTS IN TWO COLOURS.—Messrs. H. Edmund and Co., Ezra Street, London, E., send us a circular just issued by them containing directions for toning bromide prints and enlargements in two colours by means of the "Sanzol" green toner and the "Cubrome" blue toner. The process does not present great difficulty except in certain subjects, and the directions are commendably explicit. The circular is sent free on application.

PROFESSIONAL REQUISITES.—A new list has just been issued by Messrs. O. Sichel and Co., of apparatus and materials for the use of professional photographers. It includes particulars of studio cameras, the "Sickle" studio reflex, portrait, and other lenses shutters, and other apparatus. We should mention the very convenient "Finsbury" head-rest and screen and the very nice styles in studio furniture, in mounts, and in mouldings. Particulars are given of the Morgan system of dry-mounting and embossing, and the list which is sent post free to *bonâ-fide* professional photographers, includes a list of discounts for the various items. Professional workers will certainly not lose anything by applying to 52, Bunhill Row for a copy.

CHEMICALS.—In sending their current list of prices, Messrs. Fuers Bros., 17, Philpot Lane, London, E.C., intimate that terms on certain lines have been increased, as per the inset circular. Should any of our trade readers not receive a copy in the usual course they should apply to Messrs. Fuerst, who will be pleased to furnish them with all information.

FORTHCOMING EXHIBITIONS.

September 10 to October 23.—The Photographic Salon. Latest date August 30. Sec., Reginald Craigie, 5A, Pall Mall East, London S.W.

September 23 to October 30.—1.—Royal Photographic Society Latest date (carrier) September 1, (hand) September 2. Sec J. McIntosh, 35, Russell Square, London, W.C.

THE CINEMATOGRAPH EXHIBITION.—It is announced in the "Optician" that the Optical and Photographic Exhibition which was arranged to be held at the Crystal Palace will not take place this year. As a result of the publicity given to the matter, a number of optical and photographic firms had bespoken space, and to these Mr. Bernard Brown desires to tender his thanks, and an expression of regret that his plans have been so seriously interfered with. It is explained that certain advertising—to the general public, by means of posters—which was to have been given on an extensive scale, has been withheld. Also paragraphs reflecting on the conduct of the undertaking have found their way into some of the leading continental journals; and the promoter considers that the time available is now too short for making good the mischief arising out of these circumstances.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

SATURDAY, AUGUST 21.

Finning Park Co-operative Camera Club (Govan). Outing to Kilmalcolm.

MONDAY, AUGUST 23.

Southampton Camera Club. Discussion: "The Value of Record and Survey Photography." W. R. Olney.

TUESDAY, AUGUST 24.

Blackney Photographic Society. Some Novelties.

WEDNESDAY, AUGUST 25.

Southampton Camera Club. Ramble to Netley Abbey.

THURSDAY, AUGUST 26.

Blackley Photographic Society. Monthly Meeting.
Southampton Photographic Society. "Stripping Films from Glass Negatives." W. Grove.

TORONTO CAMERA CLUB.—The annual outing took place on July 1st, Dominion Day, when about forty of the members, accompanied by their wives or sweethearts, left at 7.30 a.m. by the Canadian Pacific Railway to the village of Meadowvale, which was reached by 10.30, when the members wandered at their own sweet will looking for something to snap at, strolling through leafy vales, Micawber-like looking for something to turn up. Arrangements had been made some time previously at a rural hotel for dinner and tea, to which all the members did ample justice. Stand cameras were used in numbers, whilst other members were supplied with the ever-ready Kodak, and reflex cameras, and even the "Tiny Ticker" was amongst them. There were as many makes of cameras represented as there were members of the party, each with his own fancy and liking. After a weary tramp in the sun and dust of a Canadian dusty road (which wants to be seen to be credited with the amount of dust it can kick up when disturbed), the party returned home by the 7.30 train in the evening, all expressing themselves as having had a lovely day.

Commercial & Legal Intelligence

FAILURE AT EBBW VALE.—The first meeting was held on August 11, Newport (Mon.), with regard to the failure of Wm. Henry Oleamor, photographer, residing and carrying on business at 5, Armoury Terrace, Ebbw Vale, and formerly of 11, Church Terrace, Ebbw Vale. The statement of affairs showed liabilities £156, assets £26. Debtor, who was at one time a rail-straightener at a local ironworks, commenced business as a photographer five years ago. He attributed his present position to over-buying at the commencement of his enterprise, and his expenses being in excess of the profits. The case remains in the hands of the Official Receiver.

A BIRMINGHAM BANKRUPTCY.—The creditors of Messrs. Wm. Tylar (London), Ltd., 41, High Street, Aston, photographic apparatus dealers, etc., met at Birmingham on August 11. Mr. Iliffe was voted to the chair. Accounts were submitted showing liabilities £3,665, assets £2,604, deficiency £1,060. Mr. Jagger, solicitor, examined that Mr. Wm. Tylar had successfully carried on the business for many years prior to 1907, when, in consequence of his failing health, and thinking it desirable to give his employees an interest in the concern, he converted same into a small private company. He believed some of his friends and customers would take up shares, but in this he was disappointed. 1907 showed a considerable falling-off in turnover, and the net result of the year's trading was a loss. Mr. Tylar was sanguine, however, of pulling the business through, as the net profits for the previous five years averaged £700 per annum. In consideration for the sale of the business to the company was £3,635, and Mr. Tylar was appointed managing director at £250 a year. In June last, while Mr. Tylar was in Bournemouth for his health, the person whom he left in charge absented himself, and investigations revealed defalcations to the amount of £80. The person in question was subsequently sentenced to six months' imprisonment. A meeting of the shareholders was convened, and it was decided to proceed to voluntary liquidation, Mr. E. Fisher being appointed liquidator. During the course of the discussion which followed Mr.

Jagger's explanation it was mentioned that Mr. Tylar was to receive his purchase money in 3,635 £1 shares and £2,000 in cash. He had only received the shares, and was an ordinary creditor for the £2,000. No shares were issued except to the seven signatories. Mr. Jagger pointed out that Mr. Tylar gave his employees an interest in the business, and that was part of the £3,653. Replying to questions, Mr. Tylar said the defalcations had been going on for eighteen months, and he could not say for certain what the total was. He accounted for the deficiency by bad trade, and being unable as in the past to place large orders. A motion was passed appointing Mr. A. Cripwell to act conjointly with Mr. Fisher with a committee of inspection.

LEGAL NOTICES.—The London and Provincial Electric Bioscope Theatres, Ltd., is being wound up. Mr. Harold Speer, 29B, Western Road, Brighton, is the liquidator. The creditors meet to-day (Friday) at 42, Bedford Row, W.C.

A first and final dividend of 6½d. in the £ has been declared in the bankruptcy of Henry Morton Pearce, carrying on business at 26 and 28, County Arcade, Leeds, under the style of Morton's Star Photo Company.

A dividend at the full rate of 20s. in the £ has been declared in the estate of John Harris, retired photographer, 75, Haviland Road, Boscombe, Bournemouth, Hants.

News and Notes.

THE PRINT-IN-GROUND COMPANY, 171, Jay Street, Schenectady, N.Y., have invented an ingenious device by which a rubber stamp can be used on a negative and a background printed in any position.

GUNNERY BY CINEMATOGRAPH.—Experiments have been made to apply the cinematograph to the use of gunnery instruction in the Italian fleet. During gunnery tests off Sardinia continuous photographs were taken of the work at the guns and also of the arrival of the shots at the target, and it is believed these will prove of great assistance to gunnery demonstrators. The Minister of Marine is establishing a special section of photography and cinematography, with headquarters in Rome.—"Daily Express."

SNAPSHOTS OF THE KING.—With reference to the visit of King Edward to Marienbad, the Military Governor, Prince Liechtenstein, has published a notice in the "Marienbad Tagblatt" requesting the public not to crowd round his Majesty when he appears in the Colonnade and the Park. All attempts to photograph the King are strictly forbidden. The Prince ends by expressing the hope that it will not be necessary for him to put into force any of the powers entrusted to him for the preservation of order and the desire that the orders of the police will be strictly followed.

HAMEL HALF-TONES.—On a visit to Nottingham recently a representative of the "B.J." was interested in seeing in the large, well-equipped photo-engraving works of Messrs. E. Hamel and Co. a complete Levy installation for machine etching. In other respects the Hamel Works is very completely fitted out for line, half-tone, and three-colour engraving, in addition to which this enterprising firm does its own electrotyping, and prepares originals for lithographic and other methods of reproduction. Mr. Hamel, it was interesting to find, had acquired his knowledge both in America and England, and no doubt a large factor in the success of the business has been his personal interest and supervision of every department.

THE LIVERPOOL A.P.A.—If you want a receipt for that popular mystery known to the world as—a society programme, you cannot do better than take a look at the list of fixtures which the Liverpool Amateur Photographic Association annually produces in the height of summer, and even so early not a half-programme or containing that common fixture, "To be announced later." Instonian notions of how a society should be run do not admit of this kind of thing. And there are some evidences in the list of fixtures of Instonian pressure, applied gently, but, all the same, without compunction. The result is a most skilfully blended programme, various in parts, but every feature as good of its kind as one can get, or as they may describe it in Liverpool, "a champion." At any rate, the fascination

of travel with the camera is represented by lectures on Algeria, Ireland, China, Canada, Southern France, Holland, and Cornwall, besides which a number of prominent workers contribute a variety of papers of great interest. We congratulate Liverpool on leading the way as regards society organisation, which remark we hope all readers within practicable radius of 9, Eberle Street, will take as our suggestion that they cannot afford to be non-participants in the benefits of membership of the L.A.P.A.

1,000-TIMES ENLARGEMENTS.—The "Star" of last week drew attention to a fresh variety of the free or semi-free portrait trick, which emanates from a firm at Welsbach House, calling itself the Electrophot Company. To quote our contemporary:—"The Electrophot Company have quite a new idea. They advertise that they will make '1,000 lifelike portrait enlargements' of any photograph for 'a special sample price of 1s. 3d. each.'

"The advertisement guaranteed a correct likeness, because their 'powerful apparatus will bring out every feature of the original photo.' Only 1,000 of these art treasures could be produced; and if your application was No. 1,001 your money and your application would be returned.

"A Croydon correspondent who sent 1s. 3d. received what he calls a 'smudge,' accompanied by a delightful circular.

"This explained that:

"The costly apparatus employed in this process is sufficiently powerful to ENLARGE A PHOTO UP TO 1,000 TIMES ITS OWN SIZE. You can therefore appreciate the fact that the lens searches out the smallest details in the original; and, whilst PRODUCING AN ABSOLUTELY PERFECT PORTRAIT, it also necessarily brings into undue prominence any imperfections or defects existing in the photograph, such as spots, scratches, technical flaws, strong effects of light and shade, etc., etc.

"It follows, therefore, that the Picture can be vastly improved by the removal of imperfections, the toning-down of harsh shadows, and by the building-up of imperfect lights."

"All this could be done by hand, and 'a large staff of skilled artists constantly employed in portraiture' enabled the Electrophot Company to 'convert your enlargement into a highly finished life-like picture, mounted ready for framing at the small cost of only 3s. 9d.' (extra).

"In other words, the 'lifelike portrait enlargements' mentioned in the original advertisement which were to be supplied for 1s. 3d., were in the end to cost 5s.

"We are not surprised that this cool proposal is described in the circular as an 'unprecedented offer.' Unprecedented cheek would, however, be nearer the mark.

"It is curious that the circular our correspondent sends us bears a number numerically higher than 3,000, so that No. 1,001 must have long since been passed in the anxiety of the Electrophot Company to plant their fifteenpenny 'life-like' portraits on a confiding world at 5s. each.

"In fact, at that price, there is no apparent reason why the numbers should ever stop."

TECHNICAL AND SCIENTIFIC PHOTOGRAPHY AT BIRMINGHAM.—In the hope of creating increased interest in general photography, both among members of societies and unattached photographers, and desiring to extend the good work already carried on by the Warwickshire and other photographic surveys, and by the scientific sections of various photographic societies, the Birmingham Photographic Society have decided to enlarge the scope of the annual exhibition by adopting the scheme recently brought forward by Dr. Hall-Edwards. Special plaques and certificates will therefore be offered in the classes enumerated below at the exhibition of 1910. The classification is as follows:—Section 1.—Scientific Photography: (a) Natural history photographs, illustrating the life history of bird, animal, fish, or insect; (b) natural history photographs, illustrating life history of tree or plant; (c) general natural history photography; (d) geological photographs; (e) tele-photographs; (f) radiographs (X-rays, radium or other radio-active substances); (g) photo-micrographs—general; (h) photo-micrographs—dealing with structure of metals; (i) other scientific photographs (such as lightning, electric sparks, etc.); (j) photographs dealing with the detection of crime. Section 2.—Applied Photography: (a) Photographs illustrating camp life, naval or military manœuvres, etc., suitable for recruiting pur-

poses; (b) photographs illustrating life in factory or workshop (including dairy, brewery, electric-light station, tram depot, fire station, gas works, sewage farm, railway station); (c) photographs illustrating the various processes a manufactured article passes through; (d) photographs illustrating life in the streets; (e) photographs (instantaneous) illustrating any kind of sport; (f) photographs suitable for advertising. All exhibits in these sections will be judged chiefly from the scientific standpoint, by a competent staff of specialists. Prints, transparencies, or lantern slides will be accepted in any class. It is desirable that no set of photographs should occupy a greater wall space than 4 sq. ft., and that no single print should exceed whole-plate. Entry forms and all particulars will be sent in due course. All communications should be addressed to the Secretary, Exchange Buildings, New Street, Birmingham.

Correspondence.

** We do not undertake responsibility for the opinions expressed by our correspondents.

** Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

GLAZING THE STUDIO ROOF.

To the Editors.

Gentlemen,—I read with much interest your editorial note regarding the above, and as you mention the use of an imperishable putty, I cannot refrain from advising anyone who is troubled with a leaky roof to make use of Carson's Plastine putty, and also another article of theirs—Vitrolite paint. I feel sure that anyone using these two articles, and using them in the right way, will never have any more trouble through a leaky roof. By using in the right way—I mean first of all, if new work is being put in—and seeing that the sash bars are of well-seasoned stuff, and thoroughly dry before being well primed and given a coat—or a couple is so much the better—of Vitrolite, and, when this is well set, bedding the glass well into a well-pressed-in and liberal bed of the Plastine, care being taken to see that the glass goes well down, and, when set, carefully stripping off the back putty and stopping where needed. I am old-fashioned enough to advise a light top putty, and if this, when set is painted with Vitrolite, the paint being allowed to just lap over the putty on to the glass, then a thorough good job is the result.

The "Vitrolite" is an elastic paint, which, if put on to dry work will never flake off, or rub away, and the "Plastine" is a putty that never hardens or dries up like the ordinary article.

The reason for well priming and painting previous to glazing is to keep the wood from absorbing the ingredients that keep the putty always in a plastic condition. It is absolutely indispensable that the wood must be dry before painting and when glazing, or success cannot be expected.

I must apologise for the length of this communication, but the "B.J." has proved so helpful to me that I feel it but a pleasant duty to try, if possible, to help the JOURNAL and its many readers, by writing in terms of praise of what I know, and have proved to be two articles of particular service to the photographer.—Yours truly,

The Green, Feltham, Middlesex.

CHAS. WM. COLE.

MESSRS. LUMIÈRE'S DEVELOPMENT TRIALS.

To the Editors.

Gentlemen,—The elaborate trials of Messrs. Lumière and Seyewetz, given in the "B.J." of August 13, seem to me surprising not as regards the conclusions arrived at, but in the apparent neglect of the most important influence—that of time—in arranging the experiments.

The object of the trials seem to have been the means to be adopted in reducing or increasing contrasts. The experimenters seem to have ignored the well-known fact that with any given plate and any given developer, time of development is the factor which (within limits) settles the amount of contrast, and they do not in any way allude to this fact, or include time in the means they advise for modifying contrast.

They do not even appear to have adopted any uniform stand-

of time for their trials, but to have varied the time according to personal judgment at the time of the trial. The only information given on this point is that "the time of development in each case being sufficient for obtaining the maximum of detail in the shadows." If this personal judgment was exercised to merely secure full detail, irrespective of contrast, it is obvious that the trials merely express the well-known fact that the appearance of detail and the attainment of a given contrast has a widely varying ratio with different developers, or (in some cases) different compositions of the same developer.

But if, in any way, the desire to attain contrast was mixed up in the personal judgment which decided the time for each trial, it is difficult to say whether the conclusions arrived at are reliable.

Perhaps the best way to state my meaning is to say that Messrs. Lumière's conclusions are not applicable to those who develop by time methods (whether thermo-time method, or factorial-time method), but only to those who decide time of development in the same way that the experimenters have done.

The investigators have in one matter confirmed the conclusions of other experimenters, namely, "That all the developers examined, whatever their composition (with the exception only of those containing solvents of silver bromide), allow of development of faint impressions to the same degree."

Hereford,

August 14.

ALFRED WATKINS.

CARBON PHOTOGRAPHS.

To the Editors.

Gentlemen,—Photographers, at any rate, owe a debt of gratitude to Mr. S. G. Kimber, F.R.P.S., and the rather cheap sarcasms of "Q. S." in the "B.J." for August 13 will certainly not be echoed by them.

If the so-called photographers think that the public do not care one straw what a picture (?) is called, etc., then they might at least have the decency to call them something that will not harm photographers who believe the best policy is good work at good prices.—Faithfully yours,

The Esplanade Studio,

South Cliff, Scarborough.

W. FOSTER BRIGHAM.

August 17, 1909.

PHOTOGRAPHIC RECORD AND SURVEY OF SUSSEX.—An exhibition of photographs of places of interest and antiquity in various parts of Sussex is now open at the Brighton Fine Art Galleries, Church Street, Brighton, and remains open until Saturday week, August 28. The public are admitted free from 10 a.m. to 7 p.m. on week-days; 2.30 to 5 p.m. Sundays. The photographs, which are the property of the Photographic Record and Survey Association of Sussex, number about 600. The collection of photographs which the Association is making of local buildings and documents is of great value, being in many cases the only accurate record existent. It would be impossible to do more than mention a few of the photographs to be seen. A very fine set of photographs of the Pevensey Pageant of last year will be of general interest, and photographs of such places as East Maccalls, Balcombe Mill, the old "Sussex Pad" before it was burnt, Blockfields House, near East Grinstead, Horsham Manor House before restoration, Cowdray Ruins, Ditching Old House, Ewhurst Place, Rodmell Farm before restoration, Worth Church before restoration, to mention only a few, will undoubtedly attract much attention. There is a fine set of platinum photographs from drawings by Rowe in 1823-4 of various old Sussex churches, including Salehurst, Peasmarsh, Mountfield, Crowhurst, Hollington, Fairlight, Ewhurst, and several Hastings churches, a photograph of the old charter for a market at Cuckfield dated 1672, several sets of views of East Grinstead in 1864 and subsequently, and a fine collection of photographs of old Sussex fonts, brasses, sculptures, and specimens of ancient ecclesiastical architecture, including the Alfriston Clergy House, Sompting Church, Rogate Church during restoration, the very fine late Norman sculptures of the tower arch at Broadwater Church, the Saxon chancel arch at Bosham Church, and some fine examples of mural paintings at Trotton Church, Preston Old Church before the fire, Binsted Church, and at Fekes, Chid- dingly, also some fine examples of Sussex church towers.

Answers to Correspondents.

- *.* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- *.* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- *.* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
- *.* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

George Edward Clementson, Belmont, St. Anne's-on-Sea, Lancs. Photograph of Motor Car going on the North Promenade, St. Anne's-on-Sea, Lancs., containing Miss Marie Studholme.

Frank England, 23, Spring Street, Edgbaston, Birmingham. Photograph of Cycle Trade Arch, New Street, Birmingham.

Charles Edward Discow, 1A, Windmill Street, Gravesend. Two Photographs of the 1st Battalion Duke of Cornwall's Light Infantry.

Samuel Powell, 128, High Street, Rushden. Photograph of "The Tofte," Sharnbrook, taken by night.

DEVELOPING FILMS.—Could you oblige by saying the best method known for developing singly or on the stand principle the "leaf" films, postcard size? The usual stand developer holders do not suit them, and they are very troublesome to deal with one by one in the usual flat developing dishes. What do you recommend?
—J. B. G.

We should suggest the use of one of the film developing apparatuses. Personally, we find no trouble in developing in a dish. The chief drawback is the liability of the sharp corners of the films to cut into the emulsion on other films, but if the corners be rounded off by one snip of a curved nail scissors, no trouble will result from this cause.

H. LONGNEY.—We are sorry, but we are not able to identify the wrapper.

COMBINED BATH.—In using a combined toning and fixing bath I have always been in the habit of pouring the clear portion of the bath off for use, and occasionally throwing the sediment away. Do I do any harm to the bath in so doing? Any further information on this subject will be thankfully received.—L. A. F.

It is certainly right to use only the clear upper part of the solution for the prints. As regards the residue, it is possible that in some cases it may be of service to retain it, as it may check the bath from becoming too acid.

LENS FOR FLASHLIGHT.—I am in want of a lens for flashlight 15 x 12 groups, what focus would be best suited to this size plate for the work?—A. M.

It is best to use one of rather short focus on account of the depth usually required in interior work. We should select 10 to 12 inches.

J. S.—It may be due to a bath not fully matured. Do you let the toning bath stand for a few hours before using, or do you use hot water in making it up and employ it when cold? Traces of hypo in the wash-water used between fixing and toning will also give rise to this stain.

FREAK PHOTOGRAPH.—Will you be kind enough to inform me how the enclosed photograph was taken? If so, I shall be much obliged. In the first place, I saw an enlargement in bromide (15 x 12) of this, and then some smaller prints, but I did not notice much, if any, faking. If you feel by informing me it would be giving a secret away I do not wish for an explanation.—PUZZLED.

There is no secret in the matter. There are several ways of producing such pictures. One is to have a pair of flap shutters inside the camera, each covering half the plate within about the eighth of an inch; that is when both are closed there is about that

space between them. The first picture is exposed with one shutter closed. The figure then changes his position, the shutter of the exposed half closed, the other opened and the second exposure made. By having the space between the two shutters the one exposure is, as it were, vignetted into the other and does not show. You should get the little book by Richard Penlake on "Trick Photography," price 6d. It will give you other methods of producing "doubles."

GLYCIN TANK DEVELOPER.—Will you kindly inform me through the "B.J.," I want to use glycin developer for tank development, so please let me know its formula for quarter-plate, and the time to get good density at 65 degrees Fahr.—S. SHO (Tokyo, Japan).

Prepare a mixture or paste as follows:—

Boiling water	4 ozs.
Soda sulphite	2½ ozs.

When dissolved add:—

Glycin	1 oz.
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And then in small quantities

Potass carbonate	5 grs.
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This forms a thick cream, which must be well shaken and diluted with water in the proportion of about 1 oz. to 12 or 15 ozs. of water. This developer will require about ten to fifteen minutes to give good density on a gelatine plate.

ENLARGING, ETC.—1. What is the most satisfactory illuminant for an enlarging lantern where neither gas nor electric light are available. If acetylene, is the three or four burner preferable? 2. I got a bottle of bisulphite lye some time ago. A portion of the fluid has precipitated into a solid cylindrical mass at the bottom of the bottle. How can I liquefy it? By adding distilled water?—H. F.

We should place next to gas and electric light the spirit incandescent lamps, of which there are several on the market. The light is better than that of an ordinary incandescent burner, and though some patterns do not admit of being readily turned up and down quickly when in use, that objection does not apply to a lamp of this type which we reviewed in our issue of June 11 last, page 461. It is supplied by A. J. Garrad, Southampton House, Birkbeck Building, London, E.C. 2. We doubt if the addition of water will dissolve the deposit, since it can hardly be soda bisulphite which has crystallised out. We should be inclined to try the effect of small additions of sulphurous acid liquor, first breaking up the deposit and crushing it fine in a glass mortar.

BLOCKING OUT BACKGROUNDS.—Kindly favour me with instructions for blocking out backgrounds of photographs for enlargements, and where to obtain materials for same.—WM. JOHNS.

Simply apply black varnish with a camel-hair brush to the portions to be stopped out. Or, better still, "Photopake," as supplied by the Vanguard Company, of Maidenhead. It may be had from all dealers. We do not answer queries by post.

GLAZING POSTCARDS.—Having to glaze a large number of bromide postcards, I should be glad to know whether there is any easier and quicker method than by squeegeeing to glass, ferrotype, etc. Can the cards be passed through a burnisher, hot or cold, and will this give nearly as good a finish?—ENAMMO.

There is no better or quicker way than squeegeeing on glass or ferrotype plates. This is the plan followed even when large numbers are produced. If the cards are passed through a hot burnisher with heavy pressure, a good gloss will be obtained, but not equal to that got by squeegeeing on glass.

T. A. JACKSON.—From your description the lens you have is incomplete, hence the impossibility of getting a picture with it. The back lens of a portrait lens consist of two glasses with an air space between them. Evidently in yours the concavo-convex is missing. The front lens alone, with a $f/16$ stop, will make an excellent instrument for landscape work.

BROKEN NEGATIVE.—Last week I sent a negative, half-plate, to Messrs. — to have a dozen platinotype prints made from it. After four had been got off I had a letter from them to the effect that the negative had broken in the printing frame, and very much regretted the accident had occurred, but they

would copy one of the prints, complete the order, and send me the reproduced negative. Can I proceed against the firm for damages, as the negative was a valuable one to me and I could not retake it without making a journey to Scotland?—SCOTSMAN.

We think not; as it is a custom of the trade, and is generally stated on all price lists, that those executing orders will not be responsible for accidents, but every care would be taken with negatives entrusted to them. In most instances when negatives break in the printing it is due to the unevenness of the glass, and the printers are not responsible for that.

COPYRIGHT.—I have a very fine engraving of a picture proof shown in the Academy a few years ago, for which I gave four guineas. Would it be illegal for me to copy it for post-cards and lantern slides, seeing the price I paid for it? I do not see that what I propose doing will in any way interfere with the sale of other prints?—G. ROMER.

It would certainly be illegal, as there would, of course, be a copyright in the print. You say that what you propose to do will not interfere with the sale of the prints. We think differently. The publication of post-cards and lantern slides would certainly damage the sale of the prints by vulgarising it by making the thing common.

LENS FOR GROUP.—I have a 12 x 10 group to take next week. I can borrow a 12 x 10 camera, but there is no R.R. lens with it and I am unable to borrow one for that size. A friend tells me that the focal lens of my whole-plate portrait one, if well stopped down, will do the work. I find that the focus of the front combination, by itself, is about eighteen inches. The lens is by ——. Do you think this will do the work if stopped down to $f/8$, in a good light out of doors?—FRANK J.

The front lens of a good portrait lens, stopped down, will do very well for groups out of doors. At $f/8$ it will not give critical definition to the margin of the plate, but that is not of such very great importance after all. If the lens be stopped down to $f/11$ or $f/16$, the result will be little, if any, inferior than if it were done with a R.R. working at similar apertures.

STOLEN LENS.—I had a portrait lens stolen from my place a little while ago. I have just found out that it was pledged at a pawnbroker's for twenty shillings, though it bears the name of one of our leading London makers, and cost me nearly twenty pounds last year. I have seen the pawnbroker, and after explaining the matter to him he refused to give the lens up, although I offered to pay the amount he had lent on it. Will you please tell me the best way to act, as the losing of a £20 lens is a serious matter to one who is struggling to make a living?—A. B. C.

If you can find the thief and he is convicted, we believe the magistrate has the power of ordering the lens to be given up to you without charge. However, we should advise you to see the magistrate and explain the matter to him, and he will, no doubt, enable you to recover the lens for the sum advanced upon it, or a little more, as the pawnbroker should know that when only twenty shillings was asked on a lens bearing a well known maker's London name, and costing as many pounds, it was not come by honestly.

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SUMMARY.

Sulphide Toning.—Mr. Douglas Carnegie, as the outcome of a long series of experiments, has laid down certain rules to be followed in the practice of the sulphide process. The bleached print should be washed for a short time only. Freshly made sulphide solution stronger than 1 per cent. should be used. Hypo in the sulphide bath only affects the colour of the prints somewhat. (P. 664.)

The making of a trimming shape serving when large prints of various sizes have to be cut down accurately is the subject of an article on p. 663.

A modification of a recent novel method of exhibiting photographic portraits is suggested on p. 662.

Mr. H. Essenhigh Corke gives a description and illustration of a useful accessory designed by him and including in itself both a seat and a background. (P. 671.)

In selecting a diffusing screen for the arc lamp used in the studio advantage may be taken of the comparatively non-inflammable nature of engineers' tracing cloth. (P. 662.)

A note on the photographer's trade card appears on p. 662.

An editorial paragraph on p. 662 raises the question whether a lowered price is a really valuable means of drawing custom to the photographic studio.

In an article on p. 663 directions are given for the use of the carbon process in making decorative panels for insertion into articles of domestic furniture.

The plan of toning collodion prints first in the platinum bath and then in a gold combined toning and fixing bath has been recommended by a German worker. (P. 667.)

A further note on the use of thiomolybdate in the sepia toning of P.O.P. appears under "Correspondence" on p. 678.

A formula for preparing in powder form the acid diamidophenol developer is given and recommended by a French worker on p. 672.

We quote from an American contemporary the formulæ for using sulphur phosphate in the preparation of a printing paper. (P. 673.)

We hear from a German source of a daylight development process based on the use of a solution of potassium iodide as a desensitizer. (P. 661.)

The conclusion of the article describing the methods necessary in printing without light by the catatype method appears on p. 668.

A printing frame for colour photography figures among "Patents of the Week." (P. 676.)

EX CATHEDRA.

Iridescent Marks on Sulphide-toned Bromides.

A correspondent sends us a sepia-toned bromide print which, save in one respect, is a remarkably good specimen of its kind, vigorous, brilliant, and of good colour, but covered with iridescent markings, visible only when looking at the print at a certain angle. We cannot complain of any lack of information sent by our correspondent, but on the other hand the sequence of operations to which the print has been subjected increases the difficulty of laying the finger on the cause of the iridescence. The print, on "carbon-surface" bromide, was developed with acid diamidophenol, treated with "Hypono" to remove hypo, bleached in bichromate, salt and sulphuric acid, and finally toned in Edmund's thiomolybdate. We have never noticed such markings when using thiomolybdate under less complex conditions, and do not think the phenomenon can be due to it. Neither weak hydrochloric acid nor weak solution of potassium cyanide affects it, but a brisk rubbing over with an encaustic paste—we used the "Vanguard" Lustralene, which we had at hand—caused it to disappear almost immediately. We should be interested in hearing of other workers who may have noticed similar markings for which they have found a preventive or remedy.

* * *

Another Daylight Development Process.

According to a note in the current issue of the "Chemiker Zeitung," a process for the development of photographic plates in full daylight is about to be introduced upon the German market. It depends upon the use of a 4 per cent. solution of potassium iodide, into which the plate is laid (in the dark), and then at once removed into full daylight in order to watch the progress of development. The developer is one of metol and hydroquinone, made up with caustic potash and a somewhat heavy dose of bromide. Usually with processes of this kind, which are announced as about "to revolutionise photography," there are certain "ifs," and in the present instance we read that ample exposure must be given, that the developer must be mixed fresh for each plate, that the fixing solution must be frequently renewed, that a longer time must be allowed for fixing, and that the negatives obtained are of the thinner, softer character which call for a "hard" printing paper. We doubt whether the convenience of conducting part only of the dark-room operations in the open is advantageously bought on these terms. If such daylight manipulation is desired, we should expect to get better results by using a tank and developing by time than by venturing on a process of desensitising the film. The iodide solution is, however, said to have been patented, and to have been named "Aktinal." No doubt it does what is claimed for it, but we hope it will not share

the fate of other similar daylight developers which have been boomed for a month or two and have then been cast into the limbo of uncommercial schemes.

* * *

The Photographer's "Trade Card"

Just as in a play produced in London recently the hero's accession to enormous wealth in the third act is symbolised by his wearing knickerbockers, so much may be conveyed, or fail of conveyance, in the card which the photographer may have occasion to use away from his place of business. Apparently, many photographers are innocent of any ambition to be simply and severely correct in this respect, although there is a good deal to be said for the practice when dealing with people who understand these little conventions. The correct card, it is perhaps permissible to point out, is identical in size, shape, and style with the customary visiting-card, save that the name appears thereon without the prefix "Mr.," and the qualification "Photographer" is printed (or engraved on the plate) immediately below, in the same style. All kinds of departures from this style are to be found, but none can be imagined in better taste or more likely to create the impression desired among a "genteel" circle of people.

* * *

Screens for Studio Arcs.

One of the advantages of the completely enclosed arc lamp for portraiture, several patterns of which are now upon the market, is the absence of the chance of igniting the material employed as a diffusing screen. Thin silk or muslin, after being kept in the neighbourhood of an open arc, becomes so absolutely dry that the touch of a fragment of glowing carbon from the lamp is sufficient to set it in flame. It would appear not to be generally known that while engineers' tracing linen is one of the very best diffusing media, it is also the least inflammable material which can be advantageously employed for the purpose. Usually if a fragment of carbon happens to fall on a diffusing screen of tracing linen its only effect is to cause the latter to smoulder without any actual flame being produced. If fabrics are used in close proximity to an open arc lamp, or, rather, in a position where they are in danger from falling particles from the arc, one measure of prevention which ought to be taken is to soak them in a solution of alum or tungstate of soda, thereby rendering them highly non-inflammable. Arc lighting, even in quite small studios, is now recognised as being so valuable an aid to business that it deserves to have proper attention given to the necessary means of using it at full efficiency and with safety.

* * *

Does the Low Price Pull Orders?

The fact that after all is said and done a photographic portrait is a luxury does not seem to be kept before the photographer so prominently as one would imagine. It certainly deserves to be considered as a very large factor indeed when framing any inducement to the public to come and be photographed. Since it is essentially a luxury, and therefore a thing to be done without when money is short, one would not expect mere lowness of price to be a compelling power in attracting customers. We recollect not long ago having this view of the price question forced upon our notice by visiting an exhibition of arts and crafts whereat a photographer had taken a stall. Among the exhibits of his work appeared the announcement that, in the case of all visitors to the exhibition who came to his studio, he would make a reduction of 25 per cent. of his regular prices. In the absence of some convincing reason why he should choose to do this—and none

was put forward—we can hardly suppose that the difference between £1 and 15s. would induce persons to pay a visit to his establishment. To us this particular price inducement seemed meaningless, and we think, too, that in almost every case more is to be made by insisting on quality in such articles of luxury as photographs than on their cheapness.

* * *

The Enlargement of an Idea in Window Display.

The ingenious plan of illuminating prints both from the front and back adopted by the Platinotype Company at the Convention at Canterbury lends itself, as we suggested at the time, to window display of a novel kind. A variation of the same idea suggested to us by a correspondent may also be worth mentioning. In place of an actual paper print in the frame, a piece of semi-transparent paper may be inserted, and the picture projected from behind by means of an ordinary optical or enlarging lantern. The lantern itself is hidden by the back frame of the window, in which an aperture is cut corresponding in size with the internal dimensions of the picture-frame. The frame thus appears suspended in the usual way, but is shown to possess the peculiarity of enclosing a picture which changes every now and then. A suitable adjustment of the light in the lantern and of those used in the window itself should allow of the projected photograph presenting the appearance of the prints displayed in the ordinary way. We offer the idea for what it is worth to those who may care to spend some time but very little money in arranging an exhibit which would cause some curiosity among passers-by.

* * *

An Apprenticeship Question.

We are sometimes the recipient of letters asking us to decide disputes between master and apprentice, a duty which, it need hardly be said, we do not feel called upon to discharge. There are, however, certain customs which we believe are generally recognised, yet are frequently a bone of contention between those who have taken an apprentice and the latter's parents or guardians. Perhaps the chief of these, and one which is not infrequently referred to us, is as to whether the apprentice should be taught retouching. We think that if the indentures are drawn up according to the usual form, under which the master undertakes to teach his apprentice the "art, trade, or business of photography," there is not a doubt that retouching should be included in the instruction given, seeing that this branch of work is a very essential part of the portraiture business. Unless this, or any other, part of the ordinary business of the photographer is specifically mentioned as excepted from the knowledge which the master covenants to teach, it may be taken to be included in it nevertheless, our advice to parents is that they cause to be included in the terms of the indentures a list of the actual branches to be taught, obtaining advice in the matter from someone versed in photography. If this course were more generally followed, we should hear less of after-disputes.

* * *

The Non-Return of Specimens.

We hear less than we did of specimens being retained by persons or firms to whom they are submitted by those applying for situations. It will be remembered that we have on several occasions cautioned assistants against sending specimens to box numbers at our office, and no doubt the fact and Messrs. Greenwood and Co.'s refusal to insert requests for specimens in advertisements appearing under a box number have reduced the evil to small dimensions.

As in all other human affairs, there are two sides to the question, and we have had instances brought before us in which employers who had been accused of retaining specimens were doing so for want of marks on the photographs identifying them with the applicant. Some years ago we published some hints to applicants, one or two extracts from which we may with advantage repeat:—

1. Write clearly and to the point. Answer all the questions in the advertisement.
2. Enclose a stamped envelope for reply.
3. If enclosing a portrait of self, let the sender's name be upon it.
4. In sending specimens, let stamps for return invariably accompany them, with also a suitably addressed envelope for their return.
5. Let every specimen have its owner's name (and, preferably, address) written plainly upon some part of the picture or mount. If on the picture itself there is little danger of dishonest persons detaining them.

* * *

Defacing negatives wholesale. A question which sometimes arises in the practice of a professional photographer is the quickest method of treating a batch of negatives which may be passing out of his possession in such a way that no prints can afterwards be taken from them. Naturally such a course is advisable, in order that the photographer may feel assured that the negatives will never be used to the detriment of his sitters, and therefore of himself. It will be found that the scratching through each film with a blunt bradawl or similar tool is a slow procedure. A method which may be employed very rapidly and serves in the case of both varnished and unvarnished negatives is to give each negative a dab with a solution of aniline-violet dye in methylated spirit. The dye attaches itself firmly to the negative and permanently prevents any after-use being made of it. Although the law on this question is very vague, yet we think that every photographer who values his reputation should take some such means as this when getting rid of any number of old negatives.

UNIVERSAL TRIMMING SHAPE FOR LARGE PRINTS.

In a note on print trimming in our issue of August 20, we described one way of dealing with large prints when a big cutting shape is not available. It is, however, an easy matter to make a large cutting shape that will serve the same purpose more rapidly and with the same degree of accuracy. We select a sheet of fairly thick ground glass and cut it to a rectangle the size of the largest print that is to be dealt with. The cutting need not be very accurately done except in regard to one respect—one of the four angles must be a perfect right angle, while the edges meeting at this angle must be quite straight. The other edges and angles may be very irregular without in any way interfering with the use of the shape. The next proceeding is to rule parallel lines on the ground surface with a fairly hard blacklead pencil. One set must be ruled strictly parallel to one of the prepared edges, and then these lines must be crossed by another set ruled parallel to the other edge. The whole surface is thus divided up into squares, the size of which depends on the distance apart of the parallel lines. For a small shape for prints under whole-plate in size quarter-inch squares are most convenient, but for large prints half-inch or even inch squares will serve. A coat of varnish over the lines will fix the blacklead and render the ground glass sufficiently transparent for trimming purposes. In use we lay the shape down on the print, so that the square corner comes just where one corner of the print is intended to be,

and we square up the edges with the lines of the subject by the aid of the pencil lines. When properly arranged we trim two sides of the print along the prepared edges, and then turn the shape so that the right angle comes diagonally opposite its first position. Next we square up the boundaries of the print by arranging the shape so that the print edges previously cut are exactly parallel with the nearest pencil lines in the shape, and two more cuts then complete the trimming process, leaving us with a perfectly squared print. It should be noted that the accuracy of the result depends entirely on the truth of the right angle prepared in the shape. It is easier to produce one correct right angle than four of them, therefore the result produced with a shape prepared in the way described is likely to be more accurate than any that we can attain with the ordinary type of shape, in which all four sides are used as cutting edges. It is just as well to mark the one correct angle so that in use we may make no mistake in cutting along the wrong edges. The safest precaution perhaps is to cut in a wavy fashion the two edges that are not to be used.

CARBON PHOTOGRAPHS FOR DECORATIVE PURPOSES.

ONE of those old-time uses of photographic printing of which profitable use may often be made deserves to have occasional attention called to it—we refer in particular to the employment of the carbon type of photograph in the decoration of screens, panels, and other objects of the cabinet-maker's or wood-worker's craft. We are quite aware of the ease with which paper prints may be mounted on such surfaces and preserved by means of a coat of varnish, but we have now in mind the production of a much more handsome effect, namely, that in which the natural grain of the wood forms the ground of the photograph. For this purpose the carbon process stands alone in the ease and success with which it can be applied. Moreover, the pictures have the advantage that they are absolutely permanent, and, further, by the method to be given they can be dusted, washed, cleaned, and polished like ordinary furniture, without the least fear of injury, even after many years' service.

We will first say a word or two on the preparation of the panel which is to receive the picture. The wood chosen should be one of light colour, in which the grain or "figure" is not very pronounced. Some kinds of satin-wood, birch, pine, and American white-wood answer this requirement, and in each case the wood should be free from knots. The rough wood is first carefully planed up so that it shows no traces of the plane. It goes without saying that it should be well seasoned to begin with, otherwise there is a risk of its "casting" or warping after a time if subjected to great variations of temperature, or possibly during the manipulations. For this reason, also, the panel should not be too thin: what is known as half-inch "stuff," before it is planed up, is a suitable thickness, which will be about three-eighths of an inch when it is finished. The board or panel having been satisfactorily planed up, is next finely surfaced with glass-paper. A medium-grain paper, strained on a small piece of perfectly flat wood, should be used first, a finer one afterwards, then finishing off with a paper of the finest possible grade. The glass-paper should be used in one direction only—that of the grain of the wood, and never crosswise, as the fine scratches made that way are difficult to get rid of, and it is essential that none of any sort should be left. After glass-papering, the dust must be wiped off and the panel carefully examined. Any fine scratches which may

be visible must be worked out with the finest grade of glass-paper.

The surface having been satisfactorily obtained, the next thing is to fill up the pores of the wood. This is best done with insoluble gelatine similar to that used in the preparation of single transfer paper in the carbon process. A good formula is as under:—

Nelson's No. 1 gelatine	1 oz.
Water	25 oz.
Chrome alum (in 2 oz. water)	20 grs.

Both solutions should be warmed to about 180 deg. F. when they are mixed. The mixing should be done slowly, the alum solution being added a little at a time, with vigorous stirring. It should be applied hot with a soft hog-hair brush. If the wood is very porous, two, or even three, coatings may be necessary. When the coating is dry, it is well to go over the surface, as before, with the finest-grade glass-paper: this will get rid of any marks that may be formed by the brush, for it may be borne in mind that the only purpose of this coating is to fill up the pores of the wood, and nothing more. This coating, being colourless, does not hide the grain of the wood in the least.

The panel being prepared, the next thing is to make a carbon print in the usual way on flexible support. The colour of tissue should be one that will suit the tint of the wood. As a rule, cold blacks should not be selected; a warm black or dark purple is preferable in most instances. Red chalk or sepia is very suitable for some woods. With regard to the subjects best suited for this class of work, almost any will do; they may be portraits, landscapes, figure studies, etc. Subjects that will appeal to many are reproductions of paintings by old masters. Nothing special need be said about the printing, except that overprinting must certainly be avoided; in other words, the high-lights must be kept quite clear from tint. It must be kept in mind that the pictures are to appear on a basis that is not white, but more or less tinted according to the wood employed; hence it will be seen that any tinting on the highest lights must be detrimental to the picture.

A satisfactory image having been obtained on the flexible support, it is trimmed to the size and shape desired. This should be in accordance with that of the panel, leaving a suitable margin all round. This latter, however, should not be too wide, or it may to an extent overpower the picture itself. On this point a little judgment should be exercised in order to obtain the best effect. We have now to transfer the carbon print from its temporary support to the panel. To do this we require a solution of gelatine and chrome alum similar to that used for transferring the

carbon image to other rigid permanent supports. The following is a suitable preparation for our present purpose:—

Nelson's No. 1 gelatine	1 oz.
Water	20 oz.
Chrome alum (dissolved in 2 oz. water) ...	12 grs.

The temperature at the time of mixing should not be under 150deg. F. The mixing is done in the way directed for the solution for preparing the panel. The solution is then strained through a piece of "nainsook" or fine muslin into a dish warmed to about 140 to 150deg. F., and all air bubbles on the surface skimmed off with a strip of blotting paper. The panel and the picture are then put into the warm solution and allowed to soak for a couple of minutes or so. The two are then brought together, face to face, of course—taking care that no air bubbles become imprisoned between the two—and the print is arranged in its proper position on the panel. The two in contact are then gently withdrawn, squeegeed together, and placed in an upright position, that is, with regard to the grain of the wood, to dry spontaneously. Placed the other way there is the possibility of the panel losing its flatness. When the whole is perfectly dry, and not before, the temporary support is stripped off, when it will be found that the image is so firmly fixed to the wood as to seem part of it. Should any trace of the waxing compound of the flexible support be seen on the picture it may be cleaned off with a pledget of cotton wool moistened with benzole.

In its present state the image is analogous to one on paper, and is equally as liable to suffer from abrasion, and as a consequence, it would be of little use for our present purpose. It is therefore varnished either with mastic varnish, such as is used for painting, or with pale copal varnish. The latter is preferable, as it is best suited to wood, is more durable, and bears more rough usage than does the mastic. It is applied with a soft hog-hair varnish brush. Two coatings of the varnish may be given to enhance the brilliancy of the surface—the second after the first has become thoroughly dry and hard. French polishing, however, is preferable to varnishing, as it gives the picture a more refined appearance. For our present purpose white polish should be used. This is made with bleached lac in place of the ordinary button or orange lac. It may be obtained of any of the large polish and varnish manufacturers. If the photographer is not *au fait* with french polishing, he had better hand over this part of the work to a professional polisher, supplying him with the polish, because, as a rule, french polishers have little or no use for white polish. It need not be said that these photographs can be coloured either with oil or water colours before they are polished or varnished, as these operations will not disturb the colouring in either case.

THE CHEMISTRY OF SULPHIDE TONING.

The frequent failure of the sulphide toning process is a subject of such perennial correspondence and inquiry that an examination into the nature of the degraded tones so often obtained, together with a quantitative investigation of the deterioration of sulphide solutions, seemed to be desirable.

The Sulphuretted Solution and the Bleach.

The sodium sulphide used in this investigation was the colourless crystalline variety of commerce. The crystals proved on analysis to be the hydrate $\text{Na}_2\text{S}\cdot 9\text{H}_2\text{O}$ with 2.4 per cent. of adhering water of deliquescence. The solution used was obtained by dissolving 10 grammes (roughly weighed) of these crystals in one litre of water. On titration with decinormal iodine, the solution so prepared was found to contain exactly

.3 per cent. of anhydrous Na_2S . This is rather a dilute solution, but the dilution was purposeful, the decomposition of strong solutions being so exceedingly slow. It follows from the results of the above-mentioned titration that some $33\frac{1}{2}$ grammes of the crystalline sulphide must be dissolved in a litre of water to furnish a true 1 per cent. solution of Na_2S , and my experiences lead me to advise that nothing very much more dilute than a true 1 per cent. solution of Na_2S should be used in practice.

The bleaching solution used had the following composition—

Potass. ferricyanide	34.8 gms.
Ammonium bromide	10.8 gms.
Water	1,000 ccs.

I have before pointed out that the recipe for the bleach given

in the "B.J. Almanac" contains more bromide than is necessary for the reaction involved, and that this superfluity of bromide is not only prodigal, but dangerous. For the sub-bromide of silver constituting the material of the bleached image is soluble in ammonium bromide, and any excess thereof is apt on occasions of prolonged bleaching to discharge delicate detail from the picture. The above specified bleaching solution, if kept in a well-stoppered bottle in the dark, may be used over and over again to complete exhaustion. It has been said that the solution deteriorates on frequent use by the development in it of potassium cyanide as a decomposition product. I can find no support for such a statement. A bleaching solution which has been in repeated use since last September did not contain a trace of cyanide, and, moreover, gave tones indistinguishable from those given by a freshly made up solution. In testing the bleach for cyanide, it was acidulated with tartaric acid, the acidified solution extracted with ether, the ethereal solution extracted with caustic soda solution, and this latter solution tested for cyanide by means of the Prussian blue reaction. No Prussian blue was formed, although it was formed in a control experiment conducted concurrently in which a trace of cyanide was purposely added to the bleach.

And here I may mention a matter of some importance in the practice of sulphide toning that seems hitherto to have been overlooked. It has reference to the duration of the washing after bleaching. There appears to be a prevalent idea that, in general, washing cannot be overdone. This is by no means always true. Long washing after bleaching leads, at any rate when weak sulphuretted solutions are in vogue, to poor tones. Indeed, so degrading an effect on the final tone has a protracted washing after bleaching that a great number of comparative toning trials made before I recognised the deteriorating effects of long washing had to be repeated, the time of washing being kept constant, and not protracted at that. Excellent warm tones are, in fact, obtained when the merely rinsed bleached print is plunged directly into the sulphide bath. The only objection to such procedure is that the sulphide solution must be thrown away after use. Several other instances might be adduced of the heresy that washing is universally a virtuous operation which cannot be over-indulged in to detriment. Attention has recently been drawn in these columns to the injurious effects of protracted washing in the chromium intensification process. I, and probably others, have noted the same baneful influence in the case of mercurial intensification, and hundreds of the lantern slides of my salad days came to untimely ends in the lantern—the pock-marked victims of supererogatory ablutions.

It is to be noted that the injurious effects of long washing are in evidence only when using dilute sulphuretted solutions whose sulphide content has fallen to about $\frac{1}{4}$ per cent. If the 1 per cent. solutions of sulphide are employed, the duration of the wash has no influence on the tone finally obtained. If only dilute (e.g., .04 per cent.) solutions of sulphide are in use, then, again, the duration of the washing is immaterial, for with these extremely attenuated solutions the tones are in any case poor.

This peculiar and unexpected result (viz., that the duration of the wash following bleaching is of importance only in the case of sulphide solutions of intermediate strengths) was confirmed by repeated trials. Since a short washing is never injurious, and since under certain conditions a long washing is injurious, the recommendation to habitually curtail the washing should be acted on both on the score of economy in time and of certainty of satisfactory issue.

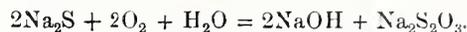
Throughout the investigation comparative toning tests were made on machine-printed bromides of the same subject. These prints were of such uniformity as to render comparisons unequivocal. For an unlimited supply of these prints I must ex-

press my indebtedness to Messrs. Butcher, Curnow, and Co., of Blackheath.

The Products of Decomposition of Dilute Sulphide Solutions.

The possible products of decomposition of sodium sulphide solutions are sodium salts of thiosulphuric and the thionic acids, caustic soda, sulphur, and polysulphides of sodium.

In solutions of sodium sulphide kept bottled in the dark and of such concentrations as this investigation concerns itself with, the equation of decomposition would seem to be a very simple one. The only decomposition products formed under these conditions are sodium thiosulphate ("hypo") and caustic soda. The decomposition is quantitatively expressed in the equation



A certain proportion of the caustic soda resulting from this primary reaction is, however, transformed into sodium carbonate by the carbon dioxide in the air. When decomposition is complete there is no residue insoluble in acids, as would be the case if free sulphur were formed; nor is the solution at any phase of its decomposition coloured greenish-yellow, as would be the case if polysulphides of sodium were formed.

A full account of the analytical details and the calculations founded thereon which established the above equation of decomposition would be out of place in the pages of a photographic journal. Let it suffice here merely to state, broadly and comfortably, the scheme of analysis adopted. The combined amounts of undecomposed sulphide and of hypo present at any time was determined by acidifying a measured volume of the solution with acetic acid and titrating with deci-normal iodine solution. The sulphide was removed from another measured volume of the solution by shaking vigorously with repeated additions of bright copper turnings till the filtrate showed no change of colour with lead hydroxide dissolved in soda—by far the most delicate of all the tests for the presence of soluble sulphide. A measured volume of the sulphide-free filtrate thus obtained was titrated with acid; the result gave the Na_2O present as NaOH , Na_2CO_3 and Na_2S . Another measured portion of the sulphide-free filtrate was boiled with barium chloride solution, made up to a definite volume, and the precipitate of barium carbonate allowed to settle. An aliquot portion of the supernatant clear liquid titrated with standard acid gave the alkali present as caustic soda and sodium sulphide, so that this titration taken in conjunction with the results of the previous acid titration permitted of the calculation of the alkali present as carbonate. The neutral solution thus obtained was titrated with deci-normal iodine, so as to arrive at the amount of hypo present. Seeing that the amount of hypo and sodium sulphide was furnished by the first iodine titration, the amount of sulphide still remaining undecomposed as well as the caustic soda resulting from the sulphide decomposed could be found by subtraction.

It is quite clear that if the decomposition proceeds in accordance with the equation given, then the disappearance of every two molecular weights in grammes of sodium sulphide (156 grammes) must involve the appearance of one molecular weight in grammes of hypo (158 grammes) and two molecular weights in grammes of alkali, reckoned as caustic soda (80 grammes). This relationship or proportionality was established by the analyses just outlined.

Analyses of solutions of sulphide which had been exposed to bright light or had been aerated (see *post*) showed, as would naturally be anticipated, a defalcation in the amount of hypo demanded by the equation—the hypo itself having suffered a decomposition due to the insolation or aeration. Furthermore, in the insolated and aerated solutions magnesium sulphate gives no precipitate till the solution is boiled, thus proving that in these cases the alkali is no longer present in

the form of caustic soda and the normal carbonate, but in the form of sodium bicarbonate.

The Rate of Decomposition of Sulphide Solutions Under Varied Conditions.

A .3 per cent. sulphide solution was divided into three portions. One portion, A, contained in an uncovered glass cylinder was exposed out of doors during a run of exceptionally bright sunny weather. Another portion, B, which was protected from light, had air aspirated through it by a filter pump. The third portion, C, was kept in a bottle—thickly swathed in brown paper—in a cupboard. Toning tests of the three portions were made daily, and analyses of the solutions were made when the results of the toning tests seemed to demand them.

When 15 days old the tones given by A showed manifest signs of degradation, the warm purplish sepia of normal sulphide toning giving place to a cold sepia very similar in hue to the pigment made from beech-wood and known to water colourists as "bistre." A day later the bistre tones gave place to raw yellow browns. At this stage the solution contained .047 per cent. sodium sulphide and .158 per cent. hypo. When 18 days old A ceased to tone altogether; the substance of the bleached image was first dissolved out of the gelatine by the hypo now present to the extent of .174 per cent., and then thrown down as a reddish brown precipitate by the remaining traces of still undecomposed sulphide, which amounted to .016 per cent. A faint indication of the original picture, however, still remained on the paper, and there is little doubt but that this residual image is none other than the so-called residual image of primary development. It is identical in strength and appearance with the image which remains when the silver of primary development is dissolved from an untuned bromide print by persulphate, also with the image which survives when a bleached bromide print is treated with hypo.

The aerated solution B began to show manifest signs of its deterioration on the 11th day; the tones given from the 11th to the 14th day being bistre instead of a warm purplish sepia. On the 15th day, when the solution contained .016 per cent. sulphide and .1 per cent. hypo, there was a partial solution of the bleached image, and the final tone was khaki coloured in the shadows and dirty yellow in the high-lights. On the 16th day the last trace of sulphide had disappeared and the bleached image dissolved away in the hypo (now present to the extent of .11 per cent.), leaving only the residual image of development.

The bottled solution C retained good toning power for weeks after the solution A and B had completely decomposed.

It would appear then from these observations, as I think would generally be anticipated, that both aeration and exposure to light greatly accelerate the rate of decomposition of sulphide solutions; aeration, however, being a more powerful accelerator than insolation. Another set of observations proved that the instability of sulphide solutions increases with the temperature. The solution A, as we have seen, took 18 days to decompose; another solution of slightly greater concentration and exposed during a run of much hotter weather had completely decomposed in 8 days.

It will be convenient and conducive to brevity, if we here make a classification of the successive phases of tonal degradation as follows:—

- (1) The bistre phase—the toned image becoming progressively colder and rawer.
- (2) The ochreous phase—the image getting progressively lighter and often showing metallic glance in the shadows.
- (3) The phase of incipient solution of the bleached image with re-precipitation in the sulphuretting solution, a faint yellow image remaining in the gelatine.
- (4) The phase of complete solution of the bleached image, leaving only the residual image of development in the gelatine.

The question now presented itself:—Is the ratio hypo : sulphide, necessary to bring about any specified one of the phases, constant; or is the ratio a function of the particular concentration of the sulphide solution used?

A long series of experiments, involving sulphide solutions all concentrations from 2.5 per cent. to .05 per cent., prove that the ratio is not constant but rises in value with the strength of the sulphide. A few illustrative instances are quoted at random from my notes. The ratio hypo : sulphide which must be reached to bring on phase (1) is about 8 : 5 for 1.5 per cent. sulphide, but only 2 : 5 for 1 per cent. sulphide. Again, the ratio for phase (3) was 8 : 1 in the case of a 1 per cent. sulphide solution, and only 4 : 1 for a solution of .05 per cent. concentration. With the 2.5 per cent. sulphide, phase (3) was never realised, although the ratio hypo-sulphide was made very large. In all these experiments hypo of known strength was added freshly prepared sulphide solutions—the mixtures, of course simulating stale sulphide solutions.

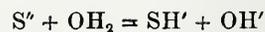
A very curious, and to me inscrutable, fact was noticed when working with the 2.5 per cent. sulphide solution. Such a solution (which, be it said, is far too concentrated for general use in toning) gives poor brown tones, not to mention blisters. The curious fact is that the addition of hypo to such strong sulphide solutions up to a certain limit, instead of degrading the tone, improves it, rendering it warmer and more purple. The limit of betterment is reached when the ratio hypo : sulphide is about 1 : 1½; if this limit be exceeded there is progressive but slow degradation. Though the observation has no significance for the practice of sulphide-toning, yet it seems desirable to put on record a case where contamination with that *bête noire* of the dark-room, hypo, is found to be not only not baneful but positively beneficent.

Attempted Explanation of the Vagaries of Sulphide-Toning.

The fact that such different sulphuretting agents as sodium sulphide, sodium sulphhydrate, and sulphuretted hydrogen furnish identity of tone under comparable conditions at once suggests the application of the theory of ionic dissociation to the problem. There is, too, another very important fact that challenges attention in this connection—the fact that very dilute solutions of sodium sulphide, even when quite fresh and therefore hypo-free, give cold bistre tones in strong contrast with the warm sepias of normal toning.

If a bleached print is placed in, say, a .002 per cent. sulphide solution it tones very slowly to a light brown. Toning in such a dilute solution may demand hours instead of seconds for completion, and a large volume of solution may be used to ensure that the absolute quantity of sulphide present is more than sufficient to sulphurise the bleached image. Furthermore, and this is a most important point, the tone of a print so obtained is not improved by subsequently treating it with a strong sulphide solution—indeed, it is not changed in the slightest degree by such treatment.

Sodium sulphide in solution dissociates into Na⁺ and S²⁻ ions. But the S²⁻ ions interact with water producing SH⁻ and OH⁻ ions, thus



so that solutions of sodium sulphide (as also sodium sulphhydrate and sulphuretted hydrogen) present us with complex equilibria implicating in all three cases the ions of Na, S, SH, and OH. Though the S²⁻ ions are probably present only in very small quantity, yet the characteristic reactions of the substance named, used in solutions of ordinary laboratory strength, are due entirely to the S²⁻ ions. For immediately any S²⁻ ions are removed from the equilibrium by the chemical change in progress, the SH⁻ and OH⁻ interact to produce a fresh supply. May we not plausibly assume that in very dilute solutions of sulphide the stable SH⁻ ions alone persist—practically all the

stable S'' ions having been hydrolysed? In accordance with this assumption we would attribute to the action of S'' ions the purplish sepia tones given by fresh sulphide solutions of moderate concentration, while the colder brown tones given by very dilute solutions would be attributable to the interaction of the H' ion with the bleached image, the compound formed being unstable as to resist any subsequent change from the S'' ions when placed in stronger sulphide solutions.

The rôle played by the hypo of decomposition in stale sulphide solutions would seem to be somewhat as follows.

When present in relatively small proportions the hypo influences the ionic equilibrium system in such a way as to diminish the concentration of the S'' ions relatively to that of the SH' ions—thus producing tones indistinguishable from those obtained by the use of very dilute but uncontaminated sulphide. As the proportion of hypo to sulphide increases, a race ensues between two rival reactions. In virtue of its concentration the hypo now diffuses into the gelatine film more quickly than the sulphide; the bleached image is dissolved by the hypo before the S'' or SH' ions have had time to reach and directly attack

By the time the S'' and SH' ions have penetrated the film they find the film occupied, not by a solid sub-bromide of silver, but by a solution of $Na Ag S_2 O_3$, and its ions Na^+ , $Ag S_2 O_3'$. The product of the interaction of the S'' and SH' ions with the complex ion $Ag S_2 O_3'$ in the presence of a colloid such as gelatine is a colloidal solution, which stains the gelatine yellow. Hence the so-called ochreous phase. If, *in vitro*, dilute sulphide ($\frac{1}{8}$ per cent.) be added to a solution of silver bromide in hypo—the hypo : sulphide ratio being adjusted to about 7 : 1—a yellow solution is first formed, but this soon becomes colourless, depositing a brown precipitate. If, however, gelatine is present, the yellow solution is permanent.

When, owing to prolonged decomposition, the proportion of hypo present rises still higher, it diffuses into the film, dissolves the bromide of silver and the solution of $Na Ag S_2 O_3$ diffuses out again before the attenuated sulphide has had time to come into action. When the sulphide does react it is with the $Ag S_2 O_3$, which has emerged from the film; away from the restraining influence of the gelatine it is precipitated by the sulphide as a reddish brown precipitate, which appears, as it were, to effloresce up out of the image if the dish is kept steady. It is at once disseminated through the liquid when the dish is shaken, or the surface of the print wiped with cotton wool. The only remnant in the gelatine of the original image is now the faint residual image of primary development.

There is one other peculiarity of the toning produced by stale

sulphide that deserves mention. It consists in the fact that the degradation of tone is very generally confined to the heavier shadows while the high-lights still continue to tone normally. This double-toning can, I believe, be attributed to purely physical causes involving relative rates of diffusion and the relative velocities of the two reactions between the bleached image and the sulphide on the one hand and the bleached image and the hypo on the other. If we may be permitted to assume that the hypo diffuses more rapidly than the sulphide, and that the velocity of the sulphide reaction is greater than that of the hypo reaction, then double-toning of just such a character as is in evidence must result.

Summary of Results Affecting Practice.

1. The bleaching solution—which should be kept low in bromide—can be used to exhaustion without affecting tonal values.
2. The wash after bleaching should be of short duration.
3. The sulphide solution should not have a much lower concentration than 1 per cent. anhydrous sulphide. (About 33 grammes of the hydrated crystals per litre of water will give an approximately 1 per cent. solution.) Though the decomposition of solutions of this strength is very slow when they are kept well corked and in darkness, yet if absolute constancy of tone is essential it is necessary to use freshly made solution.
5. The presence of hypo in the bleaching bath (the limiting amount depending on the percentage of sodium sulphide present) is, of course, fatal. A considerable amount of hypo may be present in the sulphuretting bath, with either no effect at all on the resulting tone, or no more disastrous effect than the production of cold brown tones in the place of warm purplish sepia ones.
6. The polysulphides of sodium (made by boiling sodium sulphide solution with sulphur) give colder tones than the monosulphide, and the solutions deteriorate very rapidly. Yellow "sulphide of ammonium," so-called, also gives colder tones than sulphide of sodium.
7. There seems to be no satisfactory method of bettering a sulphide-toning failure by any process of re-bleaching and re-sulphuretting. The only procedure with a failure is ruthlessly to scrap it, and begin *de novo* using a freshly made sulphide solution.
8. For bringing out blocked up detail in the heavy shadows of toned prints I have met with no better specific than "lustraline." It is advisable to heat the print before a gas fire after waxing it.

DOUGLAS CARNEGIE.

A SIMPLIFIED METHOD OF TONING C.C. PRINTS WITH GOLD AND PLATINUM.

[In the following article, which appears in a recent issue of "Photographische Rundschau," the writer recommends the use of first a platinum toning bath, followed by brief gold toning in a combined bath. It is claimed for this form of gold-platinum toning that the gold bath may be used repeatedly, whilst the process is quite equal to the usual method as regards giving fine prints of black tone.]

In making prints of black tone on matt collodion paper it is necessary after the first thorough washing to tone in a bath of gold and borax, then in a platinum bath, and, finally, after a series of further washings to fix the prints in a bath of hypo. This combined gold and platinum toning is a necessity, since the gold bath alone will give only bluish tones, whilst platinum alone gives only prints of brownish colour. A pure black tone in any case is largely dependent upon the skill of the operator. The two baths must each be allowed to act for a given time, and too long immersion of the prints in the gold bath will lead to a cold tone, whilst too short an immersion has the opposite effect.

Although the combined gold and platinum toning is universally used by professional photographers, amateurs almost entirely neglect it, the cause no doubt being the somewhat difficult manipulation and the fact that the gold bath must be specially prepared, and is, therefore, not suitable for treating only a few prints at a time.

Platinum- followed by Gold-toning.

In a recent number of the "Wiener Mitteilungen," 1909, p. 73, there is a note by Alois Ulrich recommending the use of a platinum toning bath with self-toning collodion paper. But the writer there records his experience that this method does not

lead to any new variety of tone, whilst it does not simplify or facilitate the production of familiar tones. Attention may, therefore, be asked for the following description of a method in which the prints after the preliminary washing are toned first in a platinum bath, then washed, and then gold-toned in a bath of the combined type. In order to obtain a pure black tone the ordinary combined bath should not be used. Although in the case of many a short immersion in the bath will give a very good tone, this latter, on longer immersion, will often pass into a disagreeable tone of bluish-grey. If the prints are removed immediately after the desired tone has been reached, it frequently happens that they require to be placed in a fixing bath, since immersion in the toning bath has not been long enough to complete also this part of the process. If, however, a separate toning has to be employed the advantage of the process compared with the usual one ceases to be appreciable, since it consists only in the fact that the combined bath possesses better keeping properties than that made up with borax.

A Slow-toning Combined Bath.

In compounding the combined toning and fixing bath it is necessary to ensure comparative slow toning, and at the same time to exclude the possibility of any sulphur toning taking place. As the present writer has previously ascertained by a considerable number of trials that the well-known gold fixing salts of the Bayer Co. give rise to no sulphur toning whatever, or, at any rate, to an amount quite inappreciable, and as he has further found that prints toned in the Bayer combined bath have proved highly permanent, this brand of toning bath was used for the gold toning now used in the method described. The contents of a small carton of the Bayer toning and fixing salt (50 gms.) were mixed with 50 gms. of hypo, and the mixture dissolved in 750 ccs. of water. In this bath the prints which had been platinum toned underwent gold toning sufficiently slowly to allow of their being thoroughly fixed as well as toned. The whole process, therefore, may be set forth in the following operations:—

1. The collodion prints are made a little deeper than usual. The degree of over-printing varies with the different brands,

but is soon found with some little practice. The film side of the paper should never be touched with the fingers, since the least impression will show as a marking on the print.

2. The prints are placed separately, film side down, in a dish containing pure water. From this they are taken out separately and placed in a second dish of water, and changed over and over in this way for at least six times within eight to ten minutes.

3. After well washing in this way they are transferred to the platinum toning bath composed as follows:—

Potass chloroplatinite	1 gm.
Phosphoric acid	10 gm.
Water, distilled	1,000 ccs.

Here they are kept in movement until they have reached dark brown colour, only perfectly clean glass or porcelain dishes being used in the process.

4. After removal from the platinum bath the prints are again well washed by the method already described under 2, at least five changes being given.

5. The prints are now placed in the combined gold toning and fixing bath, made up as follows:—

Gold toning and fixing salt, Bayer	50 gms.
Hypo	50 gms.
Water	750 ccs.

In this bath they remain for at least eight minutes, during which time they attain a pure black tone.

6. The prints are given a washing of at least one hour, changing over into clean water at least ten times, or they are placed in running water to wash for a couple of hours.

The pure black tone depends chiefly on the time of use of the platinum and combined bath, and the exact point at which to remove prints is soon learnt. It is advisable to adhere to a given brand of paper, since commercial varieties of collodion paper differ somewhat in their properties. Compared with the customary method of toning with gold and platinum, the process has the advantage that one bath less is necessary, and that the gold solution does not need to be thrown away as soon as it has been used.

DR. G. HAUBERRISSER.

PROCESSES OF CATATYPE PRINTING.

II.

[Although little is heard of the commercial development of the catatype process invented some eight years ago by Professor Ostwald and Dr. O. Gros, there is still evidence that these methods of preparing prints from negatives without exposure to light are engaging attention from experimenters, and, therefore, the very useful review of catatype methods, written by Dr. E. Stenger in the work recently published by Knapp, entitled "Moderne Photographische Kopierverfahren," may be translated in an abridged form as showing the principle of the method and the difficulties encountered in bringing it to the commercial stage.—Eds. "B.J."]

In preparing prints by the manganese process the active agent is the invisible image consisting of "Perisol" in the paper of the negative. This positive image of hydrogen peroxide formed by treatment of the negative is transferred to the specially prepared "manganese" positive paper manufactured by the N.P.G. This paper is laid film to film in a printing frame with the paper negative, and pressed for one or two minutes between a glass plate and the back of the frame. The positive paper is then given an immersion in a bath of special preparation, the image appearing at once. The developer in this case is the hydrogen peroxide, which has diffused into the positive paper and has converted the soluble manganese salt into a soluble compound of a higher degree of oxidation. This body is precipitated as a brown manganese picture. The paper is then freed as rapidly and uniformly as possible from the manganese solution.

If the time of contact between the negative and positive paper

has been correct, the development will be finished within a minute. During development it is well to go over the paper with a tuft of cotton wool in order to remove particles of dust and airbells. Dr. Gros, in his English patent of June 22, 1898 (Eder's "Jahrbuch," 1905, page 453), gave the following solution as suitable for the development of manganese catatype prints:—

Manganese sulphite solution, 25 per cent.	1 part
Ammonium chloride, saturated solution	3 parts
Ammonia, concentrated	1 part

The prepared salt, made up by the N.P.G., and requiring only the addition of ammonia, proves better in practice than that prepared as above. Development is continued until sufficient vigour is obtained, and the print is then transferred to a clearing bath, where it remains until the reddish-brown color has become completely yellowish-brown. The clearing solution instantly checks development. It is made by addition of 6

ces. strong acetic acid to 1,000 ces. of water. The print is when well gone over with cotton wool under a stream of water, washed for a short time and dried. If the tone is thought to be not satisfactory, a toning process can be applied.

Reducing the Activity of the Platinum Negative.

So far the preparation of manganese prints has been described as following an almost automatic process, but it frequently happens that the platinised negative will not immediately give a satisfactory print, but requires a certain amount of restraint or better "gradation" in its manipulation. In other words, the catalysing power of the platinum may be so great that it must be reduced, otherwise the prints obtained will be of excessively hard character. This excess of activity in the platinum image may be diminished by means of suitable substances, a mixture of which is prepared by the N.P.G. as a so-called "gradating" bath. The decomposition of the hydrogen peroxide in the negative film then takes place more slowly, so that time is given for undecomposed "Perisol" to transfer itself from the negative to the positive. At the same time the scale of the gradation is prolonged; in other words, a softer print is produced. The special preparation is intended for negatives of extra vigour. For soft negatives the "gradating" solution is mixed with an equal bulk of 50 per cent. alcohol. Not only the character of the negative, but also the kind of print required must be taken into consideration in using the "gradating" mixture. If in development the print appears in weak outline it is necessary to employ the undiluted "gradator." If the print, however, appears too hard the solution is diluted as above directed with alcohol. In this bath the platinum negative remains until it is seen, by holding it up to the light, that the solution has completely penetrated it. It is then hung up to dry without rinsing or pressing out the liquid. The dry negative then supplies prints of the desired character, it being necessary, as a rule, to keep it in contact with the printing paper for from one to two minutes.

Variations of the Manganese Process.

As already stated, the result of this process of treatment with manganese salt and ammonia is to give an image consisting of manganèse peroxidé, but this does not end the possibility of the process, since manganese peroxide is a substance which gives rise to a series of different colours, and has on this account received the name of "mineral chameleon." This arises from the fact that manganese peroxide can behave both as a weak acid and as a weak base. It would lead us too far to detail the different chemical processes which can be based on this property, but among the most important is that in which salts of cobalt are used. The range of colours obtained by treating the manganese image with cobalt compound is the subject of a patent (Eder's "Jahrbuch," 1907, p. 525). The cobalt preparation is put up in carton and tablet form, and allows of black, greenish-black, brown, photographic purple, and other tints, such as red, green, blue, and violet being obtained. In this, as in all catatype processes, the greatest cleanliness is necessary, and in dealing with the manganese prints a thorough toning action is necessary. The desired colour having been obtained, the prints are rinsed, cleared in an alum bath (in which the high-lights lose their yellowish colour) and are finally again washed and dried. As the colours obtained by the cobalt process are sensitive to acids and alkalis, the finished prints require on this account to be treated with more than ordinary care. This point requires to be kept specially in mind in mounting the prints, since an acid mountant will affect the film; they are best attached by the dry mounting process. The manganese bath on being allowed to stand some time in the air forms a kind of skin on its surface. This can be re-

moved with a bit of tissue paper. The deposit which settles on the inside of the dish is easily removed by a weak solution of oxalic acid.

Pigment Prints by the Catatype Process.

So far we have dealt with the making of prints on the catatype principle using a manganese salt. We must now turn to the variation of the process in which a pigment print is obtained. The making of this variety of a catatype print is a much simpler operation. There are no toning processes, and comparing catatype pigment with the ordinary carbon process the advantage as regards readiness of manipulation lies with the catatype. There is no printing in the light, no sensitising with the bichromate bath, and all the operations may be done in full daylight. Also the process has the flexibility which is necessary in dealing with negatives of widely different character. In this connection it should be said that in the catatype pigment process the print is softer (not harder, as in the manganese process), the longer the time of contact. This arises from the quite different action of the peroxide. In the film of the manganese print the longer the time of contact the less the amount of "Perisol" which remains over, and gives the precipitate of manganese peroxide in the developing bath. In the case of the pigment paper the action of the hydrogen peroxide is to harden the gelatine, the peroxide diffusing from the negative into the positive. As the result of a short time of contact the peroxide passes over chiefly from the portions of the negative most fully impregnated with "Perisol"—therefore, hard prints—whilst with longer contact parts of the negative containing lesser proportions of "Perisol" also give out the peroxide and a softer print of full detail is the result.

The film of the catatype paper consists of gelatine, colouring matter, and a substance which, under the influence of the hydrogen peroxide becomes so altered that it acts as a hardening agent on the gelatine. It behaves in this way in proportion to the amount of "Perisol" contained in the pigment film, the action being exactly similar to that caused by light on gelatine containing potassium bichromate. Thus it will be seen that the "Perisol" not affected by the catalytic action of the negative transfers itself as a positive print into the pigment paper, there forming an image in hardened gelatine. This it does owing to its action upon a metallic salt (*e.g.*, a salt of cobalt) contained in the gelatine film. The pigment is held fast by the hardened gelatine, so that pigment treatment with warm water gives rise to a print just as in the ordinary carbon process.

Making a Catatype Carbon Print.

In working the process the catatype original (the platinised negative) is treated evenly with a small proportion of "Perisol," and after it has dried is laid film to film in the printing frame with a piece of catatype pigment paper and the two put under pressure for about two minutes. The pigment paper is then placed in cold water, and air bubbles removed by a soft sponge; after a few minutes it will be seen that the gelatine film has swollen up into relief. The remaining part of the process is exactly as practised by carbon printers. The print is squeezed under water to transfer paper, left under pressure for three to five minutes, and then developed in water at 95 to 105 deg. F., although, if necessary, development may be done at 86 deg. F. or as high as 110 deg. F. Obviously this process gives rise to a print which is reversed as regards right and left. If a print is required correct in this respect a double transfer method is used, the print being allowed to dry before the second transfer.

Precautions in Using Catatype Materials.

Some concluding remarks must be given of one or two features of the catatype pigment process. It goes without saying that the paper must be protected from vapour of hydrogen peroxide

as well as from ammonia. The air of a workroom containing vapours of peroxide will act injuriously upon unused paper, whilst "Perisol" remaining undecomposed in the different prints will also affect the unused paper. A patent has been taken out by the N.P.G. (Eder's "Jahrbuch," 1907, p. 524), under which paper, etc., is protected from vapour of "Perisol" by a wrapping impregnated with a solution of potass permanganate and soda. A further hint is not to allow the catatype pigment paper to become absolutely dry, otherwise the absorption of the "Perisol" is obstructed. Paper which has been allowed to dry should be moistened before use by being allowed to remain for an instant exposed to steam in order that it may take up a little moisture without becoming tacky. Storage for a short time in a damp place or between sheets of moist filter-paper may also be used. It is advisable to keep pigment tissue wrapped in oiled paper or stored in a metal case in order to prevent it becoming dry. Under proper conditions the paper will keep in a fit state for use for months.

Want of strength in a print which has been given an ample time of contact shows that the pigment paper was too dry, and that the "Perisol" could not penetrate it in sufficient quantity. If, on the other hand, the print is lacking in strength and at the same time tends to hardness, it is probable that the negative contained too little "Perisol," in which case a further

application is necessary, the negative and print should be brought immediately into contact and a longer pressure given. If the negative contains an over-dose of hydrogen peroxide the print will be too strong, and it will be difficult to develop the pigment film. In this case a longer time of contact will give softer prints. Prints with a certain amount of veil over them are the result of placing in contact too soon by giving too short a contact. In such cases one should wait for one to ten minutes, and give an equal time under pressure. The occasions on which the use of a "gradating" bath on the platinum negative are necessary are about the same as in making the manganese prints.

It may be not uninteresting to note that the N.P.G. have devised a different method for the making of pigment prints on the catatype principle. According to a patent of 1903 (Eder's "Jahrbuch," 1906, p. 552), a pigment print is taken from a catalysed negative and the catalysing substance incorporated in it. Starting from this positive transparency a negative pigment print is developed and the gelatine of the print then saturated with silver nitrate, a brief surface rinsing given, and the silver then reduced to the metallic state with a developer, thus giving a catatype original. Other metallic salts may in a similar manner be prepared in the gelatine film for catatype processes.

DR. E. STENGER.

MISCONCEPTIONS CONCERNING "MAGNIFIERS"

THE single supplementary lenses commonly known as "magnifiers" are not so much employed as, from their undoubted utility, they deserve to be. This is partly due to their properties and advantages not being well understood, and perhaps also because they are often expected to perform impossibilities, and are discarded when they fail, without fair inquiry into the cause of failure. As there are many fallacies and popular misconceptions on this subject, an attempt to clear the air from some of these may not be without its value.

It is difficult to explain why a positive supplementary lens should be called a magnifier, for it certainly does not enlarge the image given by the camera lens, but, on the contrary, reduces it. Probably the name was originally given from the fact that a single convex lens when held in front of any object acts as a simple microscope, or magnifying glass. This, of course, has nothing whatever to do with the photographic use of such a lens, where it acts in quite a different way. Curiously enough, the negative supplementary lens, which might justly claim a right to the name of magnifier, is seldom so designated.

There has been a good deal of very vague explanation as to the actual effect produced by a positive supplementary lens when placed in front of a photographic objective. We recollect reading recently the statement that a magnifier practically lengthens the camera extension, so that near objects which could not otherwise be brought into focus, either through lack of the necessary extension or the camera being a fixed-focus one, may successfully be photographed. There is great saving virtue in the adverb "practically," but even when this is allowed full force the foregoing explanation is radically wrong. A convex supplementary lens reduces the focus of any objective to which it is added, and, of course, correspondingly shortens the extension necessary for the work in hand. The extent to which the focal length is shortened may readily be calculated by the well-

known formula:— $\frac{f_1 \times f_2}{f_1 + f_2 - s}$, in which f_1 and f_2 = the respective focal lengths of the objective and the supplementary lens, and s = the separation. By separation is understood the distance between the optical centres of the two lenses, not,

as is often apparently imagined, the distance between the outer adjacent surfaces. This being so, absolute contact between the lenses is in most cases impossible. As an example of the use of the above formula, two lenses of the same focus—say 8 in.—will, ignoring the separation, yield a combination of 4 in. focus, thus:—

$$\frac{8 \times 8}{8 + 8} = \frac{64}{16} = 4$$

It is an extraordinary but, nevertheless, common fallacy that a supplementary lens used for copying will necessarily include the whole of the copy in the negative, provided the size of the copy does not exceed that of the plate. It almost needs an apology to mention so elementary a misconception, but it is a fact that many workers have expressed chagrin and wonder when a newly purchased "copying magnifier" has failed in this respect; or when, although giving the entire copy, has not fully covered the negative. Fortunately, there is a useful and not generally known coincidence, that will serve greatly to simplify comprehension of the law on which depends the size of image given by a supplementary lens. If the camera lens is set to its principal focus, the supplementary lens being in contact and at its own principal focus from the object copy, then the size of the image may be calculated by dividing the focal length of one lens into the other. Thus, suppose we have a camera with a 12 in. lens, and a supplementary lens of 6 in. focus. If the camera lens is set to its principal focus (12 in.) and the copy is 6 in. distant from the supplementary lens, then the image will be $\frac{12}{6}$, = twice the linear size of the

copy. Or, if we were to use a 6 in. lens in the camera, and a 12 in. supplementary lens, thus reversing the previous state of affairs, the ratio between object and image would still be the same, but a reduction instead of an enlargement would result. Strictly speaking, the foregoing figures are not quite correct in practice, since they ignore the separation; but, if the lenses are placed as close together as possible, the result is not much affected.

The reason for this coincidence is that when two lenses are co-

lined in contact, one being at its principal focus from the plate, and the other at its principal focus from the object, the image and object are respectively at conjugate foci of the combined lens; and these conjugate foci are such as to give an enlargement or reduction in the same ratio as that which exists between the focal lengths of the two separate lenses. For example, take an objective of 15in. focus, and a supplementary lens of 5in. focus. These in combination produce a lens of $3\frac{3}{4}$ in. focus. Now, as any table of enlargements will show, 15in. and 5in. are the conjugate foci necessary for a three-times enlargement or reduction with a lens of $3\frac{3}{4}$ in. focus. If, therefore, the plate is at the principal focus (15in.) from the camera lens, and the object or copy is at the principal focus (5in.) from the supplementary lens, it is evident that a negative three times the size of the copy will be secured, or somewhat smaller when separation is allowed for. In some cases a slight focal adjustment may be necessary.

There would seem to be some strangely chaotic reasoning as regards the exposure required with a positive supplementary lens. It has been stated that practically no difference is made by using the latter, but that the same time should be given as if it were not being employed. This advice must be received with caution, for, obviously, if the focal length of the lens is shortened, while the aperture remains unaltered, the f values will be automatically reduced—*i.e.*, the lens becomes more rapid. In all exposure calculations, the rapidity of the lens should first be considered, any allowance for stopping-down or for abnormal extension, as in copying or enlarging, being made afterwards.

A convex supplementary lens is often of great assistance for temporary wide-angle purposes. This is worth while remem-

bering by any worker who finds himself in pressing need of a wide-angle objective when far from home. The nearest optician or spectacle-maker will be able to supply a suitable glass, which, if no better means of attachment is available, may be secured in front of the camera lens by sealing-wax or strips of gummed paper. For more permanent use, a cardboard, leather, or metal cap to fit on the lens hood, and having a circular hole in the centre against which the supplementary lens is glued, may be employed. If closer contact is desired, the hood may be removed, if this is possible, and the cap made to fit the lens tube.

So far, we have spoken only of the positive supplementary lens. The negative or concave variety will now be briefly alluded to. This lengthens the focus of the camera lens, and gives an image on a larger scale. The alteration in focus with a given negative lens may be estimated by the formula previously quoted, but care must be taken not to omit the *minus* and *plus* signs in making the calculation, or very misleading figures will be obtained. The multiplication, addition, and division of mixed *minus* and *plus* quantities is different from the ordinary arithmetical procedure that suffices when dealing only with positive lenses, and the worker who feels doubtful of his knowledge in this respect should consult the first chapters of a simple primer on algebra.

It is desirable that a supplementary lens should be achromatic. Although uncorrected glasses of the spectacle type are capable of very fair work, if the alteration of focus is not extreme, and attention is paid to stopping-down, they cannot be expected to give such good results as corrected lenses. The latter are not unduly expensive, and an assortment of different foci, both positive and negative, is an invaluable addition to the photographer's outfit.

A. LOCKETT.

BACKGROUND AND SEAT IN ONE—A USEFUL ACCESSORY FOR THE STUDIO.

Most professionals who cater for a good-class clientèle have by this time banished from their studios the many distinctly property articles, such as stone walls, balustrades, and stone steps leading to nowhere, and have replaced these with more modern studio furniture, of such a character as would usually be found in their clients' own homes. This outcast of all papier-maché accessories and introduction in its place of good solid furniture, such as oak chairs and chests, combined with a wonderful change in backgrounds from the old-fashioned conservatory, generally well stocked with ornamental palms and artistically (?) draped curtains, is perhaps the most pronounced change which has taken place in the better-class studios during the past few years. Certainly the advantage thus gained does tell upon the increase of business, and also upon the increase of better-class styles and prices which the alert worker can obtain, but at the same time it all costs money, and a good number of those who would like to introduce new styles and new accessories from time to time are often detained from so doing because of the necessary outlay. And even those who do manage to find the spare cash to purchase new accessories feel at times that they are getting more or less into a groove in their style. They have just a few stock poses suitable for various clients, and know that such and such a chair or table will be the best suited for such a subject, while another chair or table will suit the same client in a different position. To the man who is really trying to improve his work this state of things is rather depressing, and try as he may he finds often that it is really impossible for him to make fresh-looking poses, etc. Give him a new chair

or table quite a different shape to the ones he has already got, and he will at once find he has scope for several with the new accessory.

True, although the furniture seems always the same to the photographer, yet in most cases it is quite new to one's clients, and it is improbable they will ever be photographed in the same pose and with the same accessory again, because every live worker will naturally avoid purposely using that chair or table upon a given client the second time, but will select some position enabling him to use a different accessory. And in some cases even it is desirable to knowingly use it for a friend of the first client, who when arranging the sitting particularly states, "I liked the portrait you made of Miss So-and-so in that old armchair" (or whatever it may be), "and would like mine similar to that."

However, a change is good at times, and I know one or two workers who make a practice of periodically exchanging accessories and backgrounds, and in cases where each worker is about upon the same standpoint as far as the class of work goes, and also when they are far enough apart as not to clash with each other in competition, this is a really excellent plan to adopt. Another professional of my acquaintance has an arrangement with the local furniture man whereby by a small yearly payment he may borrow for periods of a month or so several different pieces of furniture, and change them at stated intervals. In return for this privilege, he displays a neat notice in his dressing-rooms to the effect that his "studio furniture is supplied by Mr. So-and-so," similar to the printed line seen upon theatre programmes.

In cases where it is impossible to do this, the worker must use his ingenuity as best he can to prevent his work looking



“sameish.” The window-seat shown in the illustration is an accessory which I have made in my own studio recently, and

have found exceptionally useful, as it forms at once an accessory and a background, besides at the same time improving the appearance of the room itself and adding to the appearance of the studio more the look of a comfortable room than a rather barn-like place. It has the advantage of being easily made and costing very little money, and also it can soon be cleared altogether when I am tired of it. The side of my studio is composed of the quite ordinary long sash-bars, glazed with ground glass, as the outlook is ungainly; but in cases where the outlook is pleasant, plain glass, through which the background (which will be out of focus) will show, would be better still. The indication of foliage in my case was an afterthought, and obtained by painting upon the outside of the glass.

To make the old leaded-light effect several sheets of brown paper were cut into narrow strips and carefully pasted upon the glass, and although this is getting dangerously close to the old style of pure imitation, yet it looks so real with the strong light behind it that never once have I heard a client pass any remark upon the fraud. The window-ledge will then have to be built up, and unless one is a practical carpenter it is best to place this part in the hands of a good carpenter to do; and often the photographer may know a man who will be pleased to do this in his spare time. It consists of plain deal wood, afterwards painted a pale cream colour, as does also the upright piece in my case, which was necessary to hide the pulley-ropes of my backgrounds, which fix to the wall just behind them. The total cost of my fitting was about 15s., and I am sure it has more than paid for itself over and over again during the past few months.

Some very pretty effects of lighting can be obtained with this accessory, but as the average client wishes for a likeness as well as an artistic portrait, it is advisable to open the blinds in the studio, and allow a good deal of light to fall upon the shadow side of the sitter. In working thus against the light it is advisable to use backed plates and give a generous exposure. In conclusion, I am sure that if photographers seriously look around their own studios they will find that several little things like this could be made, and when made they will prove a very real advantage.

H. ESSENHIGH CORKE, F.R.P.S.

DIAMIDOPHENOL DEVELOPER FOR LANTERN-SLIDES AND CLOUD NEGATIVES.

[To the current issue of the “Photo Revue” M. G. Underberg contributes a further note on the use of the acid diamidophenol developer according to the formulæ already given in two recent issues of the “B.J.” The author adds a formula for the developer when a powder is to be made up for preparation of the developer merely by addition of water.—Eds. “B.J.”]

ACID diamidophenol is without a rival as a developer of transparencies, owing to the beautifully soft results given by it, and to the fact that the image is formed through the thickness of the emulsion film, not on the surface only. This property of the developer is particularly valuable in making stereoscopic transparencies, the “snowy” effect often seen in these latter being avoided. Using the two-dish method already described, the results obtained are characterised by both softness and brilliancy.

Acid Diamidophenol for Cloud Negatives.

A branch of work on which many questions are often put is that of cloud photography, or, rather, of securing clouds and landscape on the one plate. The chief difficulty lies in the over-exposure which the sky receives, the clouds being buried in density and failing to put in an appearance in the print. The remedy is in the use of a yellow screen or a sky-shade, in conjunction with a developer which does not choke up the dense parts of the negative. In this respect no developer is better than acid diamidophenol, for even when a high degree of density results the deposit is very transparent, and moreover, owing to the flexibility of the developer any degree of softness may be obtained and hardness avoided by sufficient immer-

sion in the B solution. Since the present seems a convenient occasion, a word may be said on the practical means to be taken when using light-filters in obtaining clouds and landscape on the one plate. If the sky is cloudy, but somewhat feebly lighted, a dull sky, it is well to use a Monpillard screen of aesculine* which does not prolong the time of exposure. This screen serves the purpose of cutting off the ultra-violet rays, which form the chief proportion of the direct light from the sky. In the case of a somewhat brighter sky, a yellow 2-times screen will suffice. Lastly, for very bright skies (white clouds) a special screen is used, composed of thin yellow films, such as that contained in the boxes of the Chromo-Isolar plates. A bit of this film is cut in the shape of a semi-circular section, the straight side (diameter) of the complete circle being cut saw-tooth fashion and fixed to the lens so as to shield that part of the plate on which the image of the sky falls. Usually the sky will occupy two-thirds of the whole plate. Means for holding this portable screen in position can be easily extemporised. The sky thus receives much less exposure than the landscape. It may be said that the sharpness of the outlines will suffer owing to the interposi-

* Messrs. Wratten supply aesculine screens.—Eds. “B.J.”

tion of the film screen, but even though this is the case in some instances, there is actually no objection to it in the case of the clouds, as the only result is to enhance their vaporous and airy appearance.

A Dry Diamidophenol Developer.

We know that metabisulphite of soda can replace the bisulphite liquor in the acid diamidophenol developer. Although the bisulphite is preferable, the metabisulphite may be useful, for example, in preparing a dry powder mixture for use on tour.

The following is the normal formula for a preparation to be dissolved in 1,000 ccs. (35 ozs.) of water:—

Soda sulphite anhydrous.....	1 oz.	30 gms.
Diamidophenol	80 grs.	5 gms.
Soda metabisulphite cryst.....	1 1/2 ozs,	50 gms.
Potass bromide	45 grs.	3 gms.

These substances are pounded together with mortar and pestle until a fine powder is produced, and the mixture is stored in well-closed tubes. It is, in the writer's experience, the best dry developer to be found.
G. UNDERBERG.

A MODIFIED PHOSPHATE-LAC PROCESS.

[In a recent issue of our Philadelphia contemporary, the "Bulletin of Photography," are given details of a modification in the process in which silver phosphate held in suspension in shellac was employed. The addition of gelatine is recommended for obtaining prints of richer tone and greater delicacy.—Eds. "B.J."]

Most of the old silver printing processes have been superseded and are now worked only by a few experiment-loving amateurs. Of these long forgotten worthies of the youth of photography, the most distinguished is Taylor's white-lac process.

The process is based on reactions which differ toto caelo from those in common use. In the original method the two following stock solutions were made up:—

1.	Water	10 ozs.
	Borax	180 grs.
	White-lac	360 grs.
2.	Water	10 ozs.
	Phosphate of soda	180 grs.
	White-lac	220 grs.

The lac is finely pulverised and then well shaken up in a flask containing pure water to remove any easily soluble substances in the lac. It is then filtered and dissolved in the given quantity of water, which is placed in an enamelled iron kettle and slightly warmed. The lac is then introduced and the water kept at the boiling point for two hours, replacing the portion lost by evaporation.

The mixture is then allowed to settle, and the clear portion is decanted into the filter.

The borax and the phosphate are dissolved before the lac is introduced.

The two stock solutions are used alone or mixed, according to the tone desired and the strength of the negative. A mixture of five parts of the borax solution to three parts of the phosphate seems to give the best results.

Plain paper is immersed for twenty seconds in this mixture, and hung up to dry. It is then sensitised by floating from three to four minutes, on a forty to fifty grain silver bath, and when dry, again immersed in the lac solution.

Paper prepared in this way will keep good for a long time and the prints will need no preliminary washing; and a good tone, ranging

from a dark purplish-brown to a beautiful sepia, may be obtained without the use of the toning bath.

The prints should be printed deep, and are placed without washing in a 1 to 10 solution of sulphocyanide of ammonium, in which they are allowed to remain five minutes, when they are transferred to a 1 to 4 hyposulphite of soda solution, and fixed. The usual washing for elimination of the hypo follows as a matter of course.

Prints on paper prepared with the phosphate solution alone, or with a large proportion of this salt, will strike a good tone without the sulphocyanide bath.

The appearance of the prints will be greatly improved by varnishing the backs with a 10 per cent. alcoholic solution of white-lac, which softens the image and increases its resemblance to sepia work.

The above is a description of the original process. The modification consists in adding gelatine to each of the stock solutions, and the use of a salting bath of chloride of ammonium and lactate of magnesium. One hundred grains of swelled gelatine are dissolved in each of the stock solutions, and the paper is immersed as before. When dry, it is immersed or floated for two minutes on the following solution:—

Chloride of ammonium	10 grs.
Lactate of magnesium	10 grs.
Water	1 oz.

and when dried sensitised on a sixty grain silver bath, and treated as before.

Paper prepared according to the modification gives prints of a richer tone and greater delicacy than the original method, owing to the presence of gelatine. The use of the salting bath is not indispensable.

For large prints either the original or the modified process gives wonderful results of great artistic merit, far surpassing prints on albumenised paper.

Air bubbles must be removed from the paper while in the solution, and the silver bath should be filtered each time it is used.

AT THE MAKING OF A "FAKE" CINEMATOGRAPH FILM.

[Under the title of "Hunting African Lions in the City of Chicago," "The Chicago Tribune" prints the description of a day alleged to have been spent with a firm of cinematograph film producers at the time of their preparing the negatives for a series of pictures, representing Mr. Roosevelt shooting lions in Mombassa. While the public is content to accept the artificial for the real, the issue of a film such as this cannot, we suppose, be penalised as fraud, but in the interests of the cinematograph trade as a whole it is to be hoped that such fake films will meet with no encouragement from the public.—Eds. "B.J."]

How to shoot a lion in the jungle near Mombassa, Africa, without going any further than Western Avenue and Irving Boulevard.

First—Get your lion. Almost any old sort of lion will do so long as he has four legs, a waving tail, and a fierce expression.

Second—Make your jungle out of 5 cent bamboo fishing poles, artificial palms, and several weeks' work on the part of stage carpenters and scenic artists.

Third—Engage a gang of native beaters from South State Street, including one giant with magnificent torso development, who looks good in the near-altogether.

Turn your lion loose in your encaged jungle. prod him in the ribs with poles and other annoying things, and then—

Let him have it with three polyscope cameras, a .305 high-power rifle, and develop your films and sell them around the country to moving picture exhibitors for a total of something like \$15,000.

That's the way to shoot a lion in the wilds of Africa on Western Avenue, according to the theory and practice of the Selig Polyscope Company, who put Roosevelt through his Smithsonian Institution stunt long before the doughty ex-President ever filled a rifle magazine on African ground.

They didn't call him Roosevelt. Professional courtesy prevailed, and the nearest they came to it was to label the baggage unloaded at Mombassa with the significant letters, "T. R." But it was Teddy, all right. Look at the photographs, note the flashing teeth, the "dee-lighted" expression, the strenuous life postures, and see if you don't recognise Theodore, or the nearest thing to him that can be materialised in Chicago at the present date.

It all happened one bright April day in the big enclosed yard on the wild prairies on the north-west side. It was a queer place to go to kill a lion. You take the North-Western L part of the way, and then change to a street car—but there are advantages to this sort of hunting. In the first place, you can get back home in time for a home-cooked dinner, you don't have to get seasick making the trip, and the nearest thing to a jungle fly that fell to the lot of the intrepid Nimrods was a specimen of the common house variety, that rode on the lion's back when they put him into the ca—native jungle.

But don't fancy for a minute that even lion hunting, à la moving picture plant, is free from danger. On the contrary, it is just about as exciting a proposition as ever came off anywhere. Each and every man, woman, and child who took part in the hunt is willing to testify to this fact, and two moving picture men and one certain newspaper photographer swear to this day they owe their lives to the fact that in an emergency they can make Sig. Dorando look like a hitching-post for speed in a sprint. This proves the truth of the old adage, "Once a lion, always a lion," even in a moving picture.

Eight-thirty a.m. saw the hunting party assembled at the time-clock, whence the start for the jungle was begun. It took some time to cross the Atlantic—the big yard—and it was well on toward noon when "the American party" arrived at "Mombassa." The coming of the famous party was heralded by several dozens of shivering coloured persons, who scurried up the landing stage—right in the eye of the camera—bearing on their glistening backs the famous baggage marked "T. R." A large, white person in the khaki uniform and pith helmet that all good African huntsmen wear, superintended the movements of the dusky crew, and then—

There was a kneeling and bowing on the part of the black population, and, lo and behold, the celebrated American party—teeth, glasses, Kermit, and all, hove into focus. Even if he hadn't worn the teeth or glasses you would have known him by the energy in his movements. He stepped around like a man living up to a strenuous reputation. He chased the coloured gen'men to their respective duties, shook hands, smiled, and posed with a speed that taxed the cameras to capture. It was Teddy, sure enough, and every time he got out of the scene he took the world-famous teeth out of his mouth and said:

"Whew! These things are hard to wear. It must be fierce to have 'em growing on you."

"Roosevelt leaves for the jungle," called the producer. There was a hurrying and scurrying of horses. The party was mounted, and, to the tune of native African cheers and frantic gestures of delight on the part of the assembled populace, the party rode out of view, Roosevelt waving his rifle above his head to show what was going to happen to poor Leo when he met him face to face.

The scene shifted. It was the jungle now—a cage about sixty feet long by twenty wide, with the best jungle scenery to be purchased or manufactured in the city. A fine spring breeze agitated the bamboo and palms, and no one could be blamed for feeling like a real hunter when he faced the scene with a rifle in his hand. It was real enough to satisfy everybody, even unto the critical producer, who insisted on getting the last touch of atmosphere into every scene.

"You've got to have the real colour in a moving picture show as well as in a stage production," said he. "We come as near to doing the real thing here as it can be done. Get ready for the hunt!"

From the vantage point of the camera men, who stood on a platform erected twelve feet above the ground, in order to be above the bars that formed the side of the cage, one could make out the jungle king as, slowly and suspiciously, he trod his way out of the wheeled cage and slipped through the gate into his native atmosphere. The gate was shut behind him, and he was trapped.

He didn't like it at all. Being a regular lion, he gazed around at the African foliage waving about him and shivered. Never had he seen anything like this. The jungle frightened him. He felt lost, and yearned for the comforting bars he had known since his happy child-

hood days, and he began the wildest sort of a race through the intricate jungle paths. Looking for some nice, safe cage where he could lie down in peace and comfort.

From the camera platform it was the most realistic thing in the world. King Leo first picked out a path that led straight towards the film operators. His head rocked from side to side, and his tail waved in a way that made even an inexperienced lion killer apprehensive. Right in front of the picture men he changed his mind, decided to forego an attempt at leaping the bars, and drove back into the brush that hid him from view.

But he had left his track in the soft earth of the path. His doom was sealed from the moment he took that little stroll. Only a few seconds elapsed before there came creeping out upon his trail the chief of the native hunters, the great African tracker, who had come all the way from his south side home to see that the hunt was well supplied with the proper colour. On all fours, his sharp eyes scanning the ground, the tracker crept forward. At the sight of Leo's broad tracks he stopped, bent close to the ground, then leapt straight up in the air and waved frantically to the rest of the party.

They came forward on the run, Teddy, Kermit, and the great English hunter whose guests they were. The great man got down to examine the tracks, made sure it was a lion, then he, too, waved his arms in frantic delight. His teeth gleamed some more, and native tracker and ex-President shook hands, and Teddy said, right out loud, "Dee-lighted!"

The hunt was on in real earnest now. The white members of the party retired for the nonce, and to the fore came a crew of native beaters, stripped to the waist, and armed with everything that might be expected to scare a lion out into an open spot, where Teddy might have a chance to bring him down.

The beaters disappeared, and again King Leo held the centre of the stage. He was getting excited now. Animal instinct told him that he was being followed, and possibly he had read the "Jungle News" and knew that Theodore the Mighty was on his trail. At all events, his movements became wilder and more natural.

Who knows—perhaps poor old King Leo knew that while the hunt was artificial in some respects, for him it was going to end like the real thing? Who knows but that his animal instinct told him he was to be butchered to make a moving picture film? Who knows but Leo saw his finish?

Certainly, he could have been no wilder under any circumstances. He was raving now. His body dropped close to the ground, like a cat stalking his prey, and he eyed the human beings in sight with the malevolent gaze of an animal picking out the choicest morsel in a herd. Nearer and nearer drew the beaters, and wilder and wilder grew the lion, until at last he dashed back into the jungle like a flash of tawny light, and hid himself in the impenetrable tangle of brush.

From here he would not stir. The shouts of the beaters were of no avail. Leo clung to his cover. There was but one thing to do. Desperate action was needed. Roosevelt must dash into the jungle and beard the lion where he lived.

Everybody took a long breath and braced himself for the shock. The crucial moment was at hand. Hitherto it had been something like play; now it was getting to be the real thing. The camera men up on their lofty platform looked down and estimated their chances in a sudden leap for life. The producer bit his upper lip.

"Are you ready?" he called.

"Ready," replied everybody concerned.

There was a puff of smoke and the sharp crack of a rifle back in the jungle. The next instant there was a roar, such as no lion ever turned loose in a cage, and Leo, his lower jaw broken by the bullet that went too low, burst out into the open, straight for the men on the high platform.

The vertical bars that enclosed the jungle were twelve feet high. Twelve feet is a good healthy leap even for a wounded lion, but Leo went into the air as if he was going to clear it with something to spare. Then it was that the two Polyscope men, Tom Nash and Charley Turner, and the staff photographer, broke the world's amateur record for high jumping and quick sprints. They took one last, lingering look at Leo's gleaming jaws. Then they jumped. Recovering their footing, they sprinted, Nash in the lead, Turner a good second, and the staff photographer working his short legs like pistons to bring up a fair third.

Back in the jungle Leo hit the bars about eight feet from the ground, fell back, and retreated, bleeding, to the jungle.

The camera men went back to their positions. Again the stage smoke puffed in the jungle, again the real rifle spat out its smokeless charge. No bungle this time. There were two shots. One hit Leo in the right eye, the other went an inch above. Leo never stirred. He was killed as dead as anything that Teddy ever brought down in real life. Down on the home-made jungle ground he sank at full length, and then and there he passed from the world of moving pictures into that happy hunting ground of wild animals, where hunters do not exist, or, if they do, it is the animals who have the guns.

"Get him!" cried the huntsman, by this time worked up to a state of real excitement.

The big native tracker, always on the job, burst through the underbrush and found the slain monarch. Again he raised his war-club, and again the party came hurrying up. The great English hunter took the lion by the tail and dragged him out into the open. Then came Teddy, his teeth gleaming as they never gleamed since the charge at San Juan Hill, his neckcloth fairly dancing with excitement, his whole appearance shouting the triumph of the successful hunter.

They picked Leo up and looked him over. They counted the bullet holes and shook each other by the hands, Teddy and the black tracker almost falling over themselves in their mutual joy. Then everybody did a war dance around the corpse, and Kermit wound up the scene by scaring the wits out of the "natives" with his camera.

But the realism didn't cease here. They tied the game to a long pole and carried him back to camp. Here he was hung up and skinned. It was night now, in the jungle, and the glow of the camp fire reflected from the dark bodies and from Teddy's teeth made a picture never to be forgotten so long as the film remains in use. Altogether the hunt was voted a success, and everybody punched the time-clock and went home, well satisfied with the first presidential day in the jungle.

"Only one thing about it that I don't like," sighed the wild animal man.

"What's that?"

"Well, there's a perfectly good lion, costing \$300, that we can't use again."

And when you see the films you may agree with him that it's too bad. At the same time you will appreciate the realism of the hunt. One part—the most thrilling perhaps—you will miss. The picture men refused to contribute their high jumping specialty to completing the truly exciting picture of *How to Shoot a Lion Without Leaving Home*.



CELLULOID MANUFACTURE.—In a year when most items of imported reductions it is interesting to note (writes the "Chemist and Druggist") that the purchases of celluloid by Japan in 1908 increased from £32,000 to £68,000. Germany was the chief source, the United Kingdom's share being not more than £12,000. This business, however, is not likely to flourish for long, as work has been progressing rapidly at the two large Japanese celluloid factories, and they will probably be in a position to start manufacturing some time this year. One is situated at Sakai and the other at Aboshi, and they are controlled respectively by the wealthy Mitsui and Iwasaki (Mitsubishi) families.

THE SOUTHAMPTON EXHIBITION.—This exhibition will be held from November 23-26, at the Southampton Art Gallery, Mr. Furley Lewis acting as judge. Arrangements have been made with the Hackney Society (who will collect exhibits free from the Royal and Salon) for exhibits to be forwarded carriage free from Hackney to the Southampton Exhibition. The Southampton awards are in a new and attractive form, being Royal Doulton bowls. In addition to the classes which include technical as well as pictorial photography, there is a separate class for colour work, with a substantial award which should ensure a good entry. Lantern slides, instead of being judged in sets, are to be judged individually. Entry forms are now ready, and can be obtained from Mr. S. G. Kimber, Oakdene, Highfield, Southampton.

Photo-Mechanical Notes.

Apparatus at the Dresden Exhibition.

It seems to be fully recognised here [in Germany] that the enclosed arc lamp is not suitable for coloured originals, and consequently there is on offer a very convenient arrangement of open arcs, consisting of two on each stand. These are very easily adjustable, sliding up and down a single iron upright and remaining wherever placed. These single upright stands (which are also supplied for the enclosed arc lamps) are also great economisers of space. The open arcs burn the carbons at right angles to each other, and the four properly arranged give a very powerful and satisfactorily even lighting. To those who want something even better, there is shown a search-light, on a much more convenient stand than those formerly supplied and with bigger wheels, so that it is very easily movable. One of these, with a reflector at the opposite side, will evenly illuminate very large copy. The use of electric light for illumination seems to be as universal as in London, although daylight is better and space more freely used.

For the printing-room there is offered a novel whirler. It is similar to the old Levy pattern, but automatically locks the plate in the centre wherever it is placed. There is also shown a small printing frame on a turntable, and others, with one end cut away, to facilitate the placing of the negative and plate in the frame.

Ready-built collotype ovens are also shown with the front dropping in order to allow of heavy plates being easily put in and taken out. The oven is heated by gas and fitted with automatic regulation of temperature.

The latest model of the Holmström etching machine is shown by Falz and Werner. It is entirely made of porcelain. The plate is placed in vertically, there being only one paddle wheel as against two in the earlier patterns of "Axel" machines. This machine appears to have a very wide use on the Continent, and etchers speak very favourably of it.

Truth in Reproduction.

One of the most remarkable exhibits at Dresden is that arranged by the Leipsic School to illustrate the differences in rendering of different reproductions of the same original. One of the originals selected is the famous "Sistine Madonna" in the picture gallery in Dresden, a work of art which probably has been more often reproduced than any other picture. Good and bad ordinary photographs are shown, all sorts of monochrome engravings, and, finally, all sorts of coloured reproductions. The wide variation of these latter is simply astonishing; those entirely produced by hand are often wrong also in drawing as well as colour, but the photo-mechanical reproductions, although superior in truth of drawing, are frequently untrue in regard to colour. It would seem that the Autochrome plate should here play a useful rôle in affording some indication of the original colours. The practice now, when reproducing pictures in galleries, is for a photographic enlargement to be made, and then this to be carefully coloured by hand with the picture in front of the artist. If this is properly done it is probably better than an Autochrome would be, but judging from the observed errors in the final reproduction, it does not seem as though a good Autochrome could be a worse guide, if any guide at all has been followed.

Register with Hand-made Papers.

It is sometimes necessary to print an edition of coloured prints on hand-made sheets, in which the edges are quite irregular. It is therefore not possible to obtain register as easily as with paper cut square at the edges: sometimes the hand-made paper is cut square on two edges, in order to obtain a regular feed, but, of course, this will not do for the customer, who wants to see his sheet with the deckle edge all round. In this case it is desirable to paste two small pieces of card on the back of the paper, extending beyond for about $\frac{1}{8}$ inch on two sides; the paper is then fed up so that these pieces of card form the points of contact. After the prints are finished the pieces of card are cut away with a knife. The sheet so made looks well, and register is perfect.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following patents have been applied for between August 9 and 14:—

MOVING-PICTURE MACHINES.—No. 18,340. Improvements in moving-picture machines and in the films used therewith. Edward Charles Robert Marks, 57, Lincoln's Inn Fields, London.

PHOTO-TELEGRAPHY.—No. 18,366. Improvements in or relating to photo-telegraphy. Thomas Thorne Baker, 7, Southampton Buildings, London.

PHOTOGRAPHIC APPLIANCES.—No. 18,472. Improvement in photographic appliances. Charles Foster, 24, Castlemaine Terrace, The Grove, Hammersmith.

PHOTOGRAPHIC PRINTING.—No. 18,532. Improvements in and connected with photographic printing. (Compagnie Générale de Phonographs Cinématographes et Appareils de Précision, France.) Reginald William James, 1, Queen Victoria Street, London.

MULTICOLOUR PHOTOGRAPHY.—No. 18,553. Improvements in and relating to multicolour photography. Robert Krayn, 33, Cannon Street, London.

PHOTOGRAPHIC SHUTTERS.—No. 18,574. Means for regulating the speed of photographic shutters. Wilfred Hunt, 121, West George Street, Glasgow.

CINEMATOPHONS, MAGIC LANTERNS.—No. 18,673. Improvements in and relating to cinematophons, magic lanterns, and similar apparatus. Percy Branel Milsom and Elver Clement Milsom, 70, Chancery Lane, London.

AUTOMATIC PHOTOGRAPHIC APPARATUS.—No. 18,699. Harry Aston Wolff, 33, Cannon Street, London.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

PRINTING-FRAMES FOR COLOUR PHOTOGRAPHY.—No. 15,937 (July 27, 1907). In copying colour screen plates upon bleach-out paper difficulties are met which are not found in copying "glacier" prints and other coloured transparencies.

Owing to two-thirds of the white light falling upon a colour screen plate being absorbed by the colour screen, and further on account of the translucent nature of the starch granules employed in the Autochrome plate, the time occupied in copying such screen plate is naturally correspondingly prolonged. In addition to this it must be borne in mind that when the whites of the photograph have been copied so far as to reproduce the screen colours, which, of course, leave grey areas upon the bleach-out paper, a further copying for the purpose of producing pure white is exceedingly difficult, and, as a matter of fact, is opposed to the principle of the bleach-out process.

In ordinary diffused light this difficulty is obviated to some extent by the action of the lateral beams of light, which, by diffusing the light between the screen and the print, partially destroy the screen image in the whites. The weakness of the light and the prolonged time of copying associated therewith are, however, so detrimental that they render copying by ordinary light practically useless.

With a view to rendering the advantages obtained by the use of diffused light available for sources of intense light, the apparatus described below has been constructed.

Around the printing-frame mirrors are arranged in conical or pyramidal form, and the frame is placed so that the sun's rays fall perpendicularly thereon. The light is thus partially reflected from the mirrors and thrown at a corresponding angle on to the positive, so that, in addition to the direct perpendicular rays of sunlight,

an abundance of lateral light is received, and by this diffusion of light between the screen and the print the whites are bleached out with sufficient rapidity.

In this manner finished copies can be produced in from one-half to one hour in strong sunlight and turned out much better than in double the time without such apparatus.

In order to exclude the print from the great heat which is developed by the concentration of the beams of light, a water trough or alum trough can be inserted in the same way that such troughs are employed for shutting off the heat rays in connection with cinematographs.

In the case of copying from lined colour screen plates the mirrors crossing the path of the screen lines (i.e., those which would, if produced, cut the screen lines at a right angle) are naturally omitted, as they do not produce the desired effect. The mirrors placed parallel to the screen lines diffuse the coloured light of one line underneath the adjacent lines of different colour, whereas mirrors placed at right angles to the direction of the screen lines would only intensify the colours of the individual lines and thus rather hinder than assist in the production of a white ground.

By conical and pyramidal forms of mirrors are to be understood all kinds of mirror arrangements diverging outwards from the printing-frame.

Dr. John Henry Smith, 60, Rue de la Côte. St. Thibault, Paris, France, and Dr. Waldemar Merckens, 1, Schwarwald-Platz, Mülhausen, Alsace, Germany.

CINEMATOGRAPH CAMERA.—No. 20,191, 1908 (September 25, 1908). The invention relates to photographic apparatus for taking a series of negatives on a band film, and consists of a process for carrying out the same, by means of which it is rendered possible to make uniformly exposed negatives even when the mechanism actuating the photographic film is operated with a non-uniform velocity.

Hitherto the duration of the exposure for the various negatives has been directly dependent on the velocity at which the feed mechanism of the band film has been driven. In consequence of the variations of the velocity of the driving mechanism, while the photographs are being taken, over-exposed or under-exposed negatives are produced which diminish the value of the series of photographs.

This defect is done away with by means of the present invention, according to which the duration of the exposures which occur between the intermittent movements of the band film is regulated independently of the velocity at which the feed mechanism is driven. Alfred Duskes, 46, Friedrichstrasse, Berlin, Director, and Duskes Kinematographen und Film-Fabriken Gesellschaft m. b. H., 46, Friedrichstrasse, Berlin, Germany.

The following complete specification is open to inspection before acceptance:—

CINEMATOPHONS.—No. 16,441, 1909. Cinematograph apparatus for the continuous exposure and projection of photographic plates. Robin.

New Trade Names:

KLTD (DESIGN).—No. 314,212. Photographic chemicals. Kodak, Ltd., 57-61, Clerkenwell Road, E.C. June 23, 1909.

PROTAL.—No. 314,494. Chemical substances used in manufactures, photography, and philosophical research. Casein, Ltd., Calvert Works, Sheepcote Lane, Battersea, London, S.W.

EURELLA.—No. 314,614. Chemical substances used in manufactures, photography, and philosophical research. Alexander Fletcher Knox, trading as Clayton Jones and Knox, 15, Victoria Street, Liverpool. July 8, 1909.

ANTALO.—No. 313,677. Photographic apparatus included in Class 8. Albert Thornley, 35, Mountain View, Cockermouth. June 3, 1909.

SKETCHO.—No. 314,059. A camera attachment for the purpose of allowing more than one exposure to be made on the same plate. John Currie, 68, Kelvingrove Street, Glasgow, and "Rockside," Core, Dumbartonshire, Scotland. June 17, 1909.

Analecta.

Extracts from our weekly and monthly contemporaries.

Chiffon as a Substitute for Bolting Silk in Making Soft Enlargements.

Some eighteen months ago, writes Mr. Herbert Mills in the "Amateur Photographer" for August 24, after experimenting with a piece of bolting silk, it struck me that there might possibly be other materials quite as suitable, and possibly cheaper. The first material I used, and which I have exclusively used ever since, was chiffon—a soft, diaphanous material, not too closely woven, and obtainable in various colours.

The piece that was given to me was heliotrope. I held the chiffon immediately in front of the lens, and examined the effect on the screen, upon which the image was focussed sharply. A delicate softening of the picture was the result.

I then folded the material, and again noted the effect of the two thicknesses. The image, as was to be expected, was still more subdued, but quite different from that given by the bolting silk.

Then three thicknesses were placed before the lens, but in this case the result was rather *outré*, although for a big enlargement from a strong negative it would be particularly effective with subjects of suitable character.

Test exposures were then made to ascertain the necessary increase in exposure when using one and when using two thicknesses of the chiffon. In the first instance about half as long again was found to be about the correct exposure, and twice the normal exposure in the second.

Comparing the prices of chiffon and bolting silk, the advantage lies decidedly with the former, as a piece about 7in. by 3in. (that is sufficiently large to cover the lens when folded) would cost—nothing, if one possesses a wife or sister; whilst in the case of bolting silk (which must be sufficiently large to cover the sheet of bromide paper upon which the enlargement is being made) a piece about 12in. by 10in. would cost about 1s. 6d.

The chiffon, it should be mentioned, is attached to the lens by means of a cardboard ring, which fits the lens hood—the frame of an old lens cap would answer.

Those who have used bolting silk will know that its softening effect on the enlargement is really a slight blurring of the outlines, whereas chiffon, as I have just mentioned, preserves the sharp outline, providing the image is focussed sharply. In other words, chiffon does not destroy either definition or detail.

The Diaphragm to Use in Night Photography.

Writing in "Photography" for August 24, Mr. H. Wild describes the methods employed in making a series of excellent night photographs of Tunbridge Wells. As regards the choice of stop to be used in such work he says: "Apart from the question of rapidity, I fancy the larger aperture gives a better rendering. From practical experience I am inclined to think that the rendering of the actual lights depends on the time the plate is exposed without very much reference to the aperture.

"For instance, suppose we find that an exposure of ten minutes is as much as we dare give to a street lamp at $f/11$ without getting reversal, calculating in the ordinary way one would expect to be able to give five minutes at $f/8$ or twenty minutes at $f/16$, but in practice it will be found that nearly ten minutes could be given at $f/8$ and very little more than that at $f/16$.

"This apparent suspension of an accepted law is a most providential one for the night photographer, for it means that, to obtain detail in both shadows and lights, it is only necessary to use a lens of such rapidity that the darker parts of the subject are sufficiently exposed before the high-lights are reversed."

FORTHCOMING EXHIBITIONS.

September 10 to October 23.—The Photographic Salon. Latest date, August 30. Sec., Reginald Craigie, 5A, Pall Mall East, London, S.W.

September 23 to October 30.—1.—Royal Photographic Society. Latest date (carrier), September 1 (hand) September 2. Sec., J. McIntosh, 35, Russell Square, London, W.C.

New Books.

BEAUTY SPOTS OF THE CONWAY VALLEY.—A book of over a hundred excellent half-tone reproductions of photographs of the scenery between Llandudno and Bettws-y-Coed has just been issued by Mr. John M. Clark, 12, Pearson's Row, Liverpool, at the price of 7½d. It is obtainable from bookstalls and booksellers at 6d. net, and provides a most pleasing souvenir of a visit to the beautiful valley of the Conway river, as also a useful demonstration of the variety of scenery—sea, forest, and mountain—to be found between the mouth of the river and the even more picturesque surroundings of Bettws. The photographs are all from the camera of Mr. T. Lee Lloyd, of 361, Park Road, Liverpool, who has provided some brief letter-press, and there is also a map of the district.

New Apparatus, &c.

THE PILOT ARC LAMP.—A new self-regulating arc lamp for studio use is just being placed on the market at a very moderate price by the Pilot Arc Lamp Manufacturing Company, Limited, 21, Imperial Buildings, Ludgate Circus, London, E.C. The lamp is of the completely enclosed type and is supplied complete with resistance, plugs, leads, globe, and case, for £6 in pattern to take 110-volt continuous current; to work on an alternating current of this voltage the price is £6 18s., whilst a third pattern of the lamp (the "Universal"), adaptable to either continuous or alternating current, is sold at £7 18s. The great portability of the lamp is one important point in its favour, whilst another is the absence of any adjustment. All that is necessary is to connect the plug to any domestic supply, switch on the current, and the light is at once obtained. An illustrated circular showing the design of the lamp is obtainable post free on application to the Pilot Company, at whose offices, 21, Imperial Buildings, Ludgate Circus, the lamp can be seen. We believe that professional photographers desiring a lamp of moderate power for studio use will find it worth while to investigate the claims of the Pilot lamp, of which we hope to write further, after having had it in practical use for a while.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

SATURDAY, AUGUST 28.

Hackney Photographic Society. River Trip.
Southend-on-Sea Photographic Society. Excursion to Herongate.

TUESDAY, AUGUST 31.

Hackney Photographic Society. Suggestions for the Annual Exhibition.
Kinning Park Co-operative Camera Club (Govan). Club Meeting.

WEDNESDAY, SEPTEMBER 1.

United Stereoscopic Society. Paper: "Separation and Exaggeration."

Commercial & Legal Intelligence.

DISSOLUTION OF PARTNERSHIP.—The partnership between Messrs. Albert Flint and John Robert Jeffs Pearson, photographers and frame makers, 68, Church Street, Camberwell (trading as Albert Flint and Co.), has been dissolved. The business is to be carried on by Mr. Pearson, who will pay and receive all debts due by, or owing to, the late firm.

Mr. Robert Nevins Allen, Cotham Hill, Bristol, collotype printer and photographer (trading as Senior and Co.), has transferred his business to Mr. Charles Lott Brass, Chelfham Bridge, Barnstaple, who will carry on same and receive and pay all debts due to and from the firm.

News and Notes.

THE EPSOM RURAL DISTRICT COUNCIL have approved of a set of plans by Mr. Drinkwater Butt, F.R.P.S., for a house and studio, to be erected at the corner of Anyards and Freelands Roads, Cobham, Surrey, for Mr. Hugh Weet of that place, who will transfer his photographic business thereto on completion.

PHOTOGRAPHERS IN NEWCASTLE PARKS.—At a meeting of the Town Moor and Parks Committee of Newcastle Corporation, held last week, the Town Clerk submitted a report with respect to photographers in Jesmond Dene and other parks in the city, and it was decided that immediate steps should be taken to put a stop to photographers carrying on business in the parks.

PHOTOGRAPHY UP-TO-DATE.—For the nominal price of 2s. (says a Washington correspondent of the "St. James's Gazette") you can go down to posterity on a piece of pasteboard, clasping hands with the American President. Over an obscure little photographer's shop in a street near the White House floats a flag with the inscription, "Come in and have your picture taken with President Taft." The photo is taken by the simple method of imposing the customer's figure beside the stock plates of President Taft with outstretched hand, as if in greeting, or in a friendly arm-in-arm pose. The illusion, however, is very good, and the photographer has been making a lot of money. The White House looms in the background of the picture.

PHOTOGRAPHS OF CHINA.—On Tuesday, August 31, at the ordinary fortnightly meeting of the Royal Horticultural Society, Vincent Square, S.W., there will be exhibited, on behalf of Professor Sargent and the President and Fellows of Harvard University, Cambridge, Mass., U.S.A., a selection of photographs illustrating the flora, fauna, and scenery of Central and Western China. These photographs are from the large collection taken by Mr. E. H. Wilson during his last (third) journey to China. It is thought that this exhibit will be of interest and value to those keen on the recent new plant introductions from China. It is also hoped that from its varied character the selection made will appeal to a wider circle. The photographs are whole-plate size (8½ in. by 6½ in.), with liberal mounts for herbarium purposes, and all are duly labelled. The work of developing and printing has been done by the well-known expert in floral photography, Mr. E. J. Wallis, Kew, S.W.

THE SCOTTISH SALON.—The following gentlemen have accepted the invitation of the Scottish Photographic Federation to act on the Board of Selection for the Seventh Scottish National Photographic Salon, to be held in Dundee, January, 1910:—Messrs. J. Craig Annan, Archibald Cochrane, and W. B. Lamond, R.B.A.

Correspondence.

. We do not undertake responsibility for the opinions expressed by our correspondents.

. Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

SULPHIDE TONING OF P.O.P.

To the Editors.

Gentlemen,—Referring to your reprint of my note on the sulphide toning of P.O.P. last week, perhaps the following particulars of the way I prepare the tribasic ammonium phosphate may interest some of your readers, particularly as the salt generally bought as ammonium phosphate is the hydrogen di-ammonium phosphate $H(NH_4)_2PO_4$, and any of your readers wishing to try their "Cubrome" thiomolybdate "B" solution on P.O.P. prints may be rather at a loss to obtain the salt that I recommended, as it appears in very few lists.

I dissolve the ordinary ammonium phosphate in cold distilled water nearly to saturation, and then add excess of .880 ammonia. After standing a short time, the contents of the flask, after being shaken up, is thrown on a Buchner funnel, when the precipitated salt is dried as far as possible by suction with the filter pump. The salt in this state (a somewhat pasty crystalline mass) I do not attempt

to recrystallise, but dissolve it (1-10) in distilled water. To every three parts of this solution, one part of the ammonium carbonate solution is added to make the alkaline phosphate bath.

Better crystals of the tribasic salt may be obtained by Sestini's method of dissolving the acid in an excess of strong ammonia and evaporating in a desiccator over quick-lime; but though no doubt a purer salt is obtained, the crystals take some time to form, and for this use it is, I am sure, unnecessary to go to this trouble.

Since I consider the ammonium carbonate solution a necessity in the phosphate bath, it might be thought that as the free ammonia in the carbonate solution would neutralise any nitric acid formed on converting the silver nitrate into phosphate, ordinary ammonium phosphate or di-hydrogen ammonium phosphate, or ordinary sodium phosphate (or, better, the tribasic sodium phosphate) might be used. But I prefer not to use the sodium salts, as it seems a mistake to mix the bases unless there is some necessity for it; and I think that the use of the tribasic ammonium salt undoubtedly yields the best tones.

The tribasic ammonium phosphate can be supplied to any one who cares to apply to me at this address (c.o. Edmund and Co.).—Yours truly,

H. E. SMITH.

Ezra Street, Columbia Road, London, E.

August 23, 1909.

Answers to Correspondents.

. All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

. Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

. Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.

. For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

John Sutherland Jenkins, 2, Anworth Villas, Corstorphine, Midlothian. Photograph of Lauriston Cottage, Cramond Beach, Davidson's Mains, Midlothian.
Frederick Danby, Church Street, Radcliffe. Photograph of Child in Bath.
Arthur E. McKinney, 28, Waring Street, Belfast. Three Photographs of Irish Girl Embroidering Lace.

E. D. P.—1. Reliable pieces of apparatus are sold by all the large dealers. They are of different forms, and all are good. Apply to Messrs. Sinclair and Co., 54, Haymarket, London, S.W. 2. Yes, if used according to the directions.

INSURANCE.—Some months ago I saw something in the "British Journal of Photography" with reference to insurance of photographic apparatus, etc., and a gentleman's name was mentioned who would supply forms to those who wished to insure. Will you kindly give me his name and address, please?—INSURANCE.

You are doubtless thinking of what was said some time ago about the advantages that members of the Professional Photographers Association enjoy with regard to fire insurance and reduced premiums. These advantages are confined to the members of the Association only. If you are a member, the Hon. Secretary, Mr. A. Mackie, 89, Albany Street, N.W., will send you a form. If you are not, he will send you a prospectus of the Association and particulars of membership.

MIRIAM.—From the fact that the edges of the stains are straight lines, it looks as if the cause was overlaying of the prints on each other in the fixing-bath.

PHOTOGRAPH FOR DAMP PLACE.—I have recently been asked to make a portrait or enlargement, to be hung in the vestry of a church which I know is exceedingly damp. Which would be the better one of the two, carbon or platinotype, and what would be the best

course to follow in preserving it as long as possible—I mean in the way of framing same? Could I do better than do it in carbon (or platinotype)? Would cardboard be the best support for it?—**VESTRY.**

You cannot do better than carbon or platinotype. We would suggest that the picture be mounted by the dry method, as the medium used is highly waterproof. The glass should be secured in the frame by strips of good paper, and the backboard firmly bradded in and papered round. When dry, the back may be given a coat of ordinary wainscot varnish. The thing is, make the frame damp-proof as far as possible. Take care that the print and mount are thoroughly dry before they are put into the frame, or they may become mouldy in time.

FLORIDE OF GOLD.—Could you, through your correspondent's column in "B.J.," inform me the way to dissolve a gold coin so as to make a gold solution for toning bath?—**N. E.**

Dissolve the coin in the following mixture (in a glass flask):—Nitric acid 1 part, hydrochloric acid 5 parts, water 6 parts. Digest by gentle heat. When all is dissolved, dilute with distilled water and precipitate the gold with a filtered solution of sulphate of iron. Well wash the precipitate with distilled water, and redissolve it in the above, then crystallise it in an evaporating dish over a sand bath. It is well to crystallise it a second time so as to get rid of all the acid possible.

SEPIA TONING OF P.O.P.—In this week's issue of the "B. J." there is a paper (page 646) on getting rich sepia prints on P.O.P. without gold toning. I can understand the formula, as far as the ammonium phosphate and ammonium carbonate are concerned, but when I come to the "Cubrome" thiomolybdate solution, I find myself at a loss. Can the compound be purchased, or can it be prepared? also what proportion of water is used? If you would kindly answer these questions I should be greatly obliged.—**THIOMOLYBDATES.**

A special preparation of thiomolybdate is sold for the purpose by Messrs. Edmund and Co., Ezra Street, Columbia Road, E. See also a letter from Mr. H. E. Smith under "Correspondence" on another page.

CHEMICAL CONGRESS.—I shall esteem your kindness in replying as to where I may obtain pamphlet reporting the deliberations of the International Congress of Applied Chemistry, the meetings of which was reported in your valuable edition of May 28 last.—**COHEN.**

The Congress issues a report of its proceedings, but publication may not be expected for several months, and even then it is doubtful if all the papers and discussions will be given in full. If your inquiry relates to a photographic paper, your best course, we think, would be to apply direct to the author of the paper.

SPRINT.—Seven inches is a rather short focus for a half-plate reflex. We frequently use an $f/4.5$ lens of this focal length on a quarter-plate reflex. We think that in many instances you would find a lens of 9in. to 15in. focal length necessary with your half-plate reflex. We hope you realise that a half-plate reflex is rather a big affair to take about long distances. The two cameras are very similar. If your lens could be fitted to a 5 x 4 reflex of the best maker you name in your letter we should consider that the best use was being made of it as regards the outdoor work you speak of. It is rarely that exposures shorter than $1/50$ or $1/100$ require to be given. We advise you to use pyro-metol (Ilford formula) for such work, or one of the single-solution developers—sodal, certinal, or victrol. As regards the choice of reflex cameras, an issue of the "Photo-Miniature" (Dawbarn and Ward, limited, 6d.) has just been published on this subject.

STEREO SUBJECTS.—I have about 150 really good stereo negatives without prints, and about 5,000 prints of other views without corresponding negatives; these 5,000 comprise about 200 separate views, with varying quantities of each. I wish to dispose of them. Will you kindly tell me what is a reasonable price to ask, as follows: (1) Price of stereo negatives per dozen; (2) ditto per 100; (3) price of stereo prints per dozen; (4) ditto per 100; (5) ditto per 1,000 or lot; (6) price of stereos for reproduction?—**ETLAW.**

Impossible for us to say, as we have no idea of the interest of the subjects. The prints will be of practically no value unless the right to copy them goes with them—that is, is yours to sell.

CINEMATOGRAPHY.—I am desirous of obtaining all the information I can on cinematographs, and shall be very much obliged if you will favour me with the dates of any issues of your journal containing articles on the subject. The information I require is of a practical nature, dealing with the construction of cameras and projection apparatus.—**T. H. W.**

We have not dealt at all fully with cinematograph work. The best periodical of this branch in the "Kinematograph Journal" (1d. weekly), in which you will find a good deal of practical information.

HOT WEATHER TROUBLE.—I should be greatly obliged to you if you would kindly give me your opinion on the enclosed prints. The print marked X is on glossy bromide. You will notice the markings in the paper, which has the appearance of a print which is melted. They are dried overnight (not by the fire) so that melting is out of the question. The other print is matt bromide developed in the same bath and dried on the same slab. The makers say that there is nothing wrong with the paper. I think it is faulty in emulsion, or stale.—**E. WALTON.**

We cannot trace any fault in the paper. The appearance is evidently due to the recent hot weather. The gelatine has softened during the manipulations owing to the solutions being too warm. Probably you will not get it now that the weather is cooler even with the same paper.

DEFECTIVE NEGATIVE.—I should feel very grateful to you if you could help me out of my difficulty in your journal. I am constantly getting the effect on enclosed print. I may say the camera and slides are quite light-tight. When exposing the enclosed I took the precaution to shield the lens with umbrella, the sun on the point of setting and well on the left of camera. The lens used was a Wray, 15 x 12, rect., comparatively new, except that the iris diaphragm has become a little bright through the friction of usage. If I coated the inside of lens mount and diaphragm with Bates's dead black would that, do you think, help me? I made two exposures. The fellow plate to the enclosed from the same holder is only slightly fogged, but I used a larger stop.—**J. W. RICHARDS.**

It is clear that the corner of the plate has been light-struck, either in the dark-room or the camera. You say that the dark slides are light-tight. That we are inclined, by the appearance of the print, to doubt, but the camera itself may possibly admit a faint beam of light at the corner corresponding with the fogging of the negative. If the inside of the lens mount has become bright it will be well to re-black it. But the brightness of it will not account for the fogging of one corner of the plate only.

CHARGES FOR RETOUCHING.—Having been apprenticed at a good class photographer's for three years, have now obtained some retouching to do at home for another photographer, but am at a loss to know what to charge, so I am writing this to know if you could tell me the usual charge in such a case for imperial cabinets, C.D.V.'s, and also whether I ought to charge according to the number of people on negative. If you could kindly tell me I should be much obliged.—**H. RICHARDS.**

There is no fixed charge for the work. Every retoucher makes his own charges, and they depend upon the quality of his work. We have not seen any of yours, so can give no opinion on it, and what it is worth. We should advise you to consult the advertisements in our columns headed "Miscellaneous Trades." From that you will gather what other retouchers charge. Of course, an extra charge is made when there are several figures in the picture.

OWNERSHIP OF NEGATIVES.—A gardener in the employ of a gentleman in this vicinity called on me at my studio and said he had instructions from his employer to get a photographer to come and take several views of his house and grounds. He fixed a day on which it would be convenient for me to attend. On arriving at the house I was given a definite order by the gardener to take nineteen positions, 12 x 10 size. I took twelve that afternoon, and the remainder the next morning. I did not see the owner of the house, as he was in town for three or four days, so nothing was said about the price until I sent the proofs, when I quoted my usual terms—viz., 2s. for first negative and 5s. 6d. per negative after (this is my charge for taking negatives), then prints from negatives 5s. 6d. each

in silver. He replied, grumbling about the price, but ordered thirteen copies, which I finished and sent off next day, enclosing my account. I received an acknowledgment from him to-day, asking me to send the negatives charged for and he will settle the account in full, otherwise he will only pay for the prints supplied. I have written saying that I have not charged for the negatives, but for taking them, and quoted part of the copyright law about the copyright of negatives being vested in him, but the custody of them being given to me. If he will not pay what is my best course?—X. Y. Z.

The negatives are your property. Do not give them up. If the man will not pay you must summon him in the county court, when you will get the money. It is a little unwise to make a definite charge for taking the negatives. It is better always to charge only for photographs.

VARIOUS.—Some months ago an advertisement appeared in your journal for prints (various) for publication. I sent a batch, from which they marked four, saying they had enough at present, but would be glad of them in the near future. Fully three weeks ago I sent them again with stamped address for return, if not wanted, and can get no reply whatever. As the prints were double-printed they were valuable to me. (1) What can I do further in the matter? Their address was, The ——— Co. (2) Would 10s. 6d. (sole right) and 3s. 6d. (not sole right) a print be a fair charge for prints cabinet size? (3) I have seen carbon prints done with an oval border round the portrait; does not show the slightest join anywhere. Can this be done single printing, or is a large border screen used in front of sitter and photographed thus? (4) A customer has a lot of negatives reproduced by means of transparencies. Who has right to transparencies, customer or man who executes order?—AN OLD READER.

(1) The only thing you can do is to sue the parties in the county court for the price of the pictures they have kept. (2) The price is very moderate indeed. (3) Without seeing an example we are unable to say how the prints are done, but probably they are by double printing. (4) The transparencies are the property of the photographer who executes the order.

COPYRIGHT.—Would you kindly answer me the following question in the "Journal"? I (A) take views for B and sell B the negatives and postcards. B makes a smash and is sold out. C buys stock at auction sale. Can A stop C from selling them, or how can A get his money? Does A have any claim on the copyright if he copyrights them, being the author of the work?—OLD READER.

A has no title in the copyright, inasmuch as he was engaged by B for doing the work. That is vested in B. C has no copyright in the negatives unless it was assigned to him at the time of the sale. But A has no voice in the matter. All he can do is to look to the trustees for payment of his account according to the dividend declared.

COPYRIGHT.—I take a number of views for publication by myself, and do not register them at the time. Afterwards I find that some of them have been pirated. I register them and then take proceedings against the reproducer, or those selling the copies. Where then, may I ask, is the good of spending money on the registration of the pictures, until one finds that they have been copied? If one registers, say, a dozen, perhaps only one or two are copied, and the money paid for the other ten is simply wasted.—SUSSEX.

The advantage of registering in the first instance is that proceedings can at once be commenced for the recovery of penalties, damages, injunction, etc., for all that has been done from the time of registration. Whereas if the registration has been delayed until the copyright is infringed nothing can be recovered for what has been done before that. All that can be done is to sue for damages, and an injunction from the time of registration.

FOUSSING MAGNIFIER.—Unfortunately, I am not so young as I was and have had to take to spectacles. With these I can see very well, but I have a difficulty in focussing in them. Somehow or other I cannot get sharp negatives, although, with the spectacles, the image seems sharp on the ground glass. Will you please help me out of my difficulty by telling me the best kind of

focussing magnifier to use, as I see so many different ones advertised?—TOO OLD AT FORTY.

The best to our mind is the Ramsden form of eyepiece, consists of two plano-convex lenses mounted in a tube, which adjustable by a screw in an outer jacket. The tube is adjusted to the sight of the user to a pencil mark made on the focussing screen and then clamped tight by a screw nut, so that the distance is fixed once for all. These instruments are sold by all large dealers at from six or seven shillings upward.

M. C. J.—We are afraid you will not be able to obtain any compensation now. If broken glass could be heard in the box when delivered by the railway man it should have been opened in his presence, or else his book for signature should be marked "received damaged," or have been refused altogether. Signing a book without remark implies that the parcel was received in good condition.

A. T. Cox.—The picture sent is but moderately good. It is possible, however, that it might be awarded a medal if exhibited at some of the minor societies.

F. J.—You have either been quite misinformed or, possibly, confused the two things. A mirror for obtaining reversed negative which is placed at an angle of 45 deg. in front of the lens, may be optically worked and have an absolutely plane surface, and be silvered on the front. A mirror placed outside a window when enlarging by daylight may be of common sheet glass silvered on the back, like an ordinary looking-glass. Its only purpose is to reflect light through the negative. It has nothing to do with the formation of the enlarged image.

MIXING ALBUMEN WITH GELATINE.—Is it possible to make a mixture of albumen and gelatine that will keep, and if so, how?—FIDOS

Yes; the best way is to beat up the albumen into a perfect froth. Let it rest for a day or so and then pour off the clear albumen. Next dissolve the gelatine in the usual way, but at a temperature at the time of mixing must not exceed about 120 deg. Fahr., or there would be a danger of the albumen coagulating. Then add a few drops of carbolic acid. The mixture will require warming each time it is used, but the temperature should not exceed that given above for the reason stated.

A LECTURE ON DEVON AND CORNWALL.—Among the transactions to which we referred last week in making mention of the Liverpool Association's syllabus was that on Cornwall. It may be said that, according to a circular which has just reached us, the author of the lecture, Mr. Chas. R. Rowe, is prepared to deliver in person before other societies without fee. Good Devonian times he is, Mr. Rowe knows the West Country most intimately, and what he has to say on the beauties and traditions of Devon and Cornwall comes from a first-hand acquaintance with places and people. Gifted with a ready way of entertaining as well as instructing, Mr. Rowe will surely be welcomed as a lecturer by photographic societies. Those interested are advised to send a stamped addressed envelope to 83, Edith Avenue, Plymouth, for particulars.

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SUMMARY.

"Free" Portraits and Sunlight Soap.—At Huddersfield last week to canvassers from Scotland received six months' hard labour on a charge of representing themselves as connected with Messrs. Lever Bros., soap manufacturers. The case is reported on page 687, and we comment on this new variety of the "free" portrait dodge on page 681.

Trade printers will probably confirm our opinion that the average portrait negative has dropped off in quality during the last year or two. Apparently a negative is thought to be good enough if it will make a decent print on gaslight paper. We endeavour to give some technical reasons for this, apart from a possible lower standard of work in development. (P. 682.)

Pirie Macdonald, when in London last week, was entertained at supper and discoursed on copyright and fraternity. (P. 688.) On page 683 we give a short account of the proposals of a Bill for the regulation of the hours of shop assistants.

The method of preparing mechanically-etched wood blocks from photographic reliefs is described on page 688, under "Photo-mechanical Notes."

The intentions of the Government with reference to cinematograph exhibitions are reported on page 694.

In our recent paper on the present condition of sensitometry, by Dr. C. E. K. Mees, gives a fairly popular account of this little-studied subject. (P. 685.)

The colour screen-plate of quite novel pattern figures with the daylight loading of plates under "Patents of the Week." (P. 689.)

"COLOUR PHOTOGRAPHY" SUPPLEMENT.

Reports on the "Thames" combined plate take the form of some editorial notes on page 66, and an article by Mr. H. E. Corke, on page 65.

M. A. A. Personnaz, in a contribution on page 67, dissents from the views of painters as to the pictorial quality of Autochromes recently quoted by M. Demachy.

M. Lumière have drawn up a table as a guide to the use of the single-solution metoquinone developer when correcting mistakes of exposure of Autochrome plates. They adopt a modification of the Fabrial method. (P. 67.)

In our recent paper by Mr. Howard Farmer on the copying of Autochromes is given on page 71.

Colonel Houdaille has recently published a paper aiming to provide a basis for the exposure of Autochrome plates. (P. 69.)

Professor Namias has suggested a modification of the Traube "Autochrome" process for the making of three-colour prints and transparencies. Lead sulphate or lead oxide is used as the mordant instead of silver iodide. (P. 68.)

EX CATHEDRA.

A New Bogus Portrait Game. "You know the game, the free portrait business, is played out, and we have to tell them some sort of a tale to get them to have one."

So said one of two canvassers at Huddersfield last week on being charged with representing themselves as agents of Messrs. Lever Bros., Limited, soap manufacturers. To this ingenious purveyor of photographs truth is no doubt stranger than fiction, but in this instance there is reason to suppose that he proclaims a fact. The press up and down the country must chiefly be thanked for the enlightenment of the public as to the fraudulent nature of the business of canvassing for photographs, inasmuch that the two gentlemen who are just entering upon a six months' term of hard labour found it necessary to bait their line with something less open to suspicion than a "free photograph." They declared to the magistrate that "when calling upon people the mere mention of the word photograph was enough to have the door closed against them." Unenviable as is the fate of photography to be thus associated with the most barefaced kind of deception, there is some consolation in knowing that the public—or a large portion of it—clearly recognises that these practices are not those of established photographers, and are condemned by them more vehemently, because with greater reason, than by anyone. At the same time, unfortunately, the malpractices of the canvassers prevent the photographer from taking measures to extend his business which, but for the bad name of door-to-door solicitation, might be adopted in a respectable, if not very dignified, way.

* * *

The Chemistry of Sulphide Toning.

The paper on this subject by Mr. Douglas Carnegie which we published last week marks another important step in advance in our knowledge of the mechanism of photographic processes. It is a curious fact that very few processes have been submitted to an exhaustive examination, and sulphide toning is only one of many that are carried out frequently, and quite successfully, by numerous workers without any knowledge of how or why the results are attained. This paper does not exhaust the subject by any means. The exact nature of the toned deposit is not determined, but several very common causes of failure are quite successfully demonstrated, and this alone is a very valuable feature. It will be seen that the results very nearly confirm the suggestions we made in a leader published on January 29 last in regard to the effects obtained with exhausted and partially exhausted sulphide solutions. A point brought out in the article is the lax fashion in which some previous writers have described the strength of the sulphide solution used.

The water of crystallisation, to say nothing of that of deliquescence, is generally disregarded, with the result that the solutions used are often much weaker than they should be.

* * *

The Fixing-Bath for Bromide Prints

It is often advised to employ a bath of the acid type—such as one made with hypo and potass. metabisulphite—for the fixation of bromide prints. While there is no theoretical objection to such a bath—in fact, the non-staining properties of the solution are in theory an advantage—there is, however, a practical drawback to the use of a fixing-bath which does not become coloured in use when it is being used on a commercial scale. Inasmuch as there is no certain means of telling when a bromide print is completely fixed, the use of a bath which does not give any signs of its progress towards a state of exhaustion is actually a danger when the work of fixing is relegated, as it usually must be, to somewhat inexperienced hands. The very fact that the dark colour of the solution indicates that a great number of prints have been passed through the bath is a strong reason for selecting a plain solution of hypo only. Many of the bromide prints which are sent to us for our explanation of various yellow and brown stains are stated by their makers to have been treated in an acid bath, the careless use of which, and nothing else, is, we believe, the most common cause of these defects.

* * *

The Two Exhibitions.

A final reminder may be given to those who, in paying a visit to London in September, do so with the object of visiting the Photographic Salon and the exhibition of the Royal Photographic Society. The private view of the Salon is on Thursday, September 9, the exhibition opening to the public on September 10. In the case of the Royal Photographic Society, the date of the private view and conversazione is September 22, the first day on which the New Gallery is open to the public being September 23. We hope to give a first impression of the Salon in our issue of the 10th inst., and shall deal with the sections of the Royal Photographic Society's show as soon as possible after the opening.

* * *

Novel Photographs as Christmas Gifts.

Photographers anxious to make the most of the present-buying season which commences a week or two before Christmas are none too early in starting to make their preparations now. Mount manufacturers who supply goods specially applicable to the Christmas season are already busily engaged in offering their wares, and a great variety of effects are obtainable by taking advantage of the multitude of commercial designs. There are also other directions in which photography may be advantageously applied in producing gifts other than the conventional type of mounted portrait. If we remember rightly, we referred last year to a novelty introduced to its customers by a studio in the West-end of London. It took the form of a doll of the "Teddy bear" type, the fabric face of which had impressed upon it the portrait of one or other of the parents of the child on whom the gift was intended to be bestowed. A present of this kind, on account of the fun to be obtained from it, is pretty sure of a good sale, and it may be to the advantage of those in search of opportunities of increasing the volume of their Christmas business to think over other varieties of presents in which a photograph could be embodied. We believe that there are many directions in which the customary processes of photography might be profitably applied.

THE QUALITY OF NEGATIVES

THOSE firms engaged in making prints from negatives sent to them for that purpose have the opportunity of seeing such a large number of negatives that they are able to note very accurately the progress that photographers generally are making as regards quality of results, and we have recently been informed by such a firm that the most striking characteristic of the average modern negative is its badness. It is usually quite unsuited to either carbon or platinum printing, or indeed to first-rate results by other processes. The proportion of good negatives received is much smaller than it used to be, and the reasons for this falling off in quality are well worth consideration. The main fault appears to be undue flatness, the result being that gaslight paper is the only one that will yield a passable print. Possibly the popularity of gaslight paper has something to do with the prevalence of such negatives, but it occurs to us that there may be several other contributing factors, chief among which is, perhaps, the modern tendency to omit bromide in the developer.

Given "correct" exposure, bromide is, of course unnecessary with the majority of modern plates and films but given a little over-exposure, then with some developer the omission of the bromide invariably leads to a foggy result. If the time of development is cut down to keep the fog at a minimum, a thin and flat negative is produced while if we develop up to full density a heavily fogged image that is barely printable on any paper is obtained. The majority of negatives to-day are no doubt produced on fast plates, and the modern lens is so very efficient, that over-exposure is a much more common defect than it used to be. In earlier days, under-exposure and hard negative were the prevailing *bête-noir*, while nowadays over-exposure and thin, foggy negatives are the source of the printer's troubles.

Possibly another contributing factor is the idea held by many workers that different classes of negatives are desirable with different kinds of printing paper, exceptional pluck and vigour being required for carbon or platinum printing, and exceptional thinness for bromide enlarging and gaslight paper. This is, of course, a great mistake for a really good negative will yield a good print by any process. Negatives that will only print well by one or two special processes cannot be classed as "good" specimens, the fact that their use is limited being itself an obvious indication of faultiness. Some excuse the badness of their negatives on the ground that they will yield the results wanted on some special paper; but a good negative will do the same thing, and also yield good prints on other varieties.

Perhaps the majority of photographers have the same fault as the too enthusiastic patient who doses himself vigorously for one complaint as to bring on a different variety of trouble. Very fast lenses and extremely rapid plates are invaluable on some occasions, but not at all desirable on each and every occasion. Extremely fast plates are very prone to fog if a little over-exposed, and one of the commonest blunders is the use of plates that develop much faster than really needed.

Another reason for the prevalence of fogged negatives is probably the frequent use of tank development with unrestrained diluted developer. It may be taken as a general axiom that bromide is always required when development is prolonged, yet many seem to think that dilution of the developer renders the use of bromide unnecessary, and therefore they omit its use altogether. Further than this, when a number of exposures are developed together some invariably will show more fog than others, and very few trouble to apply the necessary reducer to clear them. A weak Farmer's reducer will

make a marked improvement in such cases, and its use involves a minimum of trouble and risk if the negatives are plunged straight into it on leaving the fixing-bath. Clearing-baths of all kinds are somewhat out of fashion nowadays, but there are very few negatives that are not the better for clearing, though all do not require reduction.

PROPOSED CHANGES IN THE REGULATION OF THE HOURS OF SHOP ASSISTANTS.

A BILL "to consolidate, amend, and extend the Shops' Regulation Acts, 1892—1902" has been introduced into the House of Commons by Mr. Gladstone, the Minister in charge, and though the Government do not propose to proceed further with the measure during the present session, it will probably serve as a basis for legislation in the near future. Photographers, in common with several other classes of the community, will be interested to know how the Bill affects the conduct of business, and the following outline of the Government's proposals will, we think, show clearly that the respectable trader has nothing to fear from the operation of the principles embodied in Mr. Gladstone's Bill.

The main features of the measure may be grouped under our heads, thus:—

(1) Compulsory closing on Sundays, subject to modification in the case of Jewish quarters and established street markets.

(2) A weekly half-holiday.

The local authority is given a wide discretion in this matter, but the principle must be observed, and if the local authority do not appoint a particular day, then the occupier of the shop must select one, and place a notice to that effect in his shop.

(3) Early closing at the option of the local authority, which in the case of London will no longer be the metropolitan borough, but the London County Council.

We may note in passing that the relatively small area of the borough has done much to render the present Acts operative, and the Government are evidently alive to this fact.

(4) No shop assistant may be employed for more than sixty hours per week, exclusive of meals. There must be no employment after 8 p.m. on more than three days per week.

The occupier is to fix the times at which work begins and ends within the above limits. He must in a notice affixed in the shop specify the "spells" of work, and also the "meal-times," which last must be in accordance with the prescribed scale. Provision is made for "overtime" to the extent of two hours a day for not more than thirty days in the year. The Bill contains special provisions dealing with holiday resorts and public holidays, and as it applies to "outside" trading, there need be no fear of unfair competition from hawkers and street traders gener-

ally. Part 3 of the new measure deals with the provision of seating accommodation, proper ventilation, and sanitary conveniences.

In part 4 particulars are given as to the powers and duties of the local authority. This section also specifies the penalties for various offences under the Act, and deals with business carried on in bazaars, fairs, and exhibitions.

In the event of any local authority failing to enforce the regulations of the Bill, the Secretary of State may, after inquiry, appoint an inspector to report breaches of the law.

Mr. Gladstone informed the House of Commons that the introduction of the Bill in the present session had been decided upon with a view to promote discussion, and in the hope of attaining something like unanimous support. He added that about one million assistants and half that number of employers would be affected by the passing of the Act. Conditions in some of the larger shops were not unsatisfactory, but on the other hand there were cases of assistants who worked from eighty to ninety hours per week, and who had no means of shortening their toil. In Mr. Gladstone's opinion (and we venture to predict many will agree with him hereon), the main cause of the evil is the wasteful and mischievous system of competition which is unhappily so prevalent in the mercantile community of to-day. It appears that all the business done might be transacted in 75 per cent. of the time now devoted to it, and if this be so, the public certainly need to be taught reasonable consideration for those who serve them in the shops. Finally, it should be noted that the legislation proposed will not tend to divert the flow of trade from home to foreign channels.

It is worthy of note that the first reading of the Bill took place with the approval of all the members present except Mr. Bottomley. Even he, while characterising the measure as "undemocratic" and the product of "parental" government, approved of a reduction in the hours worked by shop assistants. This practically unanimous approval of the House does not, of course, imply that the measure as it now stands will become law without modification in any respect, but it seems to show that the principle of the measure will command the support of members on both sides of the House. This being so, we expect to see legislation on the lines of the Bill in the near future.

Signs are not wanting that the old policy of *laissez faire* which has been so long a dictum of the utilitarian school is losing ground before the combined forces of humane feeling and common sense. Something may fairly be said in favour of leaving capital and strongly organised labour to adjust their differences with the minimum of interference on the part of the State. Where, however, the workers from any cause or combination of causes are unable to protect themselves from obviously harsh and oppressive conditions, it becomes the duty of the Government to intervene on their behalf. This does not necessarily mean that the masters will suffer. The ultimate employer is the purchasing public, who must learn to pay a fair price for what they buy, and in the act of purchase to extend reasonable consideration to the man in the shop.

DAMAGE OF PHOTOGRAPHS.—Extraordinary conduct was alleged against a well-known Reading dentist in the local police-court last week, when Neville Walsh, of Blagrove Street, was summoned by Messrs. Walton, Adams, and Sons, photographers, for wilfully damaging several of their pictures. Defendant occupies rooms over Messrs. Adams' business premises, it was stated, and for some time past there had been unpleasantness between the parties. On Messrs. Adams visiting their show-rooms in the morning they have found sundry photographs and pictures damaged by a darkish liquid. Holes had been bored through the ceiling, through which liquid, which looked like ink, had apparently been squirted, it was alleged. A

witness living opposite the studio said she had seen defendant in a crouching position, as though examining the floors over the studio. In reply to one letter from Messrs. Adams, defendant said he was frequently kept awake until daylight, being suspicious that something wrong was going on in the studio. Messrs. Adams added that even since the summons had been served on defendant they had had further pictures damaged by what looked like ink. Defendant said: "I don't confess, and I don't deny it. If I did do it, I plead justification." The chairman of the Bench told defendant he had been guilty of most wilful and malicious damage. An inclusive fine of 11 guineas was imposed, or in default five weeks' imprisonment.

AMERICAN NOTES.

THE Dresden Exhibition has been very much in the minds of the Americans—amateurs, professionals, and especially manufacturers. Two of the greatest manufacturing firms, in discussing it at some length, have expressed the hope that it might form a precedent, and be the first of a series of really great and really international exhibitions. The idea seems to be that in 1911 there should be one in London or in an American city (Buffalo and Chicago have been suggested), followed by Paris, and then by Melbourne or Sydney. American eyes are turning more and more towards trade with the British Colonies—especially Australia—largely as the result of the great world-trip of the U.S. battleships.

Our Great Colony.

In discussing exhibition sites there is quite an inclination to consider Toronto or Montreal, for the men of the United States are greatly impressed with the enormous and immediate promise of our great Dominion—even if many Britons are not so fully alive to it as they ought to be. In the near future Canada will see the greatest commercial contest the world has ever known. At present there is a very strong general prejudice in favour of British goods in the photographic line; but the Americans are next door, they are alert, and they will leave no stone unturned to capture the great trade that is growing daily. The homeland has the preferred products, in quality and design, in almost every line. In most lines we can compete fully on prices and terms, and the field is ours if we can only keep in touch with the development of the new cities and districts, cultivating them directly or through responsible agents by a ceaseless appeal of tactful advertising, fresh stock, and suitable packing.

Ambassadors of Commerce.

When I landed in the States last winter Lord Northcliffe was there in the interests of the Harmsworth publications. A week later, in Toronto, I found Mr. W. E. M. Goode in that city, in the interests of "The Standard of Empire." "The Times" has opened a fully equipped Canadian office, as well as one in New York, in addition to strengthening its staff in Washington; and "The Standard" aims to represent Canadian matters as no other paper can attempt to do.

British Trade in the U.S.

On this head I will say little at the moment; but there are some notable facts. First: I am assured that the sale of British plates is growing steadily—the Ilford, Imperial, Wellington, and Mawson lantern-plates being especially mentioned. Second: The sale of British lenses is said to be growing. Old favourite high-class makes are believed to be more than holding their own in competition with the American and the German makes; and one lens in particular, which has recently been specially modified to suit certain American cameras, is expected to make a sale such as no imported lens has ever attained, and it is not a "cheap" lens, either. Third: The Ensign film appears to be making a place for itself with a rapidity and success that must be most gratifying to Austin Edwards and Houghtons Limited.

A New Studio Camera.

A camera which is new in almost every detail, and not merely a slight variant of old patterns, has been devised by the Century Camera Company (branch of the Eastman Kodak Company), and

though it will doubtless be illustrated and described in the "B.J." as soon as it is absolutely ready for the market, some details may be of interest now. The stand is a metal pedestal of circular section, more like the binnacle-box of a steamer than like an ordinary camera-stand. A pedal raises the camera gently and steadily by air-pump pressure, while another lowers it just as gently by letting the air escape. The ostensible lens is a big dummy, and the image is thrown by a mirror to a ground-glass in the side (not the back) of the camera, which has a most convenient focussing hood, rendering a focussing cloth unnecessary. In photographing children or nervous persons the operator looks as if he was working with the dummy lens, and can pose and manipulate the mother or an assistant while keeping observation on the real sitter. For children on the ground the camera drops very low, as the pedestal is telescopic, and the operator then turns his mirror to throw the image on a focussing-screen in the top of the camera. Many other details—as the reversing back, an entirely new lens-hood device, etc., etc.—are individual and interesting.

Record and Laboratory Camera.

Cameras of this type are amongst the latest products of the Century Company. The record outfit is prepared especially for use in insurance, surveyors' and architects' offices, and consists primarily of a large square cabinet, at one end of which the front-board with lens and reversing prism is fixed, while the camera back moves horizontally along the top, and the copy-holder moves vertically up and down the end of the cabinet, beneath the lens and prism.

The laboratory outfit is not so new in principle, though it has many ingenious and useful details, and seems an ideal machine for photo-micro, copying, and lantern-slide work.

Through College with a Camera.

While in the office of the Century Camera Company, I happened to see the opening of a parcel, which was interestingly typical of certain conditions in America. It was a set of prints from a young student in one of the Middle-States universities, who is working his way through college by his earnings as a semi-amateur. A working man, with no money to pay for an advanced education, he saved enough to buy a 7 by 5 field camera, and learned enough to give confidence that he could earn a living. Then he boldly took the entrance-examination and started a course of study and photography combined. Since he has "made good," and feels grateful to those who supplied the camera and have given many useful hints, he sent them a parcel of prints culled from his work, with a query as to whether they could make use of them in any way. The prints were excellent, from charming out-door portraits and groups, mainly of children.

This method of working one's way through college is not at all unusual in the United States; in fact, many of the smaller universities, with a long session through the winter and a very long vacation in summer, have a number of students who take work in summer as waiters, farm-hands, boatmen, etc., to earn enough to pay for their tuition in winter. No prejudice or stigma attaches to these students, and their determination to secure the best possible education indicates the power which forces so many Americans to the front in commerce, and in other walks of life to which they devote themselves.

H. SNOWDEN WARD.

A REPORT ON THE PRESENT CONDITION OF SENSITOMETRY.

[The following paper, by Dr. C. E. Kenneth Mees, F.C.S., read before the recent International Kongress für Angewandte Photographie at Dresden, discusses a subject of considerable importance to dry-plate manufacturers, and indirectly also to all users of plates, seeing that a large section of it deals with the thorny question of the value to be taken as the measure of the speed of a plate.—Eds. "B.J."]

THE sensitometry of photographic dry-plates is somewhat peculiar, in that while it is a subject of considerable magnitude and difficulty, it is the study of but few persons, and is almost unknown to the professional scientific worker. It has been developed by a few photographic enthusiasts, and to a small extent in technical works; but while the number of workers on the subject has been few, their enthusiasm has been great, and many papers have been published on the subject.

There is no text-book which deals adequately with the subject as a whole. The only papers and books present the conclusions obtained and the methods adopted by the writer himself, rarely referring at any length to previous publications. In the text-books of photography the subject is almost entirely neglected, the writers, where they refer to it, being those who have themselves developed methods, and confining their attention almost entirely to their own methods.

Branches of Sensitometry.

Sensitometry can be divided into three main sections:—

1. Sensitometry proper, or the measurement of the sensitiveness of plates.
2. The measurement of the rate of development of plates.
3. Colour sensitometry, being the measurement of the distribution of colour-sensitiveness in plates.

Besides these three branches, the application of plates in measurement, and the special factors required to be known for quantitative measurement of phenomena by means of their effect upon plates, forms a fourth division of the subject.

It will be clear that methods of sensitometry can be considered from two different aspects analogous to those from which we can consider an analytical method. First, from the point of view of accuracy and of convenience in scientific investigation. For this purpose the great requisite is accuracy, all other considerations being subsidiary to this. Complicated and delicate apparatus, and the necessity for great skill in use, are not disadvantages. But just as an analytical method requiring great skill and complicated apparatus is not suitable for the use of a manufacturer, who requires to know the purity of his products, so methods suitable for research in sensitometry are not necessarily suitable for use in a dry-plate factory. As a general rule, however, the difficulty of getting accuracy is so great, and the need for it is so much felt, that accuracy must be the first desideratum in the factory as in the laboratory.

It may be well to remark here that the photographic manufacturers are rather unenviably distinguished for their lack of scientific method, both on the Continent and in England. Manufacture is largely in the hands of skilled practical men who have but a small amount of scientific training and prefer rule-of-thumb methods to measurement. This fact is due, no doubt, to the very difficult nature of the work, emulsion work, like cookery, being dependent more on the skill of the operator and his experience than on his scientific knowledge.

A Suggested Definition of Plate-Speed.

The great difficulty in designing a system of sensitometry has always been the definition as to what is meant by the sensitiveness of the plate. On reading over the discussions which have taken place on this subject it seems to me that many who have taken part in those discussions have been so concerned with the difficulties of the definition that they have failed to observe the necessity of having some definition, even if that definition

be insufficient. I would suggest as a practical definition one that agrees with ordinary practice, viz., "The relative sensitiveness of two plates is the relation between the exposures required to produce a deposit transmitting 1-10th of the incident light when the plate is developed so that the density differences for the 'straight line' portion of the characteristic curve are equal to the differences of the logarithms of the exposures received, the light source being daylight, and the total exposure for that density not exceeding two minutes nor being less than five seconds." This definition, it will be observed, defines the colour of the light, and also avoids difficulties with regard to the failures of the reciprocity law.

It is quite true that the ratio of sensitiveness may not be unaltered—

1. For other regions of the characteristic curve,
2. For much more or less intense light sources.
3. For differently coloured light sources;

but I think it better to define these variations, of which 1 is comparatively small; 2 is very small indeed; and 3 very small, except for colour-sensitive plates which are separately measured, independently of the normal sensitiveness measurement for practical purposes. Apart from colour-sensitive plates, the errors introduced in practical photography by 1, 2, and 3 are probably much smaller than the errors occurring in many other directions.

Sensitometry Proper.

For a considerable period investigators have been concerned in attempting to measure the sensitiveness of photographic plates. In the very early days of dry-plates, plates were stated to be 10, 20, etc., times as fast as wet-plates, but before long the need for a more accurate method of measurement was felt. This need was to a certain extent met by the "Warnerke" sensitometer, which consists of a piece of glass covered with squares of pigmented gelatine, each square having an opaque number printed on it, and transmitting for each square $\frac{1}{3}$ rd less light than the preceding square. Other instruments giving intensity scales of the same sort were used by Spurge and Dr. Vogel. In the "Warnerke" instrument the plate is exposed to a graduated series of intensities, and its sensitiveness is measured as the least degree of intensity which it can register. A recent and convenient application of this method is the "plate-tester" devised by Mr. Chapman Jones.

This method has been developed in Germany by Eder, who used the sector wheel designed by Scheiner. In the Scheiner wheel there are in the big model 23 angular apertures, each of which is larger than the preceding one by 1.27. This is rotated in front of the plate, and exposure is made either, as proposed by Scheiner, to a benzine standard lamp, or to a Hefner-Alteneck amyl-acetate standard. After development, which is for a definite time (a method which, as will be explained below, leads to inaccurate results), the plate is placed face downwards on a sheet of white paper. The exposure corresponding to the lowest densities which can be observed is termed "schwollenwert," or "threshold value," of the plate. This method has been largely adopted in Germany, especially in consequence of the advocacy of it by Professor Eder; but it appears to be being now slightly displaced by the Hurter and Driffield system, which was, at any rate nominally, adopted in England rather more than ten years ago.

The Congress of Photography in Paris (1889) suggested another method of finding the sensitiveness of a plate, but no one seems to have adopted their suggestions in practice. They suggested that the amount of light which was required to produce a density which would transmit half the light should be taken as the standard. They do not seem to have stated anything concerning development, which is, of course, the vital point of this definition. If the definition were that the sensitiveness should be taken as that exposure which would produce a density which was equal to the steepness of the characteristic curve—that is, a density of 1, with a development factor of 1—there seems to be no objection to it, and in practice it would come close to the recommendations of Hurter and Driffield.

Abney found the sensitiveness of plates by plotting the transparency against the logarithmic exposure, calculating the sensitiveness from the point at which the tangent to the inertia point met a parallel to the exposure axis. In this method the sensitiveness found is the point of least light-action, and is dependent on the lower portion of the characteristic curve. And in 1890 Hurter and Driffield read before the Liverpool section of the Society of Chemical Industry a paper which they entitled "Photo-Chemical Investigations." They gave a number of experiments in which they had exposed plates to varying extents, and had then measured the optical density, which they showed to be proportional to the mass of silver developed in the plate. They then plotted the density against the logarithm of exposure, obtaining what they call the "characteristic curve of the plate." They found that the central portion of this curve was very close to a straight line, and that, if they prolonged the central position, the point at which it cut the exposure axis was not affected by the time of development. They consequently considered the point at which this straight line cuts this axis to be proportional to the insensitiveness of the plate, and they termed it the "inertia" point. In spite of much criticism and of certain practical disadvantages, this method has been, and is being, steadily adopted as the best practical method of finding the sensitiveness of a plate. Unfortunately, there is much confusion as to light standards, and obviously the choice of a light standard greatly affects the results.

Hurter and Driffield used a British standard candle. Shepard and Mees, when repeating a great portion of their work, standardised acetylene burners by means of the present standard pentane burner. This standard and the candle standard give practically identical results. Hurter and Driffield defined their sensitiveness as 34 divided by the "inertia," and this was what was meant by the Hurter and Driffield (H. and D.) speed. The H. and D. speed published by some commercial houses must lead one to conclude either that the standards used are inaccurate, or that the numbers are intended simply to serve as trade marks without any actual reference to the speed of that particular box of plates. Inasmuch as the Hurter and Driffield "Actinograph," for which the H. and D. speed was intended, is very little used—having been supplanted, in England at any rate, by the Watkins and Wynne meters—it would appear better to give sensitiveness in numbers suitable for these instruments. After some correspondence with Mr. Watkins I have come to the conclusion that the nearest approximation to his numbers can be got by dividing the "inertia" into 50, which makes them about 50 per cent. greater than the Hurter and Driffield numbers. The Wynne numbers are got by multiplying the square root of the Watkins number by 6.4.

A few words should be said concerning the apparatus required for carrying out sensitometry. For the purpose of finding speed, two instruments only are essential. First an exposure instrument with a standard light source, either a primary source such as the pentane standard, or a secondary standard, and of a method of graduating the light so as to obtain a series of intensities. The best method of accomplishing this latter object seems to be to use the sector wheel suggested by Dr.

Hurter, from which nine angular sectors are cut out, the angles being 180 degrees, 90, 45, etc., each one giving half the exposure of the next one. The wheel can be rotated by an electric motor or a small hot-air engine, or, if not often used, by hand. Secondly, an instrument for measuring the density of the silver deposit is required. Abney used a Rumford photometer, Hurter and Driffield a Bunsen bench photometer; but these earlier instruments have largely been replaced by the smaller and more convenient, as well as more accurate, polarisation photometers. A very convenient polarisation instrument is the Martens pattern made for the purpose by Schmidt and Haensch, which is largely used. A photo-chemical laboratory will require a spectrophotometer for other purposes, and this will form a very perfect instrument for the measurement of densities.

I may refer here to an important paper by A. Callier on "Scatter in Photography" (Phot. Journ., April, 1909).

If work on development is to be done, apparatus for keeping the developer at a constant temperature will also be necessary. A complete discussion of the apparatus used in carrying out the H. and D. system will be found in a paper in the "Photographic Journal" for July, 1904, entitled "On Instruments for Sensitometric Investigation."

Measurement of the Development Constant of Plates.

If a plate be given an exposure, and then cut up so that different portions of the plate can be developed for different times, it will be found on measuring the density and plotting the curve of the density against the time of development, that the density rises with the time of development rapidly at first, and then more slowly, finally arriving at a limiting value which is dependent upon the exposure which the plate has received. The equation connecting the density with the time of development is given by the law that the velocity of development is proportional to the difference between the final density which can be attained, and the density which has been already attained, that is:

$$V_{(D)} = \frac{dD}{dt} = K(D_{\infty} - D_t)$$

which on integrating gives:

$$K = \frac{1}{t} \log_e \left(\frac{D_{\infty}}{D_{\infty} - D_t} \right)$$

It will be seen from this that if we differentiate so as to get the initial velocity, the initial velocity is equal to $K D_{\infty}$.

Now since the density for a given exposure is proportional to the slope of the characteristic curve, that is to $\tan \theta$ for the straight portion, which was termed by Hurter and Driffield γ , we can write γ for D in this velocity equation, getting:

$$K \frac{1}{t} \log_e \left(\frac{\gamma_{\infty}}{\gamma_{\infty} - \gamma_t} \right)$$

and for the initial velocity $K \gamma_{\infty}$. In order then to know the developing properties of a plate, we require to find K and γ_{∞} . These two constants are found by developing two plates, one for twice the time of the other, and solving the simple simultaneous exponential equations thus obtained. Tables have been published to facilitate the after-calculation, but a good deal of practical work has convinced me that it is safer to find out how long a given plate will take to develop, and develop to a high density, and then to develop for so much longer that the plate will be completely developed, and take the γ reading as γ_{∞} . K can be calculated from another plate, developed for a fixed time in a standard developer at a standard temperature. A useful application of the two constants thus found is to calculate from the time of development for that particular batch of plates. For normal purposes, γ_{∞} is a very important sensitometric constant indeed, it settles the density-giving power of the plate and is one of the chief controlling factors in emulsion making. It is a very variable factor, which is easily altered by small alterations in making emulsions. The velocity constant

development "K" is even more variable, varying from time to time in different batches without apparent cause. It is dependent upon the rate of drying of the plates.

Colour Sensitometry.

If the determination of the sensitiveness of plates is in a somewhat unsatisfactory condition, the determination of colour-sensitiveness may be said not to have commenced. There are two methods which are usually practised, but the great difficulty with all methods of colour-sensitometry is the amount of time which they consume. The two methods are:—

1. The measurement of the density curve of the plate when exposed in the spectroscope.

2. The measurement of the sensitiveness of the plate by a "Schellenwert" or Hurter and Driffield method, when exposed under given sets of broad-banded filters.

The first method has been greatly developed by R. J. Wallace ("Astrophysical Journal" XXV., No. 2, March, 1907). Wallace uses daylight, employing a standard plate in order to find the intensity of the daylight, and exposes the plate in a spectroscope of his own design, measuring the density in a Brace spectrophotometer. The plates are developed to a γ of 1, and the spectrum curve plotted. Mr. Wallace suggests a coating of the density readings found in this manner for six or seven points in the spectrum.

The second method, using pigments as well as filters, has been much developed by Abney, who also designed a "colour-sensitometer" transmitting narrow spectral regions of the same visual intensity, so that for a properly corrected plate they should produce deposits of equal density.

In my own practice I have found the relative sensitiveness under a yellow and a blue filter as suggested by Eder, the blue filter transmitting the portion of the spectrum below 5,000, and the yellow filter the portion of the spectrum above 5,000; or else, in my later work, under a set of tri-colour filters, taking the tri-colour ratio as a measure of the relative sensitiveness of the plate.

Mr. Wallace rightly objects to this method, that a plate may give, for instance, a high reading under the red filter without having even sensitiveness in the red, owing to great sensitiveness in the orange, and I find it, therefore, convenient to control the quantitative numerical statement of sensitiveness as given by the tri-colour filters by a qualitative investigation in the spectrum.

In order to avoid the trouble of making a series of exposures, or of measuring density curves, I employ a black glass wedge in front of the slit, which produces a graduation of intensity from 1 to 1,000 in the length of the slit, and in this manner obtain what I usually term "wedge spectra," a combination of which spectra with a three-colour ratio for a definite set of filters appears to me to be satisfactory.

I should here make reference to a paper at present appearing in the "Zeitschrift für wissenschaftliche Photographie" by Leimbach, entitled "The Sensitiveness to Radiation of Gelatine Dry Plates." Leimbach has measured the intensity of his radiation in a spectroscope, by means of a radiometer, and has measured the density of his plates in a Hartmann micro-photometer. The chief point of novelty appears to be that he expresses the intensity of light in absolute energy units for each portion of the spectrum.

In closing this review of sensitometry, I must refer to the application of photographic plates for the measurement of intensities. It is not uncommon in scientific work to find photographic plates used for the measurement of intensities without a sufficient understanding of the conditions under which they must be used. It is not sufficient, for instance, to take densities, even if accurately measured, as a measure of light action, unless they are first interpolated on the characteristic curve of the plate. It is not sufficient in sensitometry to take

plates developed for the same time as being developed to the same extent. If plates are to be developed to the same extent so that densities can be taken as proportional to sensitiveness, they must be developed to the same γ , and two plates developed for the same time are very unlikely to be developed to the same γ .

It is also advisable, if scientific workers use photographic plates, that instead of attempting to discover the whole of the properties of photographic plates for themselves, they should refer to the photographic literature on the subject. I have recently, for instance, read several papers where the authors had completed a laborious piece of investigation upon some particular property of a photographic plate in blissful ignorance of the fact that the whole of that work had been done, and been done much better, some fifteen years before.

The complicated nature of the subject, and the scattered character of its literature, is no doubt responsible for such mischances.

C. E. KENNETH MEES.

A NEW BOGUS PORTRAIT DODGE.

At Huddersfield Police Court last week Tom Duncan, 21, canvasser, Glasgow, and James Houston, 20, canvasser, Edinburgh, were charged with having obtained 3s. 6d. from Mary Wood, Prospect Street; 3s. 3d. from Harriet Shakeshaft, Outcote Bank; and attempting to obtain money from Emily Schorah, Spring Street, all by false pretences. On a fourth count, prisoners were charged with having obtained food by false pretences from Mary Ann Berry, Albion Street. Defendants pleaded not guilty.

Mr. Frank Sykes appeared on behalf of Messrs. Lever Brothers, Ltd., soap manufacturers, of Port Sunlight, and said that for a considerable time past there had been a gang of men, including prisoners, going up and down the country defrauding the public by making use of Messrs. Lever Brothers' name. They called upon persons and asked whether they were users of Lever Brothers' soap, and if they found they were, they said Lever Brothers had ceased giving presents in connection with wrappers, and they had decided to present an oil painting to the users once a year. Generally, they obtained portraits from such people, and then made arrangements with them for supplying frames, for which they made charges. They carried that out at Glasgow, Edinburgh, Leeds, Manchester, Liverpool, Londonderry, and various other places, including Huddersfield. Owing to the smartness of Detective-sergeant Whitehead, of the Huddersfield Police, two men were suspected, and subsequently identified as having used this deception on the public.

The evidence showed that on August 3 the prisoners called at the house of Harriet Shakeshaft, at Bank Terrace, Outcote Bank, and asked if she used Sunlight soap. Receiving a reply in the affirmative, they said they represented Messrs. Lever Brothers, who had commenced to give enlarged photographs in oil once a year to all users of Sunlight soap. Believing the men, she gave them a small photograph of her son for enlargement, and they went away. They called again on August 10, and showed her samples of picture frames. They offered her one for framing the enlarged picture for 3s. 3d., which they said would also cover the cost of carriage. Witness paid them 3s. 3d., and they gave her a receipt for the money, signed A. Duncan and T. Smith.

In the case of Mrs. Mary Wood, prosecutrix said defendants called upon her on the 3rd inst., and made similar representations. She paid them 3s. 6d. to have a portrait enlargement framed. She did not, however, receive the picture.

According to the evidence of Mrs. Emily Schorah, the methods adopted by the prisoners in her case were similar to the others. She gave them for enlargement by Messrs. Lever Brothers a photograph of her daughter, and the prisoners, showing her some picture frames, said the cost of the different samples would be 5s. 6d., 3s. 9d., and 3s. 6d. Prisoners added that the charges would include the cost of carriage from Port Sunlight. Witness said she would not pay any money until her husband came home, and the prisoners left, taking the photograph with them. Her husband subsequently communicated with Messrs. Lever Brothers.

Detective-sergeant Whitehead gave evidence of apprehending the prisoners on August 15. When charged, Duncan said:—

"No, we don't represent Lever Brothers. We only tell the people that we want our firm to be as well known as Sunlight soap. You

know the game, the free photograph business, is played out, and we have to tell them some sort of a tale to get them to have one."

Robert Morris Lister, confidential clerk to the secretary of Messrs. Lever Brothers, Port Sunlight, said the prisoners had no authority to represent the firm.

On the charge against the prisoners for obtaining food by false pretences from Mrs. Mary Ann Berry, the latter stated that the prisoners had boarded and lodged at her house from August 9 to 13. They said they represented the Empire Art Company, Gordon Street, Glasgow. They stated that the firm would wire a deposit, as they would stay three weeks. A few days afterwards, becoming suspicious of the prisoners, she gave information to the police. The food they had consumed was valued at 10s. 3d.

Addressing the magistrates, Duncan said the reason that Messrs. Lever Brothers' name was used was that it was "a little business fact" to get an introduction to a house. When calling upon people the mere mention of the word "photographs" was enough to have the door closed against them. They mentioned the name of Sunlight soap and said they were a firm trying to build up a business on these lines. They never said they represented Messrs. Lever Brothers.

Prisoners were committed for six weeks' hard labour in each case—six months each in all.

A TALK ON COPYRIGHT AND FRATERNITY BY
PIRIE MACDONALD.

On Thursday, August 26, Mr. Pirie Macdonald, of New York, was entertained at supper, at Gow's Restaurant, Strand, London, by an impromptu party of a few London photographers. Present were:—Mr. Lang Sims, President of the Professional Photographers' Association, in the chair; Mr. Alfred Ellis, in the vice-chair; and Messrs. Ernest Elliott (Elliott and Fry), S. H. Fry, E. O. Hoppé, Alexander Mackie, Richard Speaight, H. Snowden Ward, and Arthur Weston. Others who expressed regret at inability to be present, owing to the very short notice which alone was possible, were Messrs. H. Walter Barnett, F. A. Bridge, George E. Brown, Furley Lewis, Louis Langfier, Reinhold, Thiele, and R. Fellows Wilson.

After the usual loyal toasts, the chairman briefly and heartily welcomed the guest of the evening, and proposed his health. In reply, Mr. Pirie Macdonald said that he felt his capacity to be representative rather than personal—representative of the Professional Photographers' Society of New York, and of a number of men who were in every sense the brothers of his hosts. In America it had been realised more fully than in this country that the best friends for a photographer were photographers; that the best companion for any man was a man who had similar experiences, aims, tastes, and difficulties. In the P.P.S. of N.Y. it was found that men attended the informal social meetings with pleasure and zest, because they could always gain something, but most of them went with greatest pleasure to a meeting when they had something to give to others. They had absolutely broken down the old bad secretiveness and jealousy that existed for too long, and had realised that the best way to cure competition and price-cutting was by raising the price-cutter to a higher level, helping him to do better work, encouraging his confidence and pride in his work; for they found as an actual fact, that as soon as a man felt sure that his work was as good as another man's who was getting better prices, he wanted better prices too. There was still some pettiness and still some unfair competition in New York, but the average photographer was in a more firmly established commercial position, especially the middle-class photographer, and his position was the basis of the American good prices and good profits. Even the low-priced man was in a sound position, as a rule; and he was respected by his neighbours because his work did not interfere with theirs, but appealed to a distinct class of custom which they could not reach. The result was that the three-dollars-a-dozen man met the kings of the craft at the Society's meetings, asked them freely for any information or assistance that he wanted—and got it.

During the past four years many of the American photographers had been at work influencing the new copyright legislation which had just been passed. The bulk of the work had fallen upon Mr. B. J. Falk, one of the greatest and most unselfish men in the craft, a magnificent organiser and a giant for detail. Mr. Falk had asked him (Mr. Macdonald) to represent photography at the actual sessions of the committee that dealt with the four different bills and a host

of amendments and modifications, so that in addition to their long work on details, they had forty days on the floor of the committee-room, debating, opposing, supporting, and influencing point after point—forty days of strenuous work that became absolute agony.

They found that photography was not seriously recognised in any of the draft bills, and that many of the representatives of writers, painters, etc., wished to give no copyright to the work of the photographer. The photographers refused to consider any position of privilege or of inferiority, so that under the new law they stand on all fours with all American authors. The old law was an agglomeration of enactments and rulings, puzzling, inconsistent, and sometimes flatly contradictory of itself. The new law was clear and logical. The old law had come to a deadlock because the penalty for infringement often could not be collected. In the new law the maximum penalty was greatly reduced, but there was little doubt about its being recoverable.

The "manufacturing clause" was a most important one. Under the old law copyright could only be had in books, photographs, etc., if they were printed from type set, negatives made, etc., in the United States. This clause remained in the new law for all forms of art work except photography. Photographers had insisted on the removal of the word "negative." Therefore, under the new law, a British or other foreign subject can obtain copyright in his photographs on exactly the same terms as an American subject. This (said Mr. Macdonald) was a real expression of the feeling of brotherhood, a free-will offering to the photographers of the world, without any bargaining, terms, or conditions; and if authors in other lines still felt that the "manufacturing clause" was a grievance, he hoped photographers would feel that their brothers in America had tried to be generous. Reciprocity would be appreciated; he felt sure that, in influencing the copyright law that would soon be under consideration in Britain, the British photographers would guard the Americans' interests as far as possible.

The fraternal feeling of the American for the Briton was not confined to photographers, but was a strong, deep, national sentiment, and whatever might be the actions of governments or of diplomats in the future, the hearts of the people would always be with the people of Britain.

The conversation then became general, and questions of copyright, international co-operation, price-cutting, and the Professional Photographers' Association were discussed until a late hour.

Photo-Mechanical Notes.

Mechanically Etched Wood Blocks from
Photographic Reliefs.

ACCORDING to a recent invention of Messrs. A. E. and W. A. Say, 2, Whitefriars Street, London, E.C., an apparatus has been devised for engraving on wood by a mechanical or automatic method, the device being attached to a wood-engravers' ruling machine. The patent specification (No. 21,752, 1908) gives the following descrip-

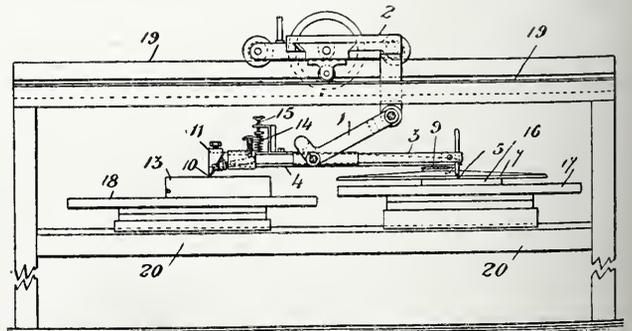


Fig. 1.

tion:—The frame, 1, is constructed and suspended from the usual travelling tool carrier 2 of a wood-engraver's or like ruling machine. To this frame 1, are connected two levers 3, 4, arranged side by side and pivoted on separate pivots in or to the frame 1, with the pivots in the same axial line, as will be understood from fig. 3.

To one end of one lever 3, termed a graver lever, is attached

tracer point 5, and the corresponding end of the other lever 4, termed a guide lever, an ordinary point or pin 6 or other means for connection of a plate 7. A pin 6 is placed at an angle as shown, and enters an angled hole 8 in the plate 7 and is held to the plate 7 by a spring 9 as in fig. 2.

On the other corresponding ends is attached to the graver lever 3, a graver or cutting tool 10, and to the guide lever 4 an adjustable screw or socket 11, having a smooth end 12, or a disc attached thereto, so that it rests upon the block or plate 13 to be engraved without injuring the surface.

On the guide lever 4 is fixed a spring 14, and on the graver lever 3 a screw rod 15 is connected which has action on the spring 14 on the guide lever 4 to prevent the cutting tool 10 digging too far into the surface of the block 13 to be engraved whilst at work.

The strip or plate 7, having a smooth surface, rides over the surface of the relief or mould 16, and in such a manner as not to injure its surface, the lever 4 and plate 7 adjusting themselves to any angle with regard to each other.

The mould 16 is fixed to the table 17 of the machine, and immediately under the tracer point of graver lever 3 with the plate 7 of

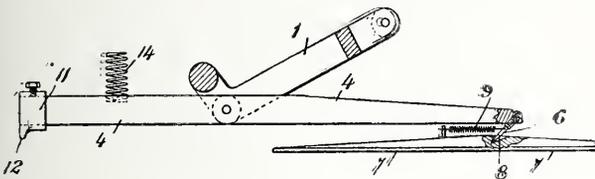


Fig. 2.

the guide lever 4 laying upon its surface. The wood block, metal plate, or other body 13, to be engraved is fixed to the table 18 of the machine immediately under the graver tool 10 of the graver lever 3.

The tracer 5 is then positioned to commence the work at one side corner of the prepared surface on the mould 16, and the graver 10 in corresponding position on the surface 13 to be engraved. The adjusting screw 15 on the lever 3 is then positioned for the tracer 5 to touch the mould 16, and the graver tool 10 is positioned to be within cutting distance of the engraving surface, i.e., to just touch the surface to be engraved, when the tracer 5 is at the lowest depth on the mould or relief 16.

Now by reciprocating the frame 1 and its carrier 2 along the usual rack 19 of the machine, the graver 10 will cut into the surface 13 in accordance with the movements of the tracer 5 over the mould or negative 16, the depth being varied in accordance with the surface

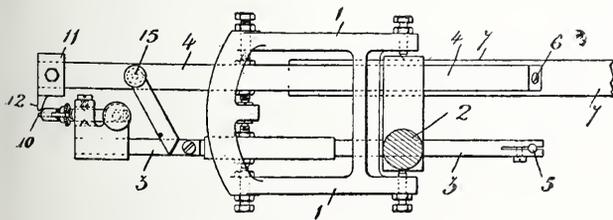


Fig. 3.

of the mould or negative 16, and during this reciprocating of the frame 1 and its carrier 2 the usual ratchet or other wheel is operated to move the frame sideways, so that at each movement forward, or in some cases forward and backwards, the surface is engraved or cut with one line, as is well known with engravers' ruling machines, the degree of side movements depending upon the amount of relief.

The mould or negative 16 and the block 13 to be engraved may be fixed to revolving plates 17, 18 in the bed 20, so that they can be positioned to allow of line engraving of any direction.

The positions of the pivots on the levers 3, 4, can be varied with ease in the frame 1 to suit the depth of cut required in the surface of the block 13 or the amount of relief—that is to say, the pivots, though always in axial line, may be adjusted as to distances from the ends of the levers.

The tracer 5, in moving over the mould surface 16, rocks the graver lever 3 about its pivots, and the graver or cutting tool 10 is caused to vary its depth in the surface whilst cutting, and the cutting point of V shape will remove a narrow or wider strip, and consequently will leave lines of the desired width, according to the depth

of the cut and angle of the V tool; thus if the tracer 5 is moving over a higher position of the surface of the mould which represents a white or light tone surface on the picture, the graver 10 enters deeper into the surface 13 and cuts a broad groove, and in some cases will leave no lines for printing, and when the tracer 5 is moving over a deeper surface of the mould 16 the graver 10 will only lightly cut

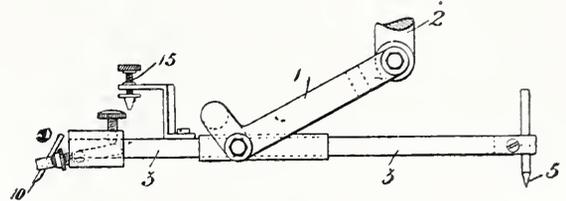


Fig. 4.

into the surface of the block 13, and in some cases effect no cut at all, so that we have the heavy lines or black portions of the pictures, the lines being varied according to the movement of the tracer 5.

To produce pictures or engravings from a relief where the lighter tones are represented by the greater depth of the relief, the positions of graver or cutting tool 10 and adjustable screw socket 11, and screw rod 15 and spring 14 respectively, are reversed, so that there is the same movement with the graver as with the tracer instead of the reverse, as in the previous case. In cases where the cutting takes place on both the forward and backward movement of the frame, a graver or cutter is used, having a specially shaped or a double cutting edge, or it may be two gravers.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

Applications for the following patents have been received from August 16 to 21 :—

PRINTING APPARATUS.—No. 18,907. Resiliently cushioned printing frame for photo-printing cabinets. James Frank Ware, 52, Chancery Lane, London, W.C.

SHUTTER RELEASES.—No. 19,021. Improved method and means of releasing photographic shutters. Katharina Baser, née Verini, 7, Southampton Buildings, London, W.C.

CINEMATOGRAPHY.—No. 19,028. Improvements in the manufacture of opaque cinematograph images for projection by reflected light. Charles Dupuis, 31, Bedford Street, Strand, London, W.C.

CINEMATOGRAPHS.—No. 19,097. Improvements in or relating to cinematographs. Vittorio Benaglia and Ubaldo Grimaldi, 111, Hatton Garden, London, E.C.

SHARPENING RETOUCHING PENCILS.—No. 19,125. Strop for sharpening pencils used by photographic retouchers and others. William Aristides Verel and Charles Frederick Wiggins, 100, Wellington Street, Glasgow.

CINEMATOGRAPHS.—No. 19,275. Improvements in cinematographs. William Speirs Simpson, 173, Fleet Street, London, E.C.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

COLOUR SCREEN-PLATES.—No. 17,509, 1908 (August 18, 1908). The first two claims in regard to the invention are :—

1. A colour screen-plate, which consists of a glass plate covered over with a screen coating composed of a graduated continuation of colour rings of equal or varying widths, the corners of these plates or other support being segments of these circle rings.

2. A colour screen-plate as claimed in Claim 1, composed of a graduated continuation of coloured rings of equal or varying widths, each circle ring consisting of a number of coloured squares or points.

That is to say, the glass plate is covered entirely with a mass of graduated colour circles, joining each other, but not overlapping, which upon the surface have the appearance of a grey tint, but upon being viewed against bright light have no colour at all as the optically correct primary colours in their proper proportions form white light. The method of taking a picture with these screen-plates is practically the same as when using the Lumière "Autochrome" plates, except that positives which are transparent can be printed direct by contact with the negatives, which are also transparent, the registration being accurate, for the reason that the positive plates are made in exactly, the same manner, and from the same printing blocks, and are therefore self-registering; or the negative can be turned into a positive by various well-known means if desired.

A method suggested for the manufacture of the plates is as follows:—

For a film or such-like transparent support a set of three or more wood or metal blocks can be made by machine-ruling or engine-dividing and the various sets of the required colour rings printed from these blocks direct, or from blocks made partly by hand and by various well-known photo-mechanical processes, a set of three blocks, supposing three colours only are being used, covering the plate entirely with these colour rings of graduated

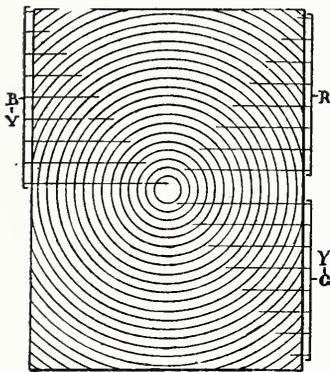


Fig. 1.

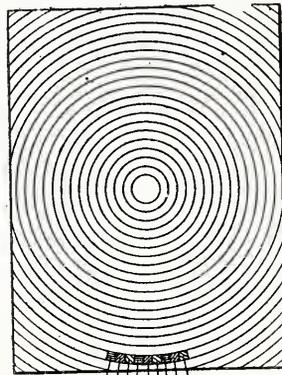


Fig. 2.

sizes fitting into each other and leaving no spaces between. Or the colours may be partly printed in, or partly stained in, or printed in inks that will repel each other, and by this means any overlapping is avoided.

The designs may also be printed upon the prepared glass plate direct by three or more colour-printing, rubber-faced blocks using ceramic colours and process of firing, as claimed in Patent No. 22,228, 1907 ("B.J.," November 13, 1908).

In printing in ceramic ink much the same method is adopted as above, except that the rubber printing faces are made direct from the engraved blocks or stereotypes causing the parts intended to accept these substances to be inverted as upon an engraved copper plate.

The glass plates or other supports (except those printed in ceramic inks and fired) are varnished preferably with a thick celluloid varnish before being coated with colour-sensitive emulsion, and are then ready for use.

As regards the use of the screen-plate with a cinematograph camera or projecting machine, a device may be used in front of the ribbon film attached to the gate and with suitable adjustment for proper registering with the colour records on the positive film, which have registered themselves from the negative-taking film. Through this screen and film combined the pictures are shown in their natural colours. Or a revolving colour-shutter may be used in close proximity to the film, or the ribbon film may be printed upon direct in colour in the manner previously described. The circle lines of the rings of colour for this purpose are about 1,200 to the linear inch, and at the same time being circular are evenly distributed over the picture, and are invisible in the enlarged projection upon the screen. When the screen surface is required upon paper or similar material upon which printed impressions may be made the same printing blocks can be employed, printing with the necessary coloured inks in succession

in proper register with each other, until the whole of the surface is covered with these graduated circles or point circles of colour and having no spaces or overlapping; the paper is then varnished if required, and super-coated with a printing-out emulsion and used in the ordinary way with such papers; the coloured positive or negative plate or film being used for the printing the colours will then be shaded down, more or less, with blacks or browns according to the emulsion or toning solution used, but through the clear parts the colours remain unchanged, and lights and shades are toned down according to the graduated depths and shades of the printing plate. Henry William Hamblin Palmer, 43, St. Martin's Lane, Charing Cross, London, W.C.

DAYLIGHT LOADING OF PLATES.—No. 16,732, 1908 (August 8, 1908). The invention consists of a special form of wrapper or covering for a sensitive plate, which latter thus encased is inserted in a dark slide, such as that described in Patent No. 7,319, 1905 ("B.J.," February 16, 1906, p. 132), by means of which it is exposed and, if necessary, developed without resource to a dark-room.

The envelope in which the film or plate is packed is made preferably of black paper. It embodies in one arrangement (shown in Figs. 1 and 3) three parts—namely: 1. An inner sheath for the back of the plate folded over it at the two side edges Ax of the plate B, and at the two ends A¹ thereof, so that the whole plate is enclosed, except the sensitised surface B, and permanently fastened to the plate by some adhesive material. The sheath is provided with a small flap, C, at the upper end. 2. A sliding

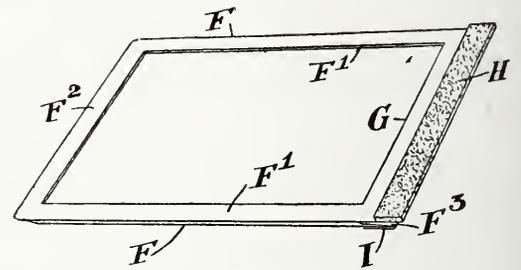


Fig. 1.

cover or blind, D, which is made of such a size as to be of rather greater length than the combined length of the back and front of the plate B. This blind is passed down the back of the plate outside the inner sheath, leaving a flap piece, D¹, projecting at the top, then up the front or sensitised face B of the plate, so as to entirely cover it. This blind, D, at front of plate is equal to the width of the plate. At the back it may be narrower if desired, as shown by the dotted lines, so long as it forms a sufficiently strong connection between the tab or flap, D¹, and the front portion, D. E is an auxiliary blind fastened at e to the main cover or blind, D. 3. An outer cover or sheath, F, which is closed at the two sides F¹ and at one end F², but is open at

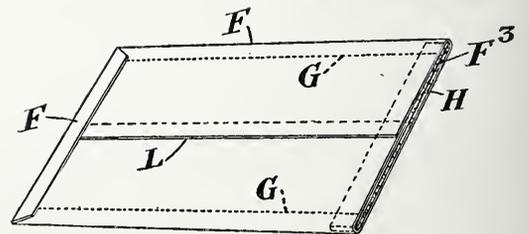


Fig. 2.

other end F³ to receive the plate or film B with its inner sheath together with its intermediate case or blind D. This outer sheath cover F has an opening, G, at the front, and is made of such a size that it can be slid into the dark slide, and then when the opaque shutter of the dark slide is slid over it into position the plate B, with its three coverings, is entirely enclosed therein, a light-trap consisting preferably of a piece of velvet, H, being fastened on the top edge of the outer covering, F, so as to make a light-tight joint against the opaque shutter. A small rib at the top of the dark slide on the inside engages the outer cover, and prevents it being accidentally withdrawn. I is a piece of stiffening fastened at the mouth of the outer covering, F.

The manufacturer inserts the plate, B, with its inner cover in the intermediate blind, D, and then with the flap, C, of the inner cover folded completely down, inserts the plate with the two covers in the outer sheath, F. The small flap, C, of the inner cover projects slightly through the opening, G, in the front of the outer sheath, F. This is then folded back over the edge of the opening, G, in the outer sheath and fastened by an adhesive. In this condition the plate, B, with its inner sheath, is firmly secured to the outer sheath, F, while the intermediate blind, D, is left absolutely free. The plates are now ready to be sold to the consumer. In use a plate with its light-tight envelope is placed by the consumer in the dark slide, the opaque shutter inserted outside the front of the sheath, and the intermediate blind, D, drawn out by taking hold of the tab, D¹, and pulling it. This removes the blind, D, from the sensitised side of the plate, B, and

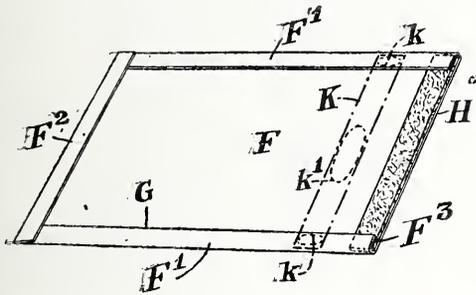


Fig. 3.

leaves the sensitised surface ready for exposure immediately the opaque shutter is withdrawn. The blind so withdrawn is discarded.

To take a photograph, therefore, all that is necessary is to remove the opaque shutter and take the photograph in the usual way, then replace the opaque shutter again before removing the dark slide from the camera. A box or container, such as described in Patent No. 7,319, of 1905, is then taken, and the dark slide and the parts 1 and 3 of the envelope enclosing the plate placed in this box. The developer is now introduced through an aperture in the box, and permitted to flood the photographic plate contained within the envelope and dark slide. When this has been continued for the desired length of time the solution is run out of the aperture. The subsequent operations of washing the plate and fixing it are accomplished in a similar way by running in the requisite amount of water and fixing solution in succession. Thus the various operations of developing, washing, and fixing are gone through without the use of a dark-room. Of course, the box or container could first be filled with the developing agent and the plate-carrier with its enveloped plate then inserted, and the shutter removed. In either case both the washing and fixing might take place subsequently in a second and similar box. George Edward Hawkes Rawlins, Low Skelgill, Windermere.

The following complete specification is open to public inspection before acceptance:—

LOUR PHOTOGRAPHY.—No. 18,553, 1909. Multi-colour photography, Krayn.

New Trade Dames.

WALTURDAW (DESIGN).—No. 314,397. Bioscope apparatus and all accessories therefor, including films, included in Class 8. Walturaw Company, Limited, 6 to 10, Dane Street, High Holborn, London, W.C. June 30, 1909.

FORTHCOMING EXHIBITIONS.

1909.

September 10 to October 23.—The Photographic Salon. Latest date, August 30. Sec., Reginald Craigie, 5A, Pall Mall East, London, S.W.

September 23 to October 30.—1.—Royal Photographic Society. Latest date (carrier), September 1 (hand) September 2. Sec., J. McIntosh, 35, Russell Square, London, W.C.

1910.

April 5 to 9.—Sheffield Photographic Society. Secs., J. A. George and J. R. Wigfull, 114, Parade Chambers, Sheffield.

Analecta.

Extracts from our weekly and monthly contemporaries.

Hypo on Tap.

The following method (writes Mr. Ernest Collins in "The Amateur Photographer and Photographic News" for August 31) will be found easy, economical, and decidedly convenient. A great point about it, too, is that from first to last there is no need to handle the hypo at all, a consideration devoutly to be desired, should we find that the fixing bath has run out just when we are toning or after developing. The expense is trifling, and, with care, a permanent piece of apparatus is added to our stock. Procure from your chemist a magnesia bottle—these are of a deep blue colour, stand about two feet high, and very firmly, especially when full of solution, and hold over 200 ounces. Then have made, out of a piece of butter muslin, a narrow bag, in the shape of a stocking. This should be about two feet long and about four inches wide. Also provide yourself with a small elastic band or two, these latter small enough to tightly close round the top of the bottle. The bag is just slightly wetted at the closed end, and dropped into the mouth of the bottle to about half-way down.

The protruding piece is turned back over the lip of same, and securely fastened by the elastic band. The hypo—one or two pounds—may now be poured in, in the proportion of four pints of water to the pound. It is surprising how quickly the hypo dissolves, and in five minutes an ample quantity of full strength, that is, plate-strength, hypo solution is ready—in fact, over a gallon. Withdraw muslin bag carefully, rinse same, dry and put away for future use. A syphon of thick glass tube can easily be fitted, and a tap of good black rubber tube, clipped with a burette, is a handy contrivance to draw off same. This can stand upon a high shelf in the dark-room, and a desideratum to all photographers is achieved, viz., the hypo laid on.

New Books.

TRAVEL AND EXPLORATION.—Since the whole civilised world is watching with interest the efforts of the Persian nation to rise to the rank of constitutionally governed nations, it is appropriate that the principal article in the September number of "Travel and Exploration" should describe that country. The author of the article, Major Sykes, C.M.G. (Gold Medallist of the Royal Geographical Society; British Consul-General and Agent of the Government of India in Khorasan), describes "A Pilgrimage to the Tomb of Omar Khayyam," and besides throwing new light on the life and thought of the Persian philosopher-poet, draws a vivid picture of Persia of to-day. Colonel C. E. de la Poer Beresford writes of an official mission to Bokhara, in which he has much to say in praise of Russian administration in that part of Central Asia; Miss Mary Bridson gives an account of an eight months' visit to Nyasaland, and Miss Agnes B. Warburg describes Dalecarlia, a part of Sweden little visited by tourists. How a steamer was carried in sections overland to a lake in the Andes over mountains and across waterless deserts is told by Mr. W. F. Nixon, who undertook and successfully accomplished the work.

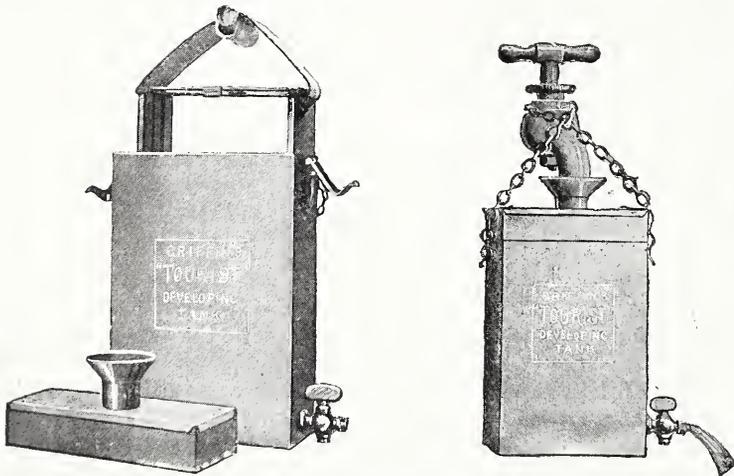
New Materials, &c.

GRIFFIN'S SATIN BROMIDE PAPER.—Messrs. J. J. Griffin and Sons send us a very pleasing window card, taking the form of a sepia-toned print, upon their Satin surface bromide paper, which they are issuing free to dealers, together with a private circular, giving particulars connected with the sepia toning of the paper. These embody the results of recent experiments by Messrs. Griffin, and should be of value to the dealer, who is frequently made the recipient of inquiries by customers who have found difficulty with this method. The circular and the mounted print are obtainable free on application to Messrs. John J. Griffin and Sons, Kingsway, London, W.C.

New Apparatus, &c.

The "Tourist" Daylight Developing Tank. Sold by John J. Griffin and Sons, Ltd., Kingsway, London, W.C.

Still another piece of apparatus for the use of photographers employing a tank method of development has just been placed on the market by Messrs. Griffin under this name. It is especially intended for the service of those who may choose, on occasion, to develop and finish plates while on tour, its qualifications in this respect being that it may be used not only as a developing and fixing tank, but also as a washer and a drying rack. This result is achieved by making the rack loose and providing the tank with an outer tap at the base and a chain so that it can be hung on to any tap, as shown in the second illustration, when washing the plates. Apart from this the tank has one or two other special features which deserve to be mentioned. The lid is very efficiently light-capped by a double rebate, and the same remark applies to the upper aperture by which the developer is passed into the tank. Also the developing solution is caused to travel down the ends of the tank and thus is prevented from acting irregularly upon the plates, which, as is the custom with tanks of this description, may be placed in it in a changing bag and the charged tank then removed into daylight before the developing operations are commenced. Development being done it is necessary simply to draw off the developer by the tap, place the plates to wash for a minute or two, and then having turned off the tap to pour in the fixing solution. The rack is made open at each end, the plates being inserted in pairs back to back in the three grooves



available at each end. This allows of the rack being filled with plates without any chance of damage owing to their touching each other when the rack is being lowered.

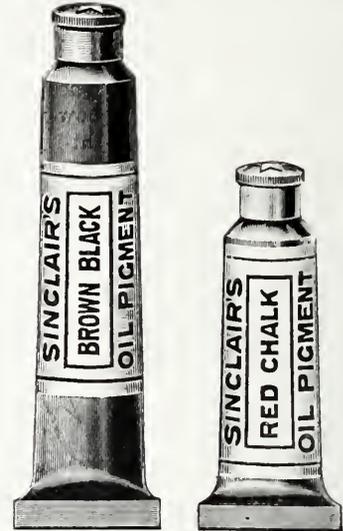
For use with the tank Messrs. Griffin supply a series of "Tanka" developers in packets, each containing sufficient (16 ozs.) to fill the tank and allowing of development being complete in twenty minutes. The packet of six developing powders is sold for one shilling, whilst there is also provided a series of "Tanka" fixing salts, each also to be dissolved in 16 ozs. of water, and serving, of course, for use over and over again. The box of six, making in all 96 ozs. of fixing solution, is sold at 1s. 6d.

The price of the tank itself in quarter-plate size is 7s. 6d., in 5 x 4 10s. 6d., in postcard (5½ x 3½) 10s. 6d., and for half-plate 12s. 6d., in each case serving for the development of six plates.

OIL AND BROMOIL REQUISITES.—Messrs. James A. Sinclair and Co., Ltd., 54, Haymarket, London, S.W., send us their new list of apparatus and materials for oil processes, which runs to eight pages, and lists the inks, brushes, paper, cleaning fluids, pigmenting trays, etc., supplied for the use of workers in the oil pigment processes. Messrs. Sinclair have been to the front with the highest class of articles for oil printing since the inception of the process, and their new list forms as useful a reference as can be had of the facilities which are at disposal. They also supply selected materials in the way of gums, printing frames, etc., for the gum-bichromate process.

The inks for oil printing supplied by Messrs. Sinclair, of the brand used by M. Demachy and other well-known French workers, in pots, have now been supplemented by a series of somewhat softer

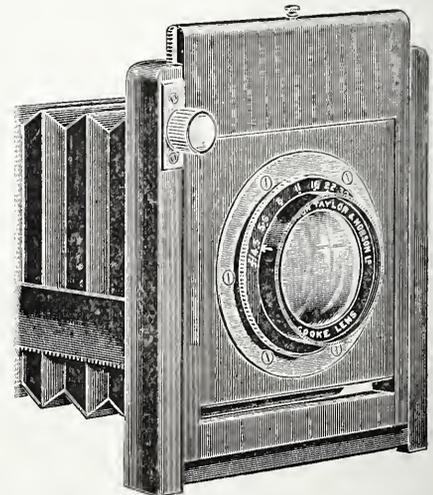
tube colours—that is to say, the inks in this form are ready for use and do not require any thinning as in the case of the pot inks. Many workers will esteem this convenience, although we quite agree with the vendors that in cases where a very great degree of depth and strength is required in the print the pot ink, on account



of its greater consistency, will be found somewhat preferable. The tube colours are supplied in ten different varieties, ranging from standard black to red-chalk, at a price of 1s. per tube.

Reference is made in another column to the competition for oil and bromoil prints organised by Messrs. Sinclair.

COOKE LENSES IN SUNK MOUNTS.—Messrs. Taylor, Taylor, and Hobson have just issued special series of the renowned Cooke lenses in sunk mounts of the form specially useful in reflex and other hand cameras. The focal lengths listed in this form are 5, 5½, 6, 8, and 10½ inches, whilst the series of lenses in which these are obtainable are the *f*/4.5 Series II., *f*/6.5 Series III., *f*/5.6 Series IV., and *f*/8 Series V. We have had an opportunity of examining a lens of the Series IV. of 6.2 inches focal length intended for a 5 x 4 camera and are bound to express our admiration of the beauty of the mechanical work—there is no need to repeat encomiums of the optical quality of the Cooke lenses. The lens in question projects into the camera about 1¼ inches from the back of the flange, the front and rear combinations being very quickly detached and refitted owing to the special form of thread adopted by Messrs. Taylor, Taylor, and



Hobson. A circular giving the prices of the lenses in this form of mount has just been published, and is obtainable from Messrs. Taylor, Taylor, and Hobson, Stoughton Street, Leicester.

CATALOGUES AND TRADE NOTICES

"FALLOWFIELD'S COURIER."—The August issue of this little publication deals with the most recent introductions in apparatus and materials which have appeared on the photographic market. The list of chemicals which Messrs. Fallowfield now supply at a reduced price to professionals and dealers should be of interest to those concerned.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

SATURDAY, SEPTEMBER 4.

Worthing Camera Club. Outing to Wiston.
South Suburban Photographic Society. Excursion to Deptford and Greenwich.
South London Photographic Society. Excursion to Waltham Abbey.
Kinning Park Co-operative Camera Club (Govan). Outing to Houston.

SUNDAY, SEPTEMBER 5.

Borough Polytechnic Photographic Society. Outing to Amberley.

MONDAY, SEPTEMBER 6.

Southampton Camera Club. Lantern Slide Competition in Dark Room.
Kinning Park Co-operative Camera Club (Govan). Committee Meeting.

TUESDAY, SEPTEMBER 7.

Hackney Photographic Society. Members' Lantern Slide Criticism.
Manchester Amateur Photographic Society. "Faking in Oil and why I do it."
H. B. Bradley.
Handsworth Photographic Society. Council Meeting.

THURSDAY, SEPTEMBER 9.

Handsworth Photographic Society. "The Development of Negatives, by the Tentative Factorial and Tank Systems."

Commercial & Legal Intelligence.

LEGAL NOTICES.—Wm. Tiddy, photographer, 60, Tontine Street, Folkestone, has been adjudicated bankrupt. The receiving order was made on the debtor's petition.—On Saturday the first meeting of creditors will be held in the matter of Percy Hague Marsden, photographer, etc., High Street, Pateley Bridge, Yorks. The public examination of the debtor is fixed for Monday, at Northallerton.

NEW COMPANIES

COUNTY STUDIOS, LTD.—Capital, £200 in £1 shares. To take over the business of a photographer carried on by L. Mason. The first subscribers are:—L. Mason, 120, Clapham Road, Lowestoft; and A. H. Mitchell, 70, York Road, Great Yarmouth. Private company. The first directors are:—L. Mason and A. H. Mitchell. Registered office:—Nelson Chambers, London Road, Lowestoft.

GRAHAME, ELLERBY, AND COMPANY, LTD.—Capital, £2,000 in £1 shares. To acquire the business now carried on at 17, Farringdon Avenue, E.C., and to carry on the business of photographers, manufacturers of and dealers in cameras, lenses, etc. The first subscribers are: R. Grahame, The Grange, Keynsham, Bristol; and J. W. Ellerby, 17, Farringdon Avenue, E.C. Private company. The number of directors is not to be less than two nor more than seven; the first are R. Grahame and J. W. Ellerby. Registered office: 17, Farringdon Avenue, E.C.

News and Notes.

SHEFFIELD PHOTOGRAPHIC SOCIETY.—The seventh annual exhibition will be held from April 5 to 9, 1910, in the Montgomery Hall, Sheffield, when Mr. Arthur Marshall will judge the exhibits. Entry forms will be issued in due course, and these, together with full particulars, may be obtained from the hon. secs., Messrs. J. A. George and J. R. Wigfull, 14, Parade Chambers, Sheffield.

LECTURES FOR PHOTOGRAPHIC SOCIETIES.—Mr. H. Essenhigh Corke, who last year blossomed out as a lecturer and proved eminently successful in his new rôle chiefly because he spoke at first hand of what he had worked out himself, advises us that he is able to allocate a few further dates to his lantern lecture on "Novel Portrait Effects by Day and Artificial Light." Though a professional photographer, Mr. Corke has quite the amateur spirit, and his lecture is a very free and frank account of methods which

are the outcome of his own ingenuity. He has also an illustrated lantern lecture in preparation on colour photography with the various screen-plates on the market. Secretaries of societies will be doing themselves a good turn by putting themselves in communication with Mr. Corke at the Studio, Sevenoaks.

AN OIL AND BROMOIL COMPETITION.—Prizes to the total value of £25 are being offered by Messrs. James A. Sinclair and Co., Ltd., 54, Haymarket, London, S.W., for oil and bromoil prints made with the Sinclair permanent pigments. Entries must be made on the coupon which accompanies each tube or pot of the Sinclair inks, and must be received before October 31 next. Prints should be mounted, but must not be framed, and should be marked with a *nom de plume* of the exhibitor, the name being entered upon the entry form. The prints will be judged by Messrs. E. T. Holding, Furley Lewis, and J. C. S. Mummery, and the prints obtaining the first three prizes of £10, £5, and £3 will become the property of the organisers of the competition, who further reserve to themselves the right of reproducing any picture to which an award is made, and also of exhibiting for a short time any picture thought suitable for that purpose.

CELLULOID MANUFACTURE.—In a recent issue of the "Chemist and Druggist" was indicated briefly the progress of the celluloid industry in Japan. A recently issued Kobe Consular Report states that the imports of celluloid in its various forms during the past four years have been as follows:—

	1905.	1906.	1907.	1908.
	Yen.	Yen.	Yen.	Yen.
Total imports	496,865	818,122	320,696	668,315
From Germany	446,542	636,597	265,912	530,513
From Great Britain	47,775	157,791	47,585	119,909

The general duty on celluloid is 25.60 yen per 60 kilos., and on celluloid goods the duty is 40 per cent. *ad val.*, the imports of the latter in 1907 being valued at 15,800 yen, and in 1908 at 32,600 yen. Of the raw material required to manufacture celluloid (cellulose, camphor, and sulphuric acid), the two latter are obtained in Japan and are very cheap. It is this fact, in combination with the growing demand in East Asia, which has suggested the establishment of celluloid factories to be worked with Japanese capital. The Japanese Celluloid and Artificial Silk Factory is the principal concern. It has a nominal capital of from one to two million yen, one-quarter of which has been paid up, and one-tenth of the capital is in German hands. The company will commence to manufacture celluloid, and later, as the business prospers, it will take up the manufacture of artificial silk and the chemicals necessary for the production of both articles. The technical manager (Dr. Green) is in England purchasing the necessary machinery for the manufacture of celluloid, while the machinery for the production of artificial silk will be bought in Germany. The factory will be erected at Aboshi, near Himeji, the workmen's quarters and the business premises being already completed. Two years is expected to elapse before the factory gets to work. Another concern, the Sakai Celluloid Company, is building a celluloid factory at the town of Sakai. This company has a capital of 2,000,000 yen, of which 1,125,000 yen is in the hands of the founders. The buildings are expected to be completed by the beginning of 1910. The company has an American manager, and the daily production is expected to amount to several thousand kin. Judging by figures published in regard to anticipated output, there is going to be a large over-production in Japan, for which an outlet will be sought in other parts of East Asia.

SEEING BY TELEGRAPH.—Writing in the August number of "Knowledge," Dr. Alfred Gradenwitz gives a short but interesting account of an instrument just invented by Mr. Ernest Ruhmer, of Berlin, which is the first actual solution of the problem known by the name of "tele-vision." Dr. Gradenwitz had an opportunity of inspecting the machine before it was sent to Brussels for demonstration before the promoters of the Universal Exhibition which is to be held there next year, and of which a complete tele-vision apparatus, costing the sum of £250,000, will be the principal feature. The demonstration apparatus has been produced at a cost of £250, and owing to its more elementary construction only lends itself to the reproduction of simple patterns, consisting of squares arranged in different combinations. A projection apparatus throws the pattern on a screen hung up on the wall. The screen is a

square divided into twenty-five square sections. "Behind each of these sections," writes Dr. Gradenwitz, "is arranged a highly sensitive selenium cell in which, by a novel process, inertia has been absolutely eliminated. It thus responds instantaneously to any variation in lighting it is exposed to. At the receiving station is arranged a similar screen, divided into the same number of sections, each of which communicates with the corresponding section on the transmitting screen. While the actual system used in transmission is kept secret, this much may be stated, that a highly sensitive mirror galvanometer reconverts the fluctuations of current produced by fluctuations in luminous intensity on the transmitting screen into corresponding light variations. To the right of the receiving screen is seen the accumulator battery, supplying the current to the tele-vision circuits. As soon as a perforated pattern is inserted into the projector, a telegraphic reproduction of the picture is seen to appear at the very moment it is thrown on the transmitting screen. The sluggishness of the cells has been compensated to such a degree that the telegraphic picture will respond practically instantaneously to any motion. In fact, a reproduction obtained at most in a few minutes with the photo-telegraphic apparatus so far constructed is here achieved in a fraction of a second, so that several phases of a motion can be reproduced within a second. It is hard to realise what sum of laborious work had to be expended in constructing even this relatively simple apparatus. In fact, each section, with its selenium cell and mirror galvanometer device, is an apparatus of precision in itself, while the definite apparatus will be composed of 10,000 elements of the same kind. Each selenium cell will have to be wound personally by the inventor, who never entrusts his work to anybody else."

DEFINITIONS OF SOLUBILITY.—In a recent paper read before an American pharmaceutical conference the suggestion is made that some indication of quantity should be attached to the terms "soluble," "very soluble," etc., commonly used in reference to chemicals. It is pointed out that for pharmaceutical purposes—and we may add, in photography also—the exact figures for solubility given in tables are usually unnecessary. The following scheme is put forward in their place:—

- Articles that are soluble in less than—
- 1 part of solvent=very soluble.
- From 1 to 10 parts of solvent=freely soluble.
- From 10 to 100 parts of solvent=soluble.
- From 100 to 1,000 parts of solvent=slightly soluble.
- From 1,000 to 10,000 parts of solvent=very slightly soluble.
- From 10,000 to 100,000 parts of solvent=nearly insoluble.
- More than + 100,000 parts of solvent=practically insoluble.
- The same definition might be stated in another form, thus: 100 ccs. of solvent will dissolve
- 100 Gm. or more of a "very soluble" substance.
- 10. to 100 Gm. of a "freely soluble" substance.
- 1 to 10 Gm. of a "soluble" substance.
- 0.1 to 1 Gm. of a "slightly soluble" substance.
- 0.01 to 0.10 Gm. of a "very slightly soluble" substance.
- 0.001 to 0.01 Gm. of a "nearly insoluble" substance.
- Less than 0.001 Gm. of a "practically insoluble" substance.

PHOTOGRAPHER BURNT OUT.—Considerable excitement was occasioned in Beer, Devon, during the early hours of Friday morning, August 20, by an outbreak of fire, which involved the total destruction of a large photographic studio (occupied by Mr. A. C. T. Wild) situated a few yards to the rear of the parish church. The fire was first noticed by a gentleman visitor, who was returning from Seaton in his motor-car between two and three o'clock in the morning. He immediately raised an alarm, and ere long the fire brigade and a large crowd of visitors and residents were on the spot. By this time the fire had got a strong hold on the wooden structure and also its contents, some of which were of an inflammable character, and it was seen that the whole was doomed to fall a prey to the flames. However, the brigade, assisted by a willing band of helpers, were able to prevent the fire spreading to the surrounding houses. Within an hour from the time that the alarm was made the structure was reduced to a heap of smouldering debris. The fire is supposed to have originated from some sparks or live soot from a chimney fire (which happened the previous evening about fifteen yards from

the studio), alighting on the building and smouldering for hours before the fire broke out. Mr. Wild's total loss is about £265, including valuable plant of seven cameras and lenses, and 31,000 negatives. There was absolutely nothing saved from the fire. The larger portion of the £265 becomes a dead loss, only a small part being covered by insurance. Mr. Wild had practically the whole of his money invested in the business, and now his means of living has been destroyed, he is endeavouring (with what help he can obtain) to make another start, and if any fellow photographers have any surplus stock or odd apparatus they could contribute to help Mr. Wild to get a living, he would be deeply grateful and pleased to pay the carriage.

THE CINEMATOGRAPH BILL.—Owing to the late hour at which the Cinematograph Bill was brought up in the House of Commons on August 25 very little mention appeared in the daily papers of the measure.

On Clause I. (provision against cinematograph exhibitions except in licensed premises) Mr. Walter Guinness moved the omission of the words "for the purpose of which inflammable films are used." He explained his object was to extend the restriction in the Bill, for it stood at present it would be perfectly possible for anyone who wished to give an unlicensed cinematograph exhibition to say the films were not inflammable. It would be impossible for the local authority to challenge this statement. The exhibitions are continually changing, and so are the films used, and the fact that they were not inflammable one week would by no means ensure that those used the next week were not extremely dangerous. The shows aimed at being topical, and in that way the changes were frequent.

Mr. Gladstone said he would accept the amendment.

Mr. E. H. Carlisle considered the scope of the Bill sufficient large as it stood. Without the amendment anyone using inflammable films, however much they might describe them as non-inflammable would be liable to a penalty of £20. The Bill was experimental character, and this should be borne in mind.

Mr. John Mooney desired to point out that if the amendment were carried the Bill would apply to any instrument used for the exhibition of pictures, such as a magic lantern or any instrument for throwing pictures on a screen.

On a point of order, the Chairman ruled that the Bill was sufficiently wide to cover its object, even if the words in question were taken out.

Mr. T. M. Healy said he thought the British Parliament was intended for some better purpose than passing fancy Bills of this character. The real truth was that the minds of members had been so absorbed with greater subjects that they had not had time to look into this proposal. It was only when there was a Liberal Government in power that these wretchedly small things were brought up in the House; they were promoted by some clerk who desired to get a C.B.-ship.

Mr. Gladstone, in reply, said that it was to be remembered that crowded audiences go to see these exhibitions, the number of which was increasing. He had had the strongest representations made to him by the local authorities, which showed plainly that there were demands for such legislation. Quite recently there had been very bad accidents through films flaring, which in some cases had entailed loss of life. There was an accident in Mexico, at which 300 lives were lost.

Mr. T. M. Healy: Does this Bill apply to Mexico?

Mr. Gladstone: No; but we want to prevent such accidents happening in this country. Continuing, he said that there would have to be regulations, but they would be very simple, and the whole object of them would be to stop danger where it exists.

Mr. Walter Guinness said the real danger did not come from the films. There was a case at Newmarket where three people were killed, not from the burning of films, but from the escape of compressed gas. The illuminants were of far greater danger than the films. The hon. Member went on to argue that the carrying of an amendment would not prevent magic lantern exhibitions at schools.

Mr. T. M. Healy said the title of the Bill was "To make better provision for securing safety at cinematograph and other exhibitions. That might include the dry shampoo case which happened the other day. If there was all this danger with regard to these exhibitions why did the Home Department not punish the owners as they were

seeking to punish the people who used something on a lady's head? Personally, he had no reason to oppose the Home Secretary, but he thought this Bill was the acme of absurdity.

Mr. Mooney desired to point out that the Member who moved the amendment said the danger arose from the illuminant used. The light of a magic lantern was produced under pressure, and there had been several cases of explosion. He contended that a magic lantern exhibition would be brought under the Bill if the amendment was carried.

Mr. Carlisle said anyone who knew anything about magic lanterns was aware that some of the best pictures were moving ones. The gases used for magic lanterns at village entertainments were the same as those used for the cinematograph. It had been admitted by Mr. Guinness, who represented the London County Council in this matter, that the danger did not attach to the films. The real danger arose from alarms of fire and the rush of the audience to the doors.

In the course of the debate which ensued, Mr. Gladstone said the object of the Government was to prevent dangerous exhibitions, and if the amendment did not widen the scope of the Bill it certainly would not widen the scope of the regulations.

In the result Mr. Gladstone suggested that if the London County Council desired the Bill to pass the amendment would, in face of the feeling of the Committee, be withdrawn.

The amendment was then by leave withdrawn.

Clause 8 ran as follows:—"The Secretary of State may by order extend the provisions of this Act to other exhibitions involving the use of any apparatus which may be declared by the order to be dangerous." Upon the motion of Mr. Gladstone the clause was struck out.

Clause 10 (Application to Ireland) was amended by limiting the expenses to be incurred under the Act by Town Councils to not more than 1d. in the £.

The whole of the other clauses were agreed to without debate and the Bill was reported.

Correspondence.

- Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.
- We do not undertake responsibility for the opinions expressed by our correspondents.

PERSULPHATE IN HOT WEATHER.

To the Editors.

Gentlemen,—A rather curious occurrence which happened during the recent hot weather in the writer's atelier may interest some of your readers and point a moral. A two-ounce bottle containing one ounce of ammonium persulphate burst with considerable force, the contents of the room being covered with a film of the salt, and all fragments of the bottle being scattered in all directions. The next bottle had its side smashed, and several others were dislodged, the shelf above being bruised by the impact of the stopper and broken. The persulphate may have been damp when placed in its bottle, the heat no doubt causing decomposition. Look to your bottles occasionally.—Yours truly,

SIDNEY L. YOUNG.

2, Hazelbank Road, Hither Green, S.E.,

August 25, 1909.

THE CHEMISTRY OF SULPHIDE TONING.

To the Editors.

Gentlemen,—Kindly permit me to correct a transposition which has been made in setting up the article on sulphide toning ("B.J.," August 27, 1909), and which might lead to misconception. Heading No. 5 in the summary of results affecting practice, p. 667, should read as follows:—"The presence of hypo in the bleaching solution is, of course, fatal. A considerable amount of hypo (the limiting amount depending on the percentage of sodium sulphide present) may be present in the sulphuretted bath," etc.—Yours truly,

DOUGLAS CARNEGIE.

Stonhaven, N.B.

August 31, 1909.

Answers to Correspondents.

- All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
- For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

- Jakeman & Carver, The County Studio, Hereford. Photograph of the Right Rev. the Lord Bishop of Hereford and General Booth, the Bishop standing and the General sitting, with the Bishop's Chaplain, the Rev. H. Probyn, standing at back, and an Officer in attendance on the General. Taken in front of the Palace. Photograph of the Right Rev. the Lord Bishop of Hereford shaking hands with General Booth, who is seated in Motor Car. Taken in Palace Grounds.
- J. E. Reeves, 48 and 50, Hermit Road, Canning Town, E. Photograph of the West Ham United Football Team, Season 1909-1910.
- G. Keppie, 38, Howard Street, Millport, Cumbrae, Scotland. Photograph, Sand-Building, Kilehurn Castle, taken on August 19, at Millport.
- S. H. Greenway, 27, Abington Street, Northampton. Photograph of Northampton Town Football Club, Season 1909-1910.
- C. St. J. Vaughan, Victoria House, Muswell Hill Road, Muswell Hill, N. Photograph of Drawing from Life of Charles Dickens, signed by him. Two Photographs of Colours and Colour Party, 6th Battalion P.W. Own West Yorkshire Regiment.

CHROMIUM INTENSIFIER.—I noted with interest your remarks in last week's "B.J." re the use of the chromium intensifier for strengthening weak bromide prints. I looked up the formula in the "B.J. Almanac," in which a solution of hydrochloric acid sp. gr. 1.160 is to be used. How is that to be made? No one seems able to tell me.—BROMIDE PRINTER.

Any chemist can supply you with hydrochloric acid of this strength. It is a recognised commercial acid, but if you use the acid sold as "commercial pure concentrated" you will not be wrong.

SULPHOCYANIDE AND GOLD.—I have had an experience that puzzles me, and as I cannot explain it, I, as usual when in difficulty, apply to you for a solution of it. I started to make up a toning solution on the Kodak formula (p. 850 of this year's "Almanac"). I dissolved 150gr. of sulphocyanide of ammonium, but used 15oz. of water instead of 30, as I have not a 30-oz. bottle. When the sulphocyanide was dissolved I broke a 15-gr. tube of gold chloride into it, but the gold would not dissolve. It made a brick-red flocculent deposit, and in spite of agitating by pouring from one measure to another several times, it remains in that condition. What is the reason? I have since dissolved the two ingredients separately, the sulphocyanide in 10oz. and the tube of gold in 5oz. of water. They both dissolved easily, but on pouring the gold solution into the other a deposit was formed at once. Can it be that the sulphocyanide is impure?—J. E. G.

The error lies in adding the gold or the gold solution suddenly into the sulphocyanide. It is necessary to add slowly, i.e., with constant stirring. You will see a note to this effect on p. 800 of the "Almanac," and most text-books and articles on toning P.O.P. emphasise the point.

DIAMIDOPHENOL.—Can you give me in your next issue the formula for making the B.B. solution for using with G. Underberg's diamidophenol developer? I could not understand it from the article, and so had to send to my London dealer. It is the best paper developer of my experience.—THIRTY YEARS' SUBSCRIBER.

The B.B. solution is: Potass bromide 10 per cent. solution 2 oz., bisulphite liquor (commercial pure) 4oz.

SPOTS ON PRINTS.—Could you tell me the cause of the spots on prints I enclose? I fancy there are some loose chemicals (crystals) in the vicinity of the printing-room, but up to now have not discovered anything. It happens on all brands of paper, but feel assured it is not the paper to blame.—WORRIED.

The spots are clearly due to chemicals, but what, of course, we cannot say. They do not seem to be caused by crystals of anything, but rather by something splashed upon them. One shows decided

traces of some solution having been so splashed. There is certainly no fault with the paper. You will have to look to the manipulation for the cause of the trouble.

WEDDING GROUPS.—Will you kindly inform me in your "Answers to Correspondents" column whether it is absolutely necessary in a wedding group to have the bride on the left of bridegroom, and oblige.—**CONSTANT READER.**

So far as we are aware, there is no "absolute necessity" in the matter, if the parties concerned prefer a different arrangement. Usually the bride is posed on the left of the bridegroom.

LENS QUERY.—Will you kindly let me know whether I will have to have one or three lenses for whole-plate cabinets and C.D.V. full lengths in each, using studio 22ft. by 8ft. If three or one, kindly say what focal length is best to get.—**W. H. F.**

For convenience in working in so short a studio you will require three lenses if you wish to take full-length figures. One of 6in. focus will do for C.D.V. and smaller. One of about 10½in. will serve for cabinets; and one of about 13in. for whole-plate.

YELLOWED BROMIDES.—I enclose two bromide prints for your inspection. I should feel obliged if you can tell me the cause of yellowness. When mounted they appear white, but after a time go yellow. The time varies. Sometimes it is in a few days, other times it is weeks or months, but eventually they go yellow. The fixing bath is the hypo alum, glacial acetic acid, and sulphite of soda, as recommended in the "Almanac."—**FINE ART.**

We think the most likely cause is an exhausted overworked fixing bath. Why do you use a bath which remains clear during use? By doing so you forgo the advantage of gathering a hint as to the degree of deterioration in it. We think if you use a plain hypo bath of 4 oz. per pint and throw it away as soon as it becomes discoloured you will not have cause to complain of yellowed prints—that is, if you exercise care in freely exposing prints to the solution.

FLAME ARCS.—I should be glad of your knowledge and assistance in the following:—I have two large flame arc electric lamps, which I should like to install into lighting for studio use. These can be made to use the ordinary blue light carbons; they have been used to burning the red arc. Do you think they would answer the purpose for which I want them, and do you think that one would be sufficient to get quick photographs of, say, children, as I do not want to fix up two to burn unnecessary current, if one will do? I might say it is a small studio, about 20ft. by 13ft. I think I can make all other necessary reflectors myself and fitting for lamps. Would you advise using these without the white globe on and using a reflected light or a direct light? Any information you may tender will be greatly appreciated.—**ARC LIGHT.**

Certainly, you can use the lamp, and if it is a good flame-arc lamp it will consume less current than an enclosed arc of equal candle power, but we doubt if it will be actually more efficient photographically. No doubt one lamp will suffice for single heads, or three-quarter lengths, or full lengths of children. We should think a single diffusing screen, used in conjunction with a reflector on the far side of the sitter, will be better than working by the reflected light of the lamp.

J. W. AND CO.—We can only refer you to the list of exhibitions held in London and the provinces during the course of the year, which you will find (under "Exhibitions") in the Index to the annual volume of the "B.J." At most, there is a trade section in which goods may be exhibited at a moderate charge. We should not describe the use of the exhibitions, however, as "the most effective and rapid" method of bringing an article before the photographic public. We shall be much interested in seeing the article.

COLOURING LANTERN SLIDES.—I should take it as a favour if you would kindly inform me if there is to be obtained a plain and explicit, practical and not expensive, book showing how to colour slides for use in the lantern. If you would kindly say the price and where purchasable I should be greatly obliged.—**A. C. (Alexandria, Egypt).**

The best information we know is contained in the chapters on the subject in "The Book of the Lantern," by T. C. Hepworth, which, we believe, is no longer in print. You could probably easily obtain a copy through a small advertisement. We may add that, though oil and water-colouring are still used by trade workers, the tinting of slides by aniline dyes is largely done now by amateurs, and requires very little experience. Special dye solutions are

supplied for the purpose, and are obtainable from any large London photographic house at a price of 3s. to 4s.

K. R. EDDY (Sault Ste. Marie, Mich.).—About the best practical work is by Cecil M. Hepworth, mentioned in the "Almanac." It is published by Messrs. Hazell, Watson, Viney, and Co., Ltd., Long Acre, London, W.C., to whom we have passed on your letter.

RETLAW.—Presuming that the copyrights have been properly transferred to you—a list of the subjects made and embodied in the transfer—the prints may be offered, we should say at about 5s. each, to stereoscopic or other publishers. But if no such transfer has been carried the copyright has become void, and in that event we fear the prints will not command much of a price, as anyone will be at liberty to copy them. Much depends upon the exact use which a purchaser may have in mind.

C. ROWNEY.—You do not say from which formula your chemist has worked, but you will notice that his figures agree pretty closely with those given, in reply to a reader, on page 619 of our issue of August 6. We suggest your chemist follows this latter.

TINTOMETER.—(1) I note in the "Handbook of Photography in Colours" (Bolas, etc., published by Marion), page 238, note at foot, a tintometer is recommended as a standard to work the dyes to. Where can such be obtained? (2) Also suitable dyes for filters in small quantities (Penrose's list I have, but want smaller quotations).—**SYDNEY H. CARR.**

(1) The Tintometer, Ltd., Salisbury. (2) Try Fuerst Bros., 17, Philpot Lane, E.C.; or Mawson and Swan, Mosley Street, Newcastle-on-Tyne.

G. W. WEST AND SON.—Jonathan Fallowfield, 146, Charing Cross Road, London, W.

MARKS ON C.C. PRINTS.—I should be glad if you would tell me in the "Journal," as soon as possible, if you can suggest any cause for the spots and marks on C.C. prints enclosed. We have used — and occasionally other brands of C.C. paper for about six years, and have never had any difficulty excepting stains some times, but these are easily seen in the toning bath, and, by rubbing a little platinum on, are easily got rid of. The marks, however, that are worrying us at the present time cannot be seen at all in the toning bath, and, moreover, they are only on prints that have been single toned—that is, brown prints toned in gold bath only. We used to use a weak solution of salt before and after toning, but I thought perhaps that had caused the film to harden and so prevent thorough fixation, so we toned without salt; we have tried no salt, salt scalded, and used, without sediment, and entirely new toning gold bath, and everything we can think of, but we still have the spots or marks. Sometimes only a few in a batch are marked, at other times all prints are marked. I have sent prints to the — people, but they have not been able to trace them. We use — gold in solution and borax; the latter is not borax, which is well washed before being dissolved.—**COLLOID CHLORIDE.**

It is not uncommon to find these markings when gold only used for toning. We advise you to try the double-bath (gold and platinum) method. We could take many other suggestions, but you might turn with advantage to the articles on C.C. paper in the "B.J. Almanac," 1907, p. 786 to 789.

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SUMMARY.

A first impression of the Photographic Salon, which opens to-day at 5a, Pall Mall East, appears on page 699. Portraits of members of the selecting committee appear on page 700.

Mr. A. Lockett in an article on the "Dixio" or Pigeon stereoscope points out that by a very simple modification the apparatus may be used with the two stereoscopic prints lying flat on the table. (P. 701.)

Economy of labour in cleaning glass, a novel source of air supply or the "Aerograph," fallacies of newspaper process plants, with other topics, appear under "Photo-Mechanical Notes." (P. 707.)

A writer in "Camera Craft" gives the directions found advisable in transferring films from glass negatives to flexible supports. (P. 704.)

We draw attention in some editorial notes to the method of preparing chloride of gold from gold coins or scrap metal, mentioning that the process is likely to be economical only when very considerable quantities are thus converted. (P. 698.)

The Ozobrome Company has just issued a new booklet describing a simplified method of Bromoil and the procedure to be adopted in working the "ozobrome-oil" or transfer method of oil printing. (P. 706.)

Some comments on a recent editorial article on the quality of negatives appear under "Correspondence" on page 714.

A folding reflex camera and new formulæ for slow burning flash-powders appear under "Patent News." (P. 709.)

Professor Namias has drawn attention to the use of lactic and oxalic acids in gold-toning baths made up with thiocarbamide. (P. 703.)

A delicate method of registering the level of the camera in two directions has been described in a recent paper before the French Photographic Society. (P. 702.)

Formulæ for developing P.O.P., by which a variety of tones may be produced, are given on page 707.

A contributor to "The Photographic Monthly" has recently advised the use of a factorial method in reducing with persulphate. (P. 697.)

EX CATHEDRA.

Controlling Reduction by Time.

The Watkins system of controlling development by time with the aid of "factors" has been applied, as described in a paper in this issue, to the production of warm-toned lantern-slides, and the current "Photographic Monthly" records yet another suggested application of the same principle. If we use a fresh solution of ammonium persulphate, containing 12 grains of persulphate and 2 drops of sulphuric acid in every ounce, and allow it to act for four times as long as the period which elapses between the first application of the solution and the first appearance of the milkiness that is the characteristic sign of the beginning of reduction, then an average amount of reduction will be effected. This suggestion is made by Mr. R. B. Hughes, and it seems to be one of considerable value. It is pointed out that the negative should be soaked in water for fifteen minutes before reduction, and that the dish should be rocked continually throughout the reducing process. Of course, the operator is free to vary the factor if he pleases, but as it is suggested that two successive reductions conducted in this way are as much as any negative will stand, it would appear that the factor of 4 should be a generally useful one. The factorial method of control is now so generally known in its application to development, that the possibilities of its use in other photographic operations are of considerable interest. If it could be made use of in the process of gold toning it would be an advantage to many workers, and perhaps some one will yet work out a toning method with which it will be applicable.

* * *

American Lantern Slides.

A set of slides brought together by the American Lantern Slide Interchange, an organisation of many years' standing of which the hon. secretary is Mr. F. C. Beach, has just been received by "The British Journal of Photography" for circulation among photographic societies in the United Kingdom. The set includes 100 slides, which, both in respect of subject and technical quality, represent a very considerable variety. The set is received in exchange for one which is now circulating in America, and composed chiefly of slides contributed by members of the Liverpool A.P.A., the Manchester A.P.S., and several of the Yorkshire societies. These include examples of the work of well-known slide-makers, such as Messrs. James Shaw, S. L. Coulthurst, Godfrey Bingley, C. Thurstan Holland, and R. Williamson, in addition to which there are slides by exhibitors in other parts of the country, such as Messrs. Graystone Bird, S. G. Kimber, Fred Judge, Ellis Kelsey, and H. T. and R. A. Malby. Mr. Beach advises us of the safe receipt of these 117 slides in New York, and of the interest which he anticipates they will create in their

itinerary round American societies. Secretaries of societies who may wish to take advantage of the American set should address their inquiries to the Editors of "The British Journal of Photography," who will be in a position within the next few days to allocate dates. On this account a selection of dates which will be convenient to a given society should preferably be stated.

* * *

The Autumn Show.

A few days ago we were passing a suburban establishment, the showcases of which contained a selection of sound and interesting portraiture, plus a selection, quite as varied, of unsound blue-bottles! Our readers have, we hope, had a good summer season, and no doubt there is still a very considerable aftermath of work to be cleared off before the autumn and Christmas rush comes along. But we would strongly urge that the showcase receive the attention it not only deserves, but demands. Not only must those defunct flies, together with the dust of the summer, be removed, but faded prints or discoloured mounts need replacing, and the styles which are attractive in the summer become repellent in the chilly autumn days. Why not remove the lawn tennis groups and the prints of the summer girl in her dainty muslins, and replace them with prints in sepia or brown, and mounted on warm-toned mounts? One or two football groups will attract attention as the football season commences, and a few portraits of hockey players, sportsmen with guns, huntsmen, and pictures of sporting dogs, all have a topical interest, and serve to show that one is wide awake and prepared to accept commissions for work of all kinds. Of course, these suggestions are more particularly applicable to the business in provincial towns where specialisation in portraiture, and even in one kind of portraiture, is not possible, as it is in the metropolis.

* * *

Foggy Negatives.

Another autumn trouble which a little intelligent anticipation will ameliorate, if it does not entirely remove, is the hazy or fogged-looking negative. Assuming that this foggy appearance is due neither to under-exposure followed by forced development on the one hand, nor to over-exposure on the other, we may assume the cause to be haze in the studio, dust or moisture on the lens, or internal reflection in the lens or camera. Haze in the studio is difficult to get rid of, and perhaps the best way is to keep the apartment comfortably warm, and thus at the same time dry. In hazy weather it often becomes necessary to avoid, whenever possible, the use of long-focus lenses, so that the distance from lens to sitter is as short as may be, and the intervening atmosphere of less extent. The glasses of the lens may be carefully screwed apart, taking care to notice their position so that they may be correctly replaced. They should be cleaned with a piece of well washed and dried cambric or soft silk, moistened, perhaps, with a little alcohol. While the glasses are out of the mount the interior of the latter may be dusted, and if at all grey, a coat of dead black may be applied. This will rapidly dry, when the glasses can be replaced. The same black should be applied to the interior of the camera. A large hood of thin wood or stout cardboard, lined with black velvet and placed over the lens, is also excellent as a means of lessening the risk of getting veiled negatives.

* * *

Recording the Level of the Camera.

On another page we give a translation of a paper by M. Emile Wenz, in which a very ingenious method of recording the exact degree of tilt of the camera is described. As we understand it, the appliance is only intended for use in

a surveying camera, or photo-theodolite, in which the lens is fixed always at right-angles to the plate. For survey work very exact levelling is, of course, essential, but such a delicate appliance would be quite out of place in any other kind of camera. It will be seen on inspecting the diagram that, however much the camera is tilted, the tops of the four vertical columns of mercury must all be on the same level. The height of two of these columns is recorded on the plate by the shadows they cast, the other two columns being simply reservoirs of mercury that supply the extra quantity required by the two columns next the plate when the camera is tilted upwards, and taking up the overflow when the camera is tilted downwards. When the camera is absolutely level the columns of mercury touch a datum line that is marked permanently in some way not described by the inventor. If the camera is tilted upwards, the mercury rises above the datum, while a downwards tilt brings it below the datum. A sideways tilt, of course, brings the tops of the two columns to different positions above or below the datum, and by using a proper scale to measure the positions of the two columns in regard to the datum, it is easy to determine the exact degree of tilt in either direction by following the rules given by M. Wenz. The device is clearly sound in principle, and it strikes us as likely to be as reliable as any method that can well be devised. It is evident, however, that very exact adjustment of the datum is necessary in the first instance.

HOME-MADE CHLORIDE OF GOLD.

SEVERAL times of late we have replied to correspondents with reference to the making of chloride of gold for toning purposes. We are quite aware that some photographers prefer to make their own chloride, generally using gold coin for the purpose. Strictly speaking, it is illegal to destroy current coin of the realm, but it is frequently done by jewellers as well as by photographers, and we have never heard of anyone being proceeded against for this quite technical breach of the law. Whether it is worth the while of the photographer who is in a small way of business to make his own chloride of gold may be a question, seeing that at the present time it is to be had from reputable houses with the guarantee that each fifteen-grain tube contains seven and a half grains of metallic gold, the intrinsic value of which is, to be precise, 15 15-16 pence. It must be kept in mind that in making the chloride some little waste must be entailed in the operations, however careful the maker may be, unless he be an expert in chemical manipulations. This waste, in the hands of a novice, is practically as much in making a small quantity as a large one; therefore, while it may pay the large user to make it himself, to do so may mean a loss to the small consumer, unless he is an exceptionally neat worker.

Since the standard of gold coins in this country is an alloy of eleven parts of pure gold with one part of copper, in order to obtain a pure chloride of gold the base metal has to be got rid of. Some say that this is not necessary, as it does not materially interfere with the toning; but in any case, if the chloride be made from coins it is best to use Australian ones, as they are usually alloyed with silver, and that will be separated as an insoluble chloride when the coin is dissolved, and may then be simply filtered out.

Without going further into the question as to whether it is, or is not, worth the while of a photographer in a small way of business to make his own chloride, there is no question that it is—in some circumstances. For example, if he has some worn-out trinkets—watch-chains or the like—it will pay him better to convert them into

chloride of gold for use than to sell them to those who purchase old gold and silver, such as pawnbrokers and the like. They, as a rule, give but a small sum for it in comparison with the content of the gold. We here propose to explain the way by which the gold in such articles can be converted into chloride which is in every way as good as that to be purchased.

In the first place, the trinkets should be broken up, and such parts of base metal as can be separated thrown away. It may as well be said that some disappointment may at times be felt at the small amount of chloride obtained in the end; but this will be due to the poorness of the gold often used in jewellery. Some is not more than eight carats fine, some twelve. The first-mentioned only contains one-third pure gold to three parts of alloy. The twelve carat is half and half. Eighteen carat gold is three-quarters gold and one-quarter alloy. Thus it will be seen that the quantity of chloride that is obtainable from such trinkets depends entirely upon the actual amount of pure gold in them.

The broken-up metal is put into a Florence flask, which, with the arrangement for heating it, should be out of doors, or where all fumes will pass off into the outer air. The following mixture is then made in a stoppered bottle:—

Nitric acid (pure)	2 oz.
Hydrochloric acid (pure)	5 oz.
Distilled water	6 oz.

Some of this, according to the weight of metal to be dealt with, is poured into the flask. Not much should be added at first, as sometimes, when there is much base metal present, a violent effervescence takes place. After digesting for a time, the flask may be gently heated over a spirit lamp to assist the solution. When the acids cease to act, if the metal is not all dissolved, a little more should be added, and so on by degrees until the metal is wholly dissolved. Any great excess of acid should be avoided. The solution will be blue or green, according to the alloy, which must now be got rid of. This is done as follows:—The solution is filtered into a clean bottle of good size. Some distilled water is then passed through the filter into the bottle, to free it from gold, and thus avoid waste. We now make and filter a solution of pure sulphate of iron. When filtered, it is a good plan to add to it a few drops of sulphuric acid. A little at a time of this acid solution is then added to the impure gold solution until no further

precipitate is thrown down. This precipitate is pure gold in a fine state of division, and settles down quickly on account of its weight. The supernatant liquid is then carefully decanted without disturbing the gold, the bottle filled up with water, and well shaken. When the precipitated gold has again settled down, the water is poured closely off. It is well, at this stage, to add a little hydrochloric acid, to remove any traces of the iron or copper which may remain. The precipitate is then washed in several changes of water, the last being distilled water, to get rid of all traces of the acid.

The gold is now put back in the flask and a little of the mixed acids poured in to dissolve the gold. In this operation no more acid should be used than is absolutely necessary to get the metal into solution, because it must be kept in mind that any excess has to be driven off in the crystallisation of the chloride. The solution is then put into a Berlin evaporating dish, on a sand bath, and crystallised. Too much heat in this process should be avoided. When the crystals seem dry, they should be dissolved in pure distilled water, and re-crystallised, so as to free the chloride as much as possible from acid. As the chloride of gold is a very deliquescent salt, it is well to put it into *small* bottles, well corked, or seal it up in glass tubes as it is met with in commerce; or it may be dissolved at once in distilled water and kept in solution.

An alternative way of dealing with the precipitated gold that will appeal to many photographers, inasmuch as it avoids the trouble of crystallising, is as follows:—After the precipitate has been thoroughly washed, it is dried and carefully weighed. It is then put into the flask and dissolved as before, taking the precaution that no more acid is used than is absolutely required. The solution is then diluted with distilled water in quantity according to the weight of gold—say, making the bulk up equal to one grain of the pure gold to each two drams of solution. This will give us a solution equal to one grain of the chloride to one dram of water. Bicarbonate of soda is then added, a little at a time, as it will produce violent effervescence, until the free acid is just neutralised. Lastly, a drop or two of hydrochloric acid is added. This may now be kept as a stock solution of chloride of gold of the strength of one grain to the dram of water. The addition of the hydrochloric acid is to prevent the spontaneous precipitation of the gold, which might take place if the solution were neutral, or slightly alkaline.

AN IMPRESSION OF THE SALON.

Having been brought by sundry rumours and "editorials" to a pitch of panting expectancy, we entered the R. W. S. gallery in an impressionable and highly receptive state of mind, prepared for—anything. Our first glance showed us a neat and orderly exhibition free from the intermural structures and the gauzy arrangements of earlier years. Already one felt that there was air and light and that the Linked Ring had, as it were, dusted and shaken themselves into a free and wholesome condition. Surprise culminated when we read the forewords of the catalogue, and we reflected, with some amusement, that it has taken this society some years to endorse such a sentiment as "All work which lives is without eccentricity."

This society is to be congratulated upon its recovery from a state of nearness to death caused by the malady eccentricity. We hope and believe that it is now going to be good and careful of its health, having sown its wild oats.

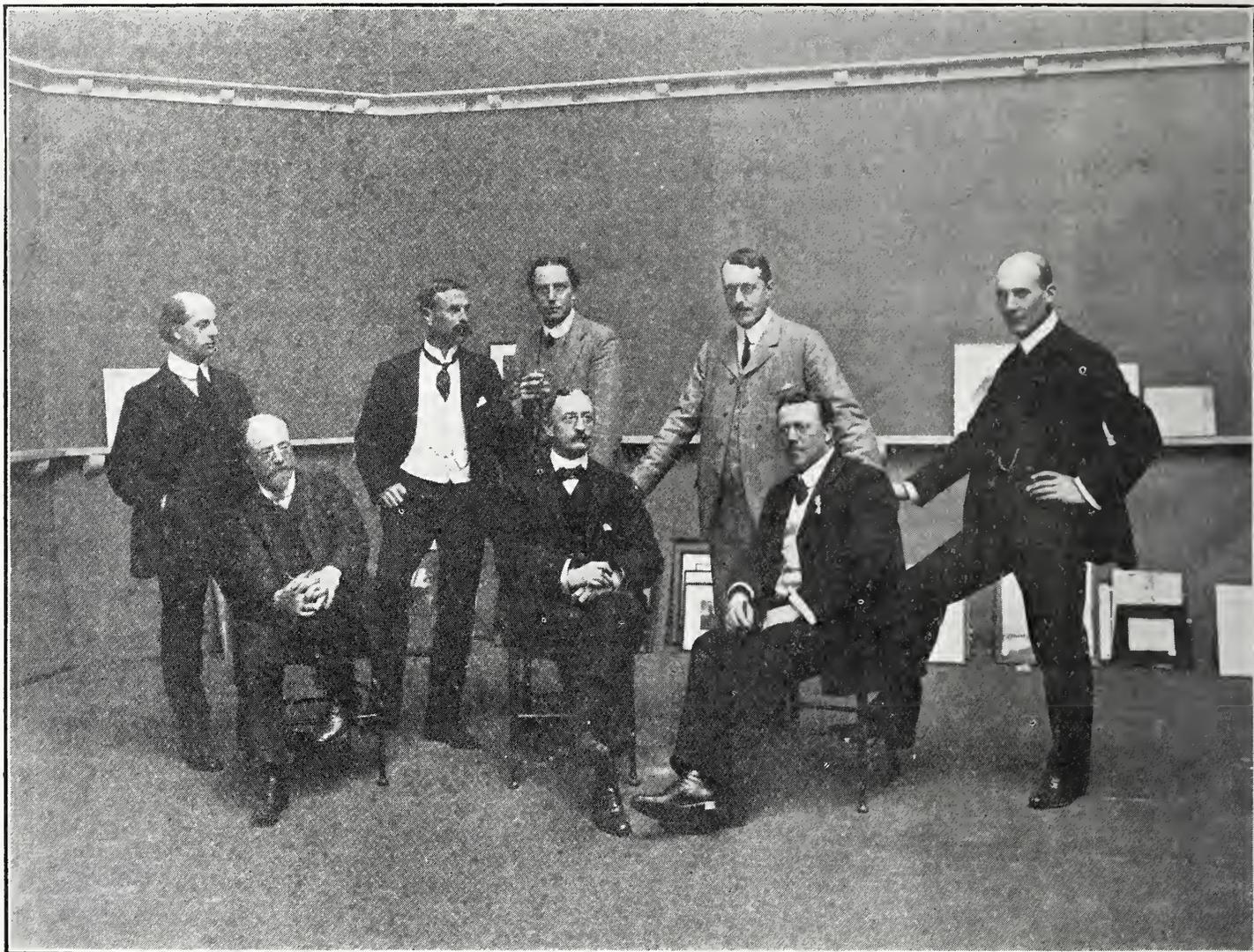
Let it not be thought that its present show is in any way lacking in go and verve because it is sane. On the contrary, it is full of good things, though perhaps not so overwhelmingly fine as people have told us it would be.

It is very fairly representative, containing the works of forty-six exhibitors, only one of whom shows as many as a dozen pictures. Many have but one work, and that a good one, which, to our minds, is much better for everybody than the display of several of differing merit by one man. M. Demachy's oil print, St. Pol de Léon, is certainly one of the finest of his prints we have seen; and something similar may be said of Mr. Furley Lewis's single portrait of Pirie MacDonald, Esq. Mr. Arbuthnot shows one or two things that are astounding, particularly the childish portrait of A. J. V. Chodyko, Esq., but he has others that fortunately save his reputation. J. Dudley Johnstone scores, and so does

J. Craig Annan with a fine series of portraits and a highly romantic "Ruined Castle." From F. J. Mortimer we have some excellent oil prints, the best being, perhaps, "Lambeth Bridge" and "The Mill on the Dyke." Of E. O. Hoppé's portraits, which are certainly above his average work, we must demur to his inharmonious mounts. Frederick H.

Porterfield's "Italian Woodland" is also promising of good things to come.

Altogether the exhibition is sterling in merit; but without transatlantic excitements. We only hope that the charm of lawlessness which fascinates so many will not be missed by the public to their displeasure. It is something to say that



Photograph by

THE SELECTING COMMITTEE OF THE PHOTOGRAPHIC SALON.

Hana Studios, Limited.

Reading from left to right the names are as follows: Walter Benington, Frederick H. Evans, George Davison, Malcolm Arbuthnot, Reginald Craigie (seated), J. Dudley Johnstone, F. J. Mortimer, J. Craig Annan.

Evans gives us a strong selection of landscape, architecture, and portraiture, the best being his "Hubert Bland" and "Night on the Hills." David Blount has but one print, but that a strong piece of work. We welcome the work of Harry Wild, who evidently understands the art of selection of subject, and we hope great things of him in the romantic vein. W. H.

this is a British show, and although we should be the last to deny that the work of other nations should not find a welcome exposition here, we feel that something has been achieved in the formation of a show of pictures of which it can be said that it represents a show of English work in England—not a show which relies upon importations for its attractiveness.

DEMONSTRATIONS OF "ENSYNA."—Messrs. Houghtons Ltd. announce that they are prepared to give demonstrations of "Ensyna" before photographic societies during the coming winter session. Secretaries who have not completed their programmes should write to Messrs. Houghtons Ltd., 88 and 89, High Holborn, W.C., and mention what dates they have vacant.

AT THE WOMEN'S EXHIBITION, now open at Olympia, photography is less prominently represented than one would suppose from all that is written on the prospects open to ladies engaging in this occupation. As we have often said, the qualification for success is the somewhat rare combination of business ability and natural aptitude for studio work, and therefore girls advised to "take up

photography" are seriously counselled to consider the probability of their being able to command more than a decent wage as receptionist-retouchers. At Olympia a very attractive display of work is made by Miss Lena Connell from her study in Grove End Road, St. John's Wood, N.W. A collection of about 50 prints is very daintily shown on a stall which looks all the better for having been cut in half. In such little details as the booklet offered to visitors, and the "Remarks by a Client" contained in it, Miss Connell shows a nice regard for the proprieties of a photographic business, whilst her work, largely of men, and including not a few celebrities, grows in strength and character. A selection of portraiture is also shown by Miss Kate Pragnell, of Brompton Square, S.W.

A NEGLECTED MODIFICATION OF THE "DIXIO" STEREOSCOPE.

In view of the signs of renewed interest in stereoscopy, it is somewhat remarkable that the old-fashioned lenticular stereoscope still holds the field, although the single-mirror arrangement devised by Professor Léon Pigeon, of Dijon, and known as the "Dixio" stereoscope, is simpler in construction, and, moreover, permits the examination of pictures of any size.

This is, no doubt, partly owing to the fact that its advantages are not sufficiently well known on our side of the Channel. Of a dozen persons interested in stereoscopy recently spoken to, only one had the "Dixio" stereoscope in use. Six of the others

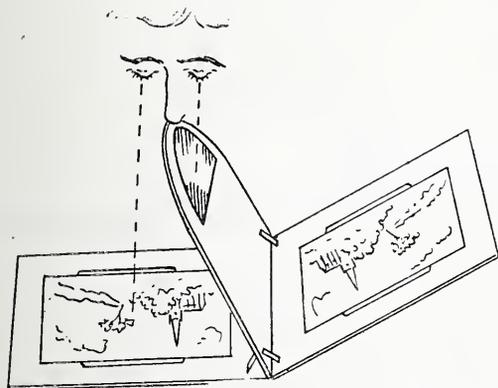


Fig. 1.

had never heard of it, while the remaining five seemed to consider it a disadvantage that the pictures had to be examined at a definite angle, and that one of them had to be reversed, thus involving special preparations in taking the negatives, or else a troublesome stripping operation.

These trifling objections cannot fairly be considered as drawbacks sufficient to weigh in the scale against the numerous advantages of the "Dixio" system, if only we first disabuse our minds of a prejudiced allegiance to the old conditions governing the production of stereoscopic "slides," of a circumscribed size and shape. The ease with which the "Dixio" system lends itself to magazine and book illustrations of any size, and allows the pictures to be viewed *in situ* without removal from the book, is an immense gain, worth sacrificing something for.

The mirror stereoscope would, in all probability, be much more appreciated if the method of use were simplified. The assumed necessity for the pictures being held at a given angle is a point that does not appeal to the easy-going public, who would prefer a means by which the prints can be viewed in some ordinary position, without any special adjustment. Also, as far as books and magazines are concerned, a loose mirror, which could be held to any page as required, would please the popular fancy more than one permanently fixed in a portfolio or holder, into which the pictures have to be inserted.

Fortunately, as will be shown, it is *not* necessary that the two pictures to be viewed by the "Dixio" method should be inclined to each other at a given angle. The stereographs may be inspected with every satisfaction and comfort when both halves are on the same level; as is the case if they are mounted side by side on a card, printed on a single page of a book, or even with the two pictures on opposite leaves, providing these are kept flat. The mirror, of course, instead of being inclined, has in this case to be held in a perpendicular position between the two pictures. It is rather surprising that the possibility of doing this has attracted so little attention. Professor Pigeon himself, in his able and comprehensive "Etude sur la Stéréo-

scopie," mentions such an arrangement in definite terms, as "intéressante par sa simplicité," but appears to consider it only suitable for small prints, and passes it briefly by. Presumably he tried the experiment with the usual small mirror set in the upper portion of a dividing panel, as supplied with the ordinary pattern of "Dixio" stereoscope, and also had the two pictures rather close together. With such a mirror, when perpendicular, only small prints can be inspected, although this difficulty is overcome to some extent by increasing the separation between the prints. If, however, the perpendicular mirror is prolonged to the bottom of the panel, quite large pictures can be viewed; while there is no reasonable limit to the size that can be inspected if the mirror is held in the same position but further away from the pictures.

To explain more clearly the method suggested above, reference may be made to the accompanying illustrations. Fig. 1 shows the ordinary type of "Dixio" stereoscope, in which the two prints are inserted in guides in a portfolio, the sides of which are adjusted to an angle of 140 deg. One half of the stereograph is seen with one eye, by reflection in the small mirror attached to the bisecting panel, while the second half is viewed direct by the other eye. Since the reflected image seems to occupy the same place as that inspected direct, the two views coalesce, and stereoscopic relief accordingly results.

Fig. 2 shows the more convenient, and what would doubtless prove the more popular plan, of having both views level and placing the mirror perpendicular to them. The principle of the upright mirror is easily understood from what has been previously said. It must be admitted that, for sundry reasons, this arrangement is not so ideal in theory as the inclined mirror; but from the purely utilitarian and practical point of view it is much to be preferred.

If a loose mirror, surface-silvered and of good quality, could be obtained at a moderate price, and if the editors of pictorial magazines and publishers generally could be impressed with the ease and cheapness with which stereoscopic illustrations could be produced, there should surely be a pronounced revival

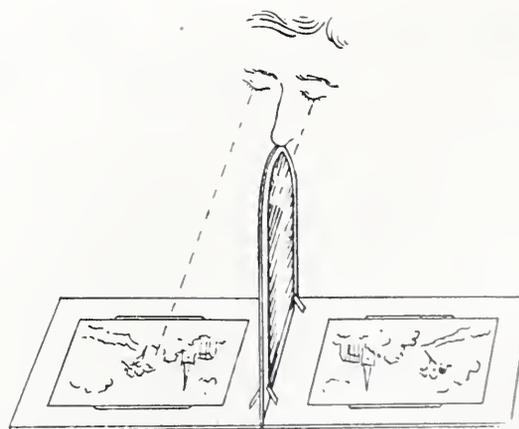


Fig. 2.

of public enthusiasm for what is undeniably a most instructive, entertaining, and useful branch of photographic work.

Fig. 3 may be of interest, as showing how readily a pair of mutually reversed stereographs may be obtained without any special preparations whatever. The two pictures represent the result of a successful accident. A couple of exposures were made with an ordinary quarter-plate magazine hand camera, moving it $2\frac{3}{4}$ in. sideways between the two exposures. On

coming to develop the plates, it was found that one of them had carelessly been inserted in the sheath glass side to the lens. However, probably owing to the fact that the lens was of short focus and that a fairly small stop was used, there was

seem to offer a hopeful means of making reversed stereograms for those who only need an occasional exposure; while for those who view the thickness of a glass plate with a suspicion more scientific than practical, the use of thin flat films offers a simple



Fig. 3.

no appreciable unsharpness. The two prints give excellent stereoscopic relief, as may be tested by holding a mirror in a perpendicular position to the page, centrally between the pictures, and viewing them as before explained. This would

alternative. It may be stated, in conclusion, that there is no need to mount the prints so close together as in the example given; it is sometimes advantageous to place them further apart. A. LOCKETT.

A METHOD OF REGISTERING THE LEVEL OF THE CAMERA IN TWO DIRECTIONS.

A Paper read before the Société Française de Photographie.

[The following article by M. Emile Wenz describes an interesting method of recording on the plate itself during exposure the exact level of the camera, its degree of tilt either forwards or sideways being recorded simultaneously.—Eds. "B.J."]

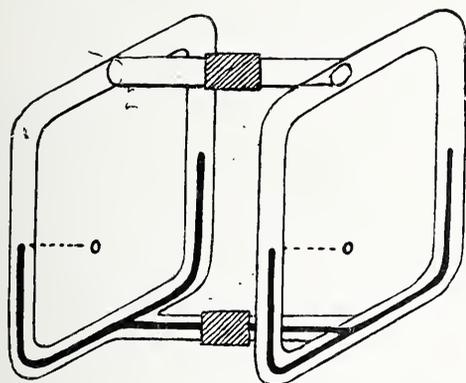
THE first plan which was adopted to record the sideways inclination of a photographic plate was by means of a tube of glass half filled with an opaque liquid and throwing a shadow around the edges of the sensitive plate, forming, as it were, a frame. About 1895 M. Batut had experimented with this method, using alcohol in the tube. This liquid he found unsuitable for the purpose owing to its lack of stability. M. Jardinet devised a similar kind of level, but he employed mercury in the tube, which latter he filled with a gas having no oxydising effect on the mercury. He employed a flat tube on account of the easier passage of the light compared with one of round section. If it is desired to record also the inclination of the optical axis a similar level must be included, but one placed perpendicularly to the plate, and having only one side touching the sensitive surface.

It occurred to the present writer that it would be possible to register by means of two tubes only the inclination of the

camera in two directions. For this purpose a plate of 13 by 18 cm. was provided with two tubes, each forming a rectangular space measuring 14 by 17.5 cm. To the centre of each of the long sides of each tube a small perpendicular branch was affixed, of the same diameter, and about 85 mm. ($3\frac{1}{4}$ in. long), and open at the end. The two open ends were joined by means of a short piece of rubber tube, the whole apparatus having been previously half filled with mercury. This forms a system of communicating vessels, the mercury occupying the lower part and the air the upper part. The apparatus is fixed in the camera so that the short side of each element of the tubes comes against the coated side of the plate. The camera having been levelled in all directions the levels of the mercury in the tube are recorded once and for all, the two data fixing the zero points 0 in the diagram.

We have now to consider the conclusion to be drawn from the

positions of the shadows of the two meniscus surfaces recorded on the plate, in reference to the zero point O, which, as already indicated, represents the position of the meniscus surfaces when the camera is absolutely level in both directions. By means of a scale specially constructed for each apparatus, an observation is made of the degrees of inclination on the right and left,



with also their directions, which are reckoned as *plus* above the zero point and as *minus* below the zero.

The half of the sum of these two figures will give the angle of inclination of the optical axis: the half of the difference of these two figures will give the side tilt of the camera.

We may assume that the movement of the liquid in the two levels is independent, and we may distinguish the readings as follows:—

A indicates side tilt of camera only.

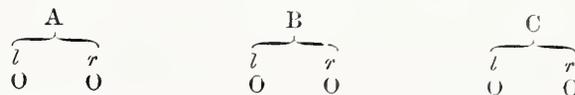
B indicates inclination of the lens axis only.

C indicates the effect of the double tilt.

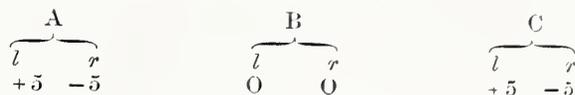
The letter *r* indicates right-hand and *l* left-hand.

We then have

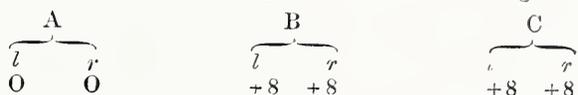
Case I. Camera horizontal in all directions.



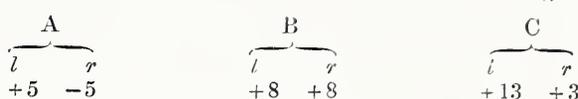
Case 2. Side tilt of camera 5deg. Optic axis horizontal.



Case 3. Side tilt 0 deg. Optic axis inclined 8 deg.



Case 4. Side tilt 5deg., and optic axis inclined 8deg.



Reading on C. + 13 to the left and + 3 to the right, we obtain as half difference of these two figures 5, giving us a side tilt of 5deg.

Half the sum (= 8) similarly gives us 8deg. as the inclination of the optic axis to the horizontal.

It should be added in conclusion that in order that the reading with the scale shall be accurate, it is important that the four vertical tubes should be at a uniform distance from each other.

EMILE WENZ.

NOTES ON THE USE OF THIOCARBAMIDE GOLD-TONING BATHS.

[The text of a paper contributed by Professor R. Namias to the Congress of Applied Chemistry, recently held in London, is given in the current issue of "Photographische Chronik." From the following translation it is seen that Professor Namias favours lactic acid as the most advantageous substance for use in conjunction with thiocarbamide in a gold-toning bath. He also insists on the necessity of a proportion of salt being used in such a bath on account of the considerable quantities of organic salts of silver present in printing-out papers.—Eds. "B.J."]

GOLD-TONING baths made up with thiocarbamide were the subject of my experiments as far back as the year 1893, and have during the last few years been further studied by many photographic workers, although they have not come very much into practice. It may, therefore, be well to direct some further attention to the properties and advantages of these toning baths, giving the results of some of the recent observations which have been made in regard to them. It should first be noted that the two most common substances of the carbamide class, namely, thiocarbamide and allyl-thiocarbamide (commonly known as thiosinamine) behave similarly as regards their action in the toning bath, and it is therefore a matter of indifference which is used for the purpose. In any case the quantity present must be very small. If the proportion is not sufficiently reduced the substance exerts a solvent action upon the silver salts, in many cases quite altering the character of the bath and preventing the production of the best tones.

The presence of acid, even if it is not necessary, is at any rate advantageous, as it gives a greater degree of permanency to the bath. In order to ascertain whether the various organic acids differ in this respect I have employed not only the citric and tartaric acids usually adopted, but have made experiments with the addition of lactic and oxalic acids. The difference between these two latter is very slight. If the bath is used

immediately after making up it will be noticed that the lactic acid exerts a more favourable action on the toning properties.

It is interesting to note that oxalic acid, which ordinarily functions as a reducing agent of gold chloride solutions somewhat rapidly, does not exert this property if a minute quantity of thiocarbamide is present. If more than the requisite quantity of acid is added to the bath the toning process is more or less retarded, although the final tone obtained is the same. There is practically no appreciable difference between prints treated in baths made up with the different acids.

The addition of sodium chloride (common salt) is indispensable, but it is not to be assumed that it is more necessary in the case of baths made up with thiocarbamide than with those prepared with sodium acetate and sodium phosphate, as also with borax. This fact has been emphasised by myself since 1905, and is one which must not be overlooked. The print-out papers at the present time contain less silver chloride but much more organic salt of silver, particularly silver citrate, tartrate and oxalate. Therefore, if there is not a sufficient quantity of sodium chloride in the toning bath the organic salts of silver undergo decomposition at the expense of the gold chloride, and the excessive decomposition of the gold in the bath is not in any ratio to the brown compound of which the image consists. There, therefore, results a greater or less loss of gold whilst

the toning process takes place very irregularly, and in many instances gives rise to markings.

The most notable advantage of the toning baths containing thiocarbamide is very great stability, that is to say, they keep well. Whilst it is well known that baths made up with acetate, phosphate, or borate of soda are liable to deposit the gold gradually within the space of a few hours, the thiocarbamide bath, on the other hand, will keep in good working conditions for weeks at a time. A bath made according to the formula given below has been kept in stock for over six weeks without depositing the slightest trace of metallic gold.

The great permanency of the baths is of particular advantage inasmuch as there is no waste of gold and the regularity of the toning action may be depended upon. Whilst gold toning baths prepared with alkaline salts must stand for at least half an hour before being used, that is until the complete conversion of the gold from the auric into the aurous state, in the case of thiocarbamide the bath is ready for use as soon as made.

It has been recommended to add a very small quantity (about $\frac{1}{4}$ -gm. per 1,000 ccs.) of sodium sulphite to the bath, which

addition ensures the instantaneous conversion of the auric salt of gold, but, however, it is found that even if the quantity of sulphite remaining in excess be extremely small the bath works very badly, so that users of the method are strongly advised not to make use of the sulphite.

The following is the formula of a bath which works excellently:—

Sodium chloride (common salt)	10 gms.
Lactic acid (sp. gr. 1.2) .....	.5 gm.
Gold chloride (10 per cent. solution)	25 ccs.
Thiocarbamide solution	2 per cent., sufficient to redissolve the precipitate formed by the first addition.

Finally, it may be noted that the sulphocyanide baths, so largely used at the present time, may also be employed with the addition of lactic acid. If this be added to an ordinary sulphocyanide bath in the proportion of $\frac{1}{2}$ gm. per 1,000 ccs., toning takes place with great uniformity, and the keeping properties of the bath are greatly improved.

R. NAMIAS.

STRIPPING AND PRESERVING FILMS.

[In the following article, from the current issue of "Camera Craft," the writer gives very explicit directions for several alternative methods of stripping the film from glass negatives. Although he does not appear to be acquainted with the non-distortion method of stripping with hydrofluoric acid worked out by Middleton and Holcroft, and given among the standard formulæ in the "B.J. Almanac," the various procedures recommended are evidently of great practical value. Still, it is doubtful if any will compare in speed and certainty with the Middleton-Holcroft method, in the practice of which there is no occasion for the fingers to come at all in contact with the hydrofluoric acid solution.—Eds. "B.J."]

EVERY photographer, amateur or professional, has very early in his photographic experience come face to face with the problem of removing the gelatine film from glass negatives. Perhaps my own experience is that of nearly all others, when wishing to use the glass from a worthless negative for other purposes, I found that the gelatine film, wet, slimy, and tacky, baffled all of my early attempts to effectually remove it, and when dry it appeared to present a still more hopeless problem. Then later on I spent a number of years in the teaching profession, which necessitated repeated transportation of my negatives, and it was seldom, even after the most careful packing, that I unpacked the negatives without finding a few broken or at least cracked. Then came the problem of saving the cracked negatives and the more important problem of preventing such accidents in the future. This article is written in the hope that it will reach others who have been perplexed by the same problems, and in the further hope that it will offer the solution of those problems for them.

A number of formulæ for stripping negatives have been published in various photographic books and magazines, but most of these omit the most important step in the process, and the individual who is so unfortunate or foolish as to try his best negatives on the first experiments soon comes to grief. By far the best process which I have seen published is one which appeared in "Camera Craft" several years ago. The process is simple and easy, and with reasonable care is sure to give good results. But, like all other processes, it is susceptible of improvement. Keeping in mind the fact that simplicity and certainty of result are both of primary importance, my own efforts have been directed to the search for methods which have greater latitude than any heretofore published. One worker may wish simply to clean the glass, while with another the glass has no value, but the film with its silver image is important. Owing to the variety of uses to which the stripped film is put, a number

of stripping processes will be given and their applications will be discussed later.

First method: Use either formula given below:—

Potassium carbonate (saturated solution)...	2 parts
Formaldehyde	1 part
Glycerine	1 part
Water	40 parts

Or:

Sodium carbonate (saturated solution)	1 part
Formaldehyde	4 parts
Water	40 parts

In my own work I prefer the first, but either of these formulæ may be used. The carbonates of potassium and sodium in solution may be used alone, but the addition of the glycerine or formaldehyde, or both, makes the formulæ more reliable in their action. While the formulæ admit of wide variation in the proportion of the constituents, it is advisable in the first attempts to adhere strictly to the proportions given. In any case, the solution should be allowed to settle, and the clear liquid should be poured off. The dry negatives are placed in the clear solution for about thirty minutes and then drained and placed on the drying rack. The drying takes several hours. The length of time of immersion of the negatives in the solution, while averaging thirty minutes, really varies a trifle with the make of plates and the density of the image in the negative. Insufficient immersion fails to loosen the film, while too long immersion makes the film brittle and liable to crack. A little experience will enable the operator to judge the degree of hardening of the film by means of the finger nail. After the negative has been dried, a sharp knife is used to cut the film as near as possible to the edge of the plate on at least two adjacent edges. The corner is then gently lifted and the film is withdrawn. If it sticks in spots, a silk thread should be inserted.

Second method: A weak solution, about five per cent. of

hydrofluoric acid, will remove the film from a negative. Identically the same result may be secured by first immersing the wet negative for about fifteen to twenty minutes in :—

Sodium fluoride 2 parts (weight)
Water 98 parts

and then, without rinsing, immersing it in :—

Sulphuric acid (concentrated) 2 parts
Water 98 parts

Hydrofluoric acid is generated and quickly lifts the film.

Third method: The negatives should first be soaked for from fifteen to twenty minutes in either of the solutions given in the first method, then superficially washed, and finally, without drying, it should be treated by the second method.

The effects of these methods are strikingly different. In the first method we get the film off in a dry condition, while in the second and third it comes off wet. In the second method, the film expands and results in considerable enlargement. The first and third methods do not affect the size of the film. In the third method, the film comes off with chemicals which are more easily removed by washing than the first.

Mention should be made of some of the reagents employed. Formaldehyde and the carbonates of potassium and sodium produce an effect on gelatine similar to tanning. Either of these two carbonates also acts slightly on glass, thereby reducing the adhesion between the glass and the gelatine. Hydrofluoric acid readily dissolves glass, and this action of a dilute solution, while slight, removes the film. Formaldehyde is a gas which is readily soluble in water, and the commercial form is a forty per cent. solution in water. The hydrofluoric acid is also a gas, sold like the formaldehyde in aqueous solution. This acid is, however, one of the nastiest and most disagreeable chemicals. Since it attacks glass and many other common substances, it must be kept in wax or lead bottles, and even then the escaping fumes are apt to corrode nearly everything in the same room. Great care must also be exercised in handling this dangerous reagent, as the sores produced by fairly strong solutions may be followed by serious results, and the fumes are very irritating to the air passages. Solutions of hydrofluoric acid, as well as formaldehyde solutions, should be kept in a cool place and tightly stoppered. In my own experience, I have found the solutions of sodium fluoride and sulphuric acid, as given above, just as effective as and much less disagreeable than the hydrofluoric acid.

The most perplexing problems arise after the film is stripped, and unfortunately these are almost entirely ignored in most of the published methods. They should cause no difficulty, however. I give below directions for the after-treatment of the stripped film, depending on the purpose which the worker has in view.

To preserve the gelatine film unmounted: Strip by the first method, place in water, and wash. The washing will not take long, as both surfaces of the film are exposed to the water. Then slip a piece of waxed paper into the water and under the film, and withdraw both film and paper together. Drain, and then with a lintless blotter take up all surface moisture. Then place the film between two dry pieces of lintless blotting paper and dry under light pressure. The pressure should be just great enough to prevent the film from wrinkling. A dozen or two of glass negatives are sufficient as a weight. This last step may seem surprising, but a gelatine film soaked in formaldehyde and an alkaline carbonate loses all adhesive properties, and there is not the slightest danger of the film sticking to clean blotting paper.

The second stripping method may be employed and the film after washing may be squeegeed on to a clean ferrotype plate; but the method is treacherous and uncertain and is not to be recommended for sizes larger than 3¼ by 4¼.

It may be desired to preserve these films without any further treatment, but the edges at least should be protected in some way. Perhaps the simplest way is to take a piece of paper of good quality and of a size a trifle larger than the film. Cut a mask from this paper, making the opening a little smaller than the stripped film. With a brush, run a line of gelatine around the edge of the opening, and fasten the film at its edges to this. Where a large number of stripped films are to be preserved in this way, it is best to use sheets of paper of a uniform size, and to leave the margin wide enough for data and notes such as are usually placed on negative envelopes. The opening may be of such a size and shape that the support will act also as a mask. The photographer in possession of such stripped films should remember also that the carbon process is made much simpler when one can print from the reverse side of the film and employ the single transfer method.

Mounting the Film on Celluloid

Old celluloid film negatives are very useful for this purpose. If it is desired to mount the film direct on the celluloid, remove the film entirely and thoroughly wash the celluloid. Then strip the desired negative by the first method, wash, and dry between blotters as above described. When thoroughly dry, soak in pure grain alcohol and mount directly on a sheet of clean, dry celluloid. The alcohol softens the surface of the celluloid sufficiently to make the film adhere, but the addition of a little amyl acetate to the alcohol is even better. The curling is slight, but the danger of bubbles is great. If it is desired to use the gelatine film on the celluloid negative as an adhesive, reduce the image and wash the negative. The stripped film (which may be stripped by any method) is floated in water, the celluloid is pushed under, and both are withdrawn together. The surplus water should be squeegeed out, and the film should be dried as celluloid films are dried. The curling is exceedingly troublesome when films are mounted in this way. If the celluloid negative had been treated with a hardening agent like alum, and if the stripped film had been removed by the first method, then considerable trouble may be experienced in making the film stick.

Enlarging Negatives.

The negatives to be enlarged should be somewhat denser than the normal, as a reduction in density occurs when the film swells. An old plate or negative should be used for a mount. If a plate is used, treat with hypo; if a discarded negative, treat with the reducer. When the gelatine film of the mount is perfectly clear, wash thoroughly. The negative to be enlarged is stripped by the second method. Wash, and when the desired enlargement has taken place, slip the glass as above prepared under the film and withdraw both together. Roll out all surplus water and allow the enlarged film to dry on the gelatine-coated glass. The enlargement of the film increases slowly while in the water, but may be hastened by adding glycerine to the water. Should it be found afterward that the enlargement of the film has been too great, the film should be transferred to dilute alcohol, about thirty per cent., and then placed in succession in alcohols of about fifty, seventy-five, and ninety-five per cent., allowing about five to ten minutes between changes. In this way the film might be restored to its original size, if desired.

If the negative before stripping is treated for about ten minutes in a solution of:

Formaldehyde 2 parts
Water 98 parts

the film becomes a trifle tough and the swelling is limited to about ten per cent. in its dimensions, so that a 4 x 5 negative gives a 4½ x 5½ stripped film. By varying the strength of the formaldehyde bath and the length of time of immersion, the amount of swelling of the film may be definitely regulated.

Films treated with formaldehyde are much easier to handle than those not so treated, as they are much firmer and tougher.

There is one very important caution, however. Never use anything but a discarded negative until you have mastered the method. All methods are easy after they have been mastered, and all are difficult (in varying degrees) before they are mastered. When the film comes off so easily in the hydrofluoric acid bath,

and seems so tough and firm in the water, there is a temptation to strip half a dozen good negatives "just for luck." But unless you fiercely resist the temptation your joy will be turned to bitter disappointment when you see them hopelessly ruined on their new support. Use fogged plates or spoiled negatives until you are sure of yourself, and do it with every new method you try.

E. F. LANGE.

BROMOIL PRINTS BY A SIMPLIFIED METHOD AND BY A TRANSFER PROCESS.

[The results of recent investigations by the Ozobrome Co., proprietors of the patent in the "Ozobrome" solution, are described in a booklet just issued under the title of "Oil-Ozobrome," by which name the company allude to an oil print prepared by a transfer process. The major portion of the booklet is quoted in the following paragraphs, which form the working instructions for both the simplified form of the Bromoil process and for a mode of working "Bromoil" prints which corresponds with the No. 2 method in the Ozobrome process. The full booklet contains the prices, etc., of the materials required by the worker. It is obtainable on application to Messrs. Ozobrome, Ltd., 122, Allcroft Road, Kentish Town, London, N.W.—Eds. "B.J."]

Method No. 1 (Bromoil Simplified).

In this method a bromide print is treated in such a manner that the altered image will retain greasy ink while the unchanged portions will repel it. The result is a picture in oil-pigment taking the place of the black silver image. As the ink is put on with a brush, almost unlimited control can be exercised in expressing personal artistic feeling.

Make up a stock solution of 1 per cent. hydrochloric acid, thus:

Water	25 oz., 1,000 c.c.
Hydrochloric acid, pure	2 fluid drachms, 10 c.c.

This solution will keep indefinitely.

BLEACHING BATH.

"Ozobrome" Concentrated Pigmenting Solution as sold	1 part
Water	4 parts
Stock one per cent. solution of hydrochloric acid as above	5 parts

or The "Ozobrome Working Bath" (made by adding 4 parts of water to 1 part of Concentrated Ozobrome Pigmenting Solution)

1 part	
Stock solution of hydrochloric acid as above.....	1 part

or "Tabloid" Ozobrome Pigmenting Compound, 1 "tabloid" product dissolved in each ounce of water

1 part	
Stock solution of hydrochloric acid	1 part

Immerse the bromide print in any one of the above bleaching baths until thoroughly bleached to a faint yellow brown colour, which will take one to three minutes according to the hardness of the bromide emulsion.

The bleached print is then transferred without washing to a bath consisting of:

Water	20 oz.
Hypo	2 oz.
Liq. ammonia	60 minims

where it should remain from two to six minutes according to the original hardness of the bromide emulsion. The hardness of the emulsion can be roughly gauged by the time the image takes to bleach.

If the bleaching is complete in one minute or less it is an indication that the gelatine is fairly soft, and two or three minutes in the fixing bath would be sufficient, but if the time occupied in bleaching is two or three minutes or longer, the print should remain in the hypo. from five to six minutes.

Finally wash three to five minutes in running water. After removal of the superfluous moisture the print is ready to ink up, or, if convenient, the print may be allowed to dry, in which case it

will require to be soaked in water at a temperature of 60 deg. 65 deg. F. for about twenty to thirty minutes.

Method No. 2 (The Transfer Process).

The initial difficulties experienced in working out this process have been overcome by the introduction of a special transfer paper prepared by Ozobrome Limited.

The rationale of the process is:—A piece of specially prepared transfer paper is immersed in a bleaching bath and placed upon a glass slab, the bromide print (previously soaked in water of weak solution of salt) is brought into contact with it and the two papers squeegeed together. The silver of the bromide image in conjunction with the bleaching solution held by the transfer paper produces a tanned gelatine image (reversed as regards right and left) upon the transfer paper. After washing and drying, the image is ready to ink up. The image of the bromide paper is also tanned, and after fixing can be used for bromoil. The salt accelerates the bleaching.

In this method an ordinary bromide print will produce an image reversed with regard to right and left, but of course in enlarging this can be easily rectified.

The bleaching bath described under Method No. 1 is used. 1. Immerse the bromide print in a salt bath, thus:—

Water	20 oz.
Common table salt	1 oz.

where it may remain while the following operation is being carried out.

2. Immerse the special oil-ozobrome transfer paper in the bleaching bath (prepared as in Method No. 1) until it is saturated, which will take about two to three minutes in summer or four to six minutes in winter.

3. Remove the soaked transfer paper from the bleaching bath and place it, gelatine side upwards, upon a sheet of glass.

4. Take the bromide print from the salt bath and lay it, image side downwards, upon the soaked transfer paper resting on the glass, avoiding airbells or any lateral movement. Then, without losing time, squeegee the papers gently into contact with a rubber squeegee (a flat squeegee removes too much of the solution) and place them, transfer paper uppermost, on another piece of glass. The bleaching action takes place fairly rapidly (from five to fifteen minutes) and the process of the bleaching can be distinctly followed by looking through the adhering papers in front of a fairly strong light.

5. When the image is completely bleached, separate the two papers (under water by preference), leaving them in the water, which should be changed several times, until all yellow coloration has disappeared, which will take from seven to fifteen minutes according to the temperature.

The impressed transfer paper is not in a condition to ink up

until it has been dried and re-soaked in water for five to ten minutes.

The bromide print, after washing, may be re-developed for further transfer, or, after separation from the transfer paper, it may be placed at once in the hypo and ammonia bath mentioned in Method 1, washed, left to dry, and re-soaked for a few minutes, when it can be inked up as a bromoil print.

Note.—Experiment shows that when two gelatine surfaces have been pressed together and separated by force, they are not in a condition for pigmenting until the pores of the gelatine have been closed by drying, when quite a short re-soaking in water is sufficient.

Keeping Properties.

The "Ozobrome" solution as sold will keep indefinitely, but the bleaching bath should be freshly prepared. It may be used for quite a number of prints at one sitting, but should not be kept till the next day. The hypo bath should be renewed after about six prints have been treated.

Inking.

It is almost impossible to give precise instructions for the inking up of the print, as nearly every worker has his own ideas upon the subject, and no two persons handle a brush in exactly the same way. Hopping, dabbing, and sweeping motions all have their uses, and the amount of force to be used depends both upon the hardness of the surface of the print and the degree of contrast required. It is, however, a safe rule never to use force unless you have first tried every possible kind of gentle persuasion, as sometimes just a slightly different touch will produce the required effect.

The soaked print should be placed upon a pad consisting of several thicknesses of damp blotting-paper (the fluffless photographic variety for preference), resting upon a glass or metal support, and the superfluous moisture should be removed from the surface of the print with a clean soft handkerchief or a piece of butter muslin.

A little ink about the size of a pea should be dabbed upon a sheet of glass and spread down evenly with a palette knife. A very small amount of medium may be added if the ink is very stiff and difficult to spread. The tip of a special brush is very lightly charged with pigment by dabbing first on the patch of ink and then on plain glass and is then applied to the print.

With regard to the brushes used they may be made either of Lyons hog-hair or fitch, and the shape generally preferred is that of a hart's foot. It is a great convenience to have a number of these brushes in various sizes, as a clean one is often required.

Brushes may be cleaned by rubbing the hairs upon a piece of rag moistened with turpentine, or the pigment may first be loosened by dipping the brush in turpentine and subsequently washing with soap and water. In any case it is essential that the brush should be perfectly dry before being used again.

DEVELOPING P.O.P.

With the advent of the new phosphate papers, on which results practically indistinguishable from those on P.O.P. are obtained by gaslight exposures, less importance attaches to the methods of developing ordinary print-out papers. On occasion, however, such procedure is useful where a more rapid paper is not at hand, or where, on grounds of economy, it is thought advisable to take off proofs on developed P.O.P. We may, therefore, quote the directions given in the current issue of the "Bulletin de la Société Havraise de Photographie," where M. Schweitzer gives the following formulæ and directions for the use of a pyro developer for P.O.P. Unless we are mistaken, a solution of very similar composition was sold years ago as a secret preparation capable of giving a variety of warm tones on faintly printed P.O.P. The following stock solutions are prepared:—

A. Potass. bichromate	10 gms.	1 oz.
Water	100 ccs.	10 ozs.
B. Citric acid	20 gms.	2 ozs.
Water	100 ccs.	10 ozs.
C. Pyrogalllic acid	1.5 gm.	13 grs.
Water	1,000 ccs.	20 ozs.

Solutions A and B will keep indefinitely, but solution C should be made at the time of developing a batch of prints. The precise

tone obtained is largely dependent on the character of the negative, the degree of printing-out, and the composition of the developing bath. The bath itself should be made up at the moment of use by means of the above solutions, the quantities given in the formulæ cited below being sufficient for the development of one quarter-plate print.

For green tones—

A	3 drops	3 drops.
Water.....	25 ccs.	7 drms.

A different shade of green is given by—

A	3 drops	3 drops.
B	8 drops	8 drops.
Water	25 ccs.	7 drms.

For cherry-red tones—

A	1 drop.	1 drop.
B	3 ccs.	50 mms.
Water	25 ccs.	7 drms.

For reddish brown tones—

A	1 drop.	1 drop.
B	1 cc.	16 mms.
Water	25 ccs.	7 drms.

For blue-black tones—

A	2 drops	2 drops.
B	5 drops	5 drops.
Water.....	25 ccs.	7 drms.

The depth of the tones obtained increases the slighter the printing in the first instance; on the contrary, if very warm tones are desired it is better to go on printing until a fair amount of detail is visible. The best results are obtained in this process by the use of fairly contrasty negatives.

Having decided the kind of tone that is preferred the solution corresponding to it among the above formulæ is made up and the prints immersed in it for about five seconds, and then placed, without washing, directly into the C solution. Here development is completed, the print then placed for a moment in water, and then transferred to a 10 per cent. solution of sodium sulphite, which clears the print from any silver stain due to the potassium bichromate. It is then washed, fixed, and again washed in the usual way. The process is very simple, and gives a considerable variety of results from a paper of the P.O.P. type.

Photo-Mechanical Notes.

Plates for Embossing by a Photographic Process.

A mixture of rubber and asphaltum is used as a sensitive material in a process patented by John Hartnett, Jun., No. 1,550, I Street, N.W., Washington, U.S.A., for preparing relief plates for embossing, etc. According to the specification, No. 6,795, 1909, a solution is prepared, consisting of pure crude rubber dissolved in any suitable solvent of rubber, as benzole, benzine, acetone, etc., and to this solution is added a small percentage of asphaltum or coal tar.

A plate is coated with one or more films of the above solution according to the amount of relief desired, the films being thoroughly dried before subjecting them to use. It is found that by thoroughly drying the films they are rendered more sensitive. The effect of light, either natural or artificial, upon a plate prepared as above is to render the exposed parts of the film more or less insoluble, depending upon the amount of light and thickness of the film.

A transparency is made of the object to be reproduced in relief. This transparency may be a photographic negative or positive on glass, or any similar translucent representation of the object, a photographic negative being usually preferred. This transparency is placed face to face with the film of the sensitised plate, the two being clamped together in a frame as in the ordinary method of printing photographs. The transparency is then exposed to light, either natural or artificial, for a suitable time, depending upon the intensity of the

light, the density of the negative, and the thickness of the film. The light will render the parts of the film exposed to it more or less insoluble, depending upon the amount of light passing through the transparency. The film exposed to clear portions of the transparency will be quite insoluble, while the film exposed to shaded portions will be more or less soluble according to the amount of light received through them.

After sufficient exposure the plates are separated, and the sensitized plate is placed in a bath of any suitable solvent of rubber, as benzole, benzine, acetone, etc., and subjected to the bath until the parts which were shaded by the transparency have swelled to the desired relief. The amount of swelling or relief at any particular point will depend upon the thickness of the film, the amount of light to which it has been subjected, and the length of time the developing process has continued.

When the desired relief has been secured the plate is removed from the bath and a plaster cast made from it, which cast will be found to have the outline and more or less of the relief of the subject from which the negative was made. If it be desired to make an electrotype, this plaster cast is dipped in boiling oil (such as linseed oil or paraffin) to fill the pores, and then coated with graphite, after which an electrotype may be made in the usual manner and stereotype plates may also be made.

Stereotype plates, positive and negative, made as above described, may be used for embossing. For light embossing, such as is required to bring out the features of photographs, the plaster cast above described, together with a negative made from the positive, may be used as a pair of embossing dies. Such dies will exactly register with the features of a photograph produced from the original negative, and they may be used to emboss pictures printed from the negative.

Newspaper Process Plant.

The object of installing a process department in a newspaper office must be to enable illustrations to be conveniently produced in regard to time, for it is improbable that blocks can be produced any cheaper by the newspaper's department than they could be purchased at the present low prices of blocks. Now the attainment of this objective of speed is frequently stultified by an inadequate knowledge of process work or exaggerated expectations of its possibilities. The utmost speed can only be attained by division of labour, each worker becoming extremely expert on his particular point in the work. Yet we constantly hear of departments being started with only one man to do everything. It takes a very clever man to be able to do everything necessary in the making of a block, and if he does it well then he cannot do it quickly. The same with regard to plant; it is of no use installing a second-hand camera of obsolete pattern, arc lamps only suitable for street lighting, and lens and prism of the slowest type. This, however, is what is sometimes done, with consequent disappointment. For a newspaper process department to be thoroughly successful it must have an adequate staff, not one man only, and plant selected in every respect with regard to its capability in turning out work quickly. Such apparatus is not always the most expensive.

The Air Supply of the Aerograph.

The "Aerograph," without which no process studio is complete, has gone through quite an evolution as regards its air supply. At first a skate foot pump, or even a bicycle pump, was used to compress the air, then the little hot air engine was introduced, then the electric motor. Some firms used their ordinary power engine to compress the air, others, using the monotype casting machine, availed themselves of its compressed air, and now we find a firm in Austria using for the purpose, with every satisfaction, cylinders of carbonic acid gas, the same as are used in the beerhouses there. We suppose liquid air is not yet cheap enough for the purpose, but no doubt, when it becomes so, it will be used.

The Cleaning of Glass.

One of the most troublesome operations in connection with wet collodion work is the thorough cleaning of the glass plates, and probably more waste arises from negatives useless on account of dirty glass than from any other cause.

The usual plan is, first, to soak the glass in a bath of strong nitric acid or a mixture of bichromate of potash and sulphuric acid. Whether this is effective or not, of course, depends entirely on the way in

which the soaking is allowed to take place. If the glasses are simply laid horizontally on top of each other without any division, naturally the acid cannot freely attack the surfaces. In order to accomplish this it is better that the plates be stood in the bath vertically, and to this end lead-lined grooved troughs are sold. These, however, are very expensive; the same end may be obtained by the use of a deep porcelain trough, fitted with two pieces of wood in which narrow grooves have been cut. These grooved pieces are cheap and easy to make out of quartering, and can therefore be replaced as soon as the acid disintegrates the wood.

After the soaking in acid the plates are usually scrubbed with a brush and some fine powder, such as tripoli. It is here also that thorough work is necessary, and generally much dissatisfaction is expressed with the boy who has this job to do.

To overcome this difficulty one large establishment has installed a machine similar to a stone-grinding machine. This is fitted with a soft pad and supplied with rouge, the glass laid on a slab, and the boy then goes thoroughly over it with the machine, which is pushed about just like the radial arm router. Since this means of cleaning the glass has been used there has been no complaint of dirt, and great has been the relief of the operators.

The Finish of Zinc Blocks.

Now that zinc is becoming increasingly used in England it is somewhat surprising that the Continental method of nickelling the plate is not adopted. This has several advantages—viz., the zinc plate is protected from corrosion, inks do not affect it, it wears very much longer on the printing press, and, finally, its appearance is improved. The operation takes no time to speak of; certainly, it can be completed in three minutes, including the cleaning of the plate, the preliminary brass facing, and then the nickel facing. It is true the material and plant for reducing the voltage of the electric current is a somewhat heavy first expense, but this is all, and is only incurred once.

PHOTO-MECHANICAL PATENTS.

The following patent has been applied for:—

COLOUR PRINTING.—No. 19,665.—Improvements in the manufacture of blocks for colour printing. Oliver Samuel Dawson and Clare Livingstone Finlay, 254A, High Holborn, London.

The following specification, etc., is open to public inspection before acceptance under the Patents Act, 1901:—

ENGRAVING AND PRINTING.—No. 18,338.—Engraving and printing process. Valentin and Zerreiss.

FORTHCOMING EXHIBITIONS.

1909.

September 10 to October 23.—The Photographic Salon. Sec. Reginald Craigie, 5A, Pall Mall East, London, S.W.

September 23 to October 30.—1.—Royal Photographic Society Sec., J. McIntosh, 35, Russell Square, London, W.C.

October 21 to 23.—Rotherham Photographic Society. Entries close October 11. Secs. H. C. Hemingway, Tooker Road, Rotherham and F. Sargeant, 17, Aldred Street, Rotherham.

November 23 to 26.—Southampton Camera Club. Sec., S. G. Kimber Oakdene, Highfield, Southampton.

1910.

April 5 to 9.—Sheffield Photographic Society. Secs., J. A. Georg and J. R. Wigfull, 14, Parade Chambers, Sheffield.

THE RANKS OF LADY PHOTOGRAPHERS in London are being augmented in the opening of a business by Miss Florence C. Vandamm at 26, Victoria Street, Westminster. Miss Vandamm, in common with many other lady photographers, has been trained at the Polytechnic School of Photography, Regent Street, W., where she has been a student for three years. She holds the student's medal for portraiture, and in addition to other awards gained a plaque for portraiture at the last Cripplegate Exhibition, and had accepted portrait in the pictorial section of the 1908 R.P.S. Exhibition.

Patent News.

Process patents—applications and specifications—are treated in Photo-Mechanical Notes.

Applications for the following patents have been received from August 23 to 28 :—

CAMERAS.—No. 19,342. Improvements in and relating to photographic cameras. Otto Halbach, 53, Chancery Lane, London.

REFLEX CAMERAS.—No. 19,432. Improvements in and relating to folding and other forms of reflector photographic cameras. Frank Philip Whitehead, 34, Pickets Street, Balham, London.

PHOTO-TELEGRAPHY.—No. 19,516. Process and apparatus for electro-mechanical transmission to a distance of half-tone illustrations, portrait, and other photographs, engravings, manuscripts, typograms, and the like. Henri Carboneille, 111, Hatton Garden, London.

TELE-OBJECTIVES.—No. 19,580. Improvements in photographic tele-objectives.—Carl Zeiss, 29, Margaret Street, Regent Street, London.

CINEMATOGRAPHY.—No. 19,669. Improvements in or relating to stereoscopic cinematography. Alfred Barnett, 3, New Oxford Street, London.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

FOLDING REFLEX CAMERA.—No. 28,448, 1908 (January 7, 1908). According to the invention, the frame which carries the ground glass and is pivoted on the axis of rotation of the mirror is not connected directly to the mount of the objective. This mount is carried by a separate frame jointed to the rear frame of the camera on a pivotal axis, which is not that of the mirror. In this manner the height of the ground glass is no longer limited, and, moreover, as it may be situated at a distance from the mirror, the pivotal axis of the latter need no longer be necessarily placed against the shutter, and the rollers of the shutter may be placed inside, thus allowing of the use of a reversible frame and of plate-holders or magazines of all kinds.

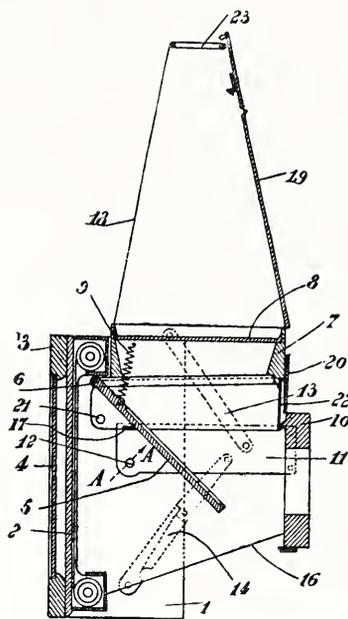
The rear frame, 1, of the camera comprises two bearings or recesses for the rollers of the shutter, 2, behind which there is arranged the reversible frame, 3, containing the sensitised plate.

The mirror, 5, of the finder is pivoted on an axle, 6, on which is also pivoted the frame, 7, carrying the ground glass, 8. A spring, 9, fixed to the frame 7, and to the mirror, 5, has a tendency to pull the latter against the lower face of the frame, 7. The mount, 10, of the objective is attached to two side plates, 11, pivoted on two axles, 12, fixed to the rear frame, 1. These plates, 11, are connected at one end to the frame of the finder, 7, by means of rods, 13, and at the other end to the frame, 1, by means of jointed levers, 14. An intermediate frame, composed of two side plates, 15, and a transverse plate, 22, designed to close the space between the frame, 7, and the plates, 11, is adapted to pivot on axles, 21, fixed to the rear frame, 1. The longitudinal edges of the plates are turned in to form hooks for engaging similar hooks formed by turning in the adjacent edges of the plates and the side faces of the frames when the apparatus is folded. The lower part of the camera is closed by a leather flange, 16, one of the bottom edges of which is screwed to the spring of the lower roller of the shutter and the other to the mount, 10, of the objective, its side edges being fastened to the plates, 11.

For focussing the mirror is held down in a position of 45 deg. against stops, 17, fixed to the plates, 15, by an oscillating arm, 24, the free end of which is formed with a projection engaging with the end of an arm, 25, the other end of which is fastened to the axle, 6, of the mirror. On lowering the actuating knob, 26, the

bell crank lever, 27, disengages the arm, 24, from the arm, 25, and allows the spring, 9, to raise the mirror and with it the arm, 25, which strikes the ratchet, 28, and disengages it from the teeth of the wheel, 29, to allow the shutter to move down. For moving down the mirror the knob, 30, secured to the arm, 25, is pulled down in the slot, 31, until the end of the arm, 25, has passed the projection of the arm, 24, which engages it when the knob, 30, is released.

This arrangement allows of constructing apparatus having cameras of different lengths when unfolded, although the size is the



same when folded. For this purpose it is sufficient to shift or change the position of the pivotal axis, 12, along a line A—A at 45 degrees. The dimensions of the ground glass may be larger than in the arrangement hitherto in use, because its height is no longer limited by the front part of the frame in which it is mounted. It may even be made in the shape of a square having a side equal to the longest side of the photographic plate. Jules Frennet, 113, Rue de l'Arbre, Bénit, Brussels.

POCKET CAMERAS.—No. 27,866, 1908 (December 22, 1908). The object of the invention is to provide a pocket camera which shall combine with the smallest practical size and weight a sufficient stability and firmness for the proper working of the apparatus.

For this purpose the casing is formed along its edges in the shape of a pointed arch with rounded top and rounded corners, thus facilitating the handling and holding of the apparatus during operations, while also imparting to such apparatus the most suitable shape required for pocket camera which should have neither sharp corners nor sharp or square edges.

Furthermore, the guides which retain the four corners of the lens-carrier or movable front-plate in the usual manner are adjustably mounted on the inner side of a twofold or divided cover for the collapsed camera, while the divided cover is controlled by springs tending to open the same and thereby project the lens-carrier sufficiently outwards, when released, so as to permit of the latter being readily withdrawn with the fingers alone. Armand Boreux, 31, Petersgraben, Basle, Switzerland.

ENDLESS CINEMATOGRAPH FILM.—No. 9,262, 1909 (January 7, 1909). This invention relates to films or strips for moving-picture machines, and has for its object to provide a flexible film or strip of small dimensions containing a very long series of pictures. Such a film or strip is compact, portable, easily handled, convenient for use with the machines for which it is intended, and is little liable to injury: moreover, it is a convenient article for sale and delivery, and for storage either by the dealer or by the customer.

According to the invention, the flexible film or flexible strip has the pictures following one another arranged in rows or columns forming either a continuous spiral line or a number of

parallel lines, longitudinally, and such flexible film or strip may either be in the form of an endless band or loop or flexible cylinder, or it may be two-ended.

The pictures, which may be taken either from an ordinary cinematograph or like film or from the moving subject, are reduced on to the improved film or strip to as small a size as is convenient. The Rotary Photographic Company, Limited, 12, New Union Street, Moorfields, London, E.C., and Ferdinand Von Madaler, 11, Stowe Road, Shepherd's Bush, London, W.

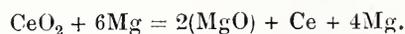
CINEMATOGRAPH MECHANISM.—No. 10,292, 1909 (April 30, 1909).

The invention relates to apparatus for projecting series of luminous pictures and the like, and its object is to provide for this purpose apparatus which is entirely automatic, requiring no supervision of any kind, both the changing of the pictures and the control of the driving mechanism and illuminating means being automatically performed.

The apparatus essentially comprises a spring motor, a circular rotatable picture disk which is connected to the motor, a lamp of known type, and a governor which intermittently locks the mechanism by which the disk is rotated. Georg Mewes, 61, Mühlendamm, Hamburg, Germany.

SLOW FLASH POWDERS.—No. 16,448, 1908 (August 4, 1908).

According to the invention a slow-burning mixture is obtained by mixing an oxygen-containing compound of a rare earth metal or its equivalent with a quantity of magnesium equal at least to three times the chemical equivalent of the content of oxygen in the compound of the rare earth or other easily combustible metal. With such a time-light there is a repeated reduction and re-combustion of the oxide or compound of the rare earth metal or easily combustible metal. An example will illustrate this action. In the case of a mixture of magnesium and cerium oxide the action is as follows:



The cerium and magnesium again burn in the air and the CeO_2 thus produced is again reduced by the magnesium, and the pure metallic cerium again burns in the air. It is by this repeated reduction and reaction that the prolongation of the light is obtained. In this way the actinic power of the light is not reduced, while the desired time-light is obtained. The excess of magnesium given in the above equation may, of course, be greatly increased.

The oxygen-containing compounds of the easily combustible metal employed may be oxides of the rare earth metals, oxides of the alkaline earth metals, manganese and the like. It is known that as the equivalents of magnesium, aluminium, calcium, barium, or strontium may be employed. In deciding which compound to take with any of these equivalents of magnesium, regard must be had to the fact that the magnesium or its equivalent must be capable of reducing the compound. Of course, the oxides of the rare earth metals may be used with any of the equivalents of magnesium, and in the specification the oxide of the rare earth metal with magnesium is taken as the typical example of the invention.

As can be understood from the equation and explanation given above, the function of the oxide of the rare earth metal is to act as an oxygen carrier. Taking the example above, the cerium oxide is reduced by the combustion of the magnesium. The reduced metal is now ignited, and again burns in the air to cerium oxide. Owing to the excess of magnesium this oxide is again reduced by the combustion of the magnesium, and this reduction and re-combustion proceeds until the excess of magnesium is exhausted. The result of this is that the temperature of the combustion rises, and as the cerium also gives a high actinic light on combustion, a strong light is maintained. It will be understood that the reduced metal of the compound employed should be lower on the electro-positive scale than the magnesium or its equivalent.

In order to produce light of exceedingly uniform intensity, compounds of vanadium in small proportions may, with advantage, be added as a further oxygen-carrying agent.

The patentee refers to the suggestion in Patent No. 3,794, 1904, to mix nitrates of the rare earths with an excess of magnesium; to Patent No. 27,267, 1904, where it is proposed to mix a sulphate of a rare earth with an excess of magnesium, and to add an alka-

line earth to produce a time light; and to other proposals, such as mixing an excess of magnesium with an oxide, carbonate, or phosphate of a heavy metal.

The mixtures, according to the present invention, are characterized by their quiet burning, whilst their brilliancy is also increased. A mixture of an oxide of a rare earth metal with magnesium in excess equal to double the chemical equivalent of the oxygen of the oxide burns comparatively quickly, but when an excess of magnesium equal to at least three times the chemical equivalent of the oxygen is taken, the time is considerably lengthened. The following are some numerical examples of the mixtures employed. An excess of magnesium may be anything up to, say, 10 times the equivalent of the oxygen present in the compound:—

- I.—250 parts magnesium powder. 150 parts cerium oxide.
- II.—250 parts magnesium powder. 150 parts cerium oxide. 50 parts vanadic acid.
- III.—250 parts magnesium powder. 100 parts oxalate of cerium.
- IV.—250 parts magnesium powder. 75 parts calcium hydroxide.
- V.—250 parts magnesium powder. 50 parts cerium oxide. 50 parts calcium hydroxide.
- VI.—250 parts magnesium powder. 50 parts oxide of manganese.
- VII.—250 parts magnesium powder. 50 parts cerium oxide. 25 parts oxide of manganese.

2 to 3 gms. of the above mixtures will burn on the average for thirty seconds; greater quantities, of course, will burn for longer periods. Carl Bethge, 18, Schlesische Strasse, Berlin.

The following complete specifications, etc., are open to public inspection, before acceptance, under the Patents Act, 1901:—

PHOTO-RELIEFS.—No. 12,302. Process for obtaining photo-reliefs. Baese.

CINEMATOGRAPHS.—No. 19,097. Cinematographs. Benaglia and Grimaldi.

New Trade Names.

CINÉMA ECLAIR PARIS (DESIGN)—No. 312,924. Cinematograph and cinematograph films bearing finished pictures for use thereon. Société Française des Films et Cinématographes "Eclair," 27, Rue Taitbout, Paris, manufacturers. May 8, 1909.

LION.—No. 314,216. Photographic sensitised paper. The Imperial Dry Plate Co., Ltd., Ashford Road, Cricklewood, London, manufacturers of photographic materials. June 24, 1909.

Analecta.

Extracts from our weekly and monthly contemporaries.

Mounting Enlargements.

One of the difficulties which I encountered on taking up the question of enlarging on thick rough surface bromide papers (writes Moore in "Photography and Focus" for September 7) was that of getting the enlargement to adhere to the card on which I mounted it. Starch paste, which had answered well enough for mounting P.O.P. and bromide prints of the ordinary thin paper kind, did not seem to possess sufficient adhesiveness, and the enlargements, after drying came right off the card. Glue I knew would stick, but the glue is impure. Gelatine, however, a purified glue, is not subject to the same objection.

The method of using it is much the same as if it were glue. The sheet of gelatine, which is sold at most oil shops, is allowed to soak for an hour or two in cold water, and, when it is perfectly limp, is taken out, squeezed in the hands, and put into a jar, which is stood over a saucepan of hot water. The saucepan should be put on a gas stove until the water is brought to the boil, and the gelatine should then be liquid and very hot, is applied to the back of the enlargement with a stiff brush.

The brush should be worked round and round all over the back of the enlargement, until it seems to be covered with a fine

oth. Particular attention should be given to the edges. When the hole of the enlargement has thus been covered with adhesive, a fresh supply should be taken on the brush, quickly brushed all over the back, and then the enlargement, being held face upwards in the hands by the middle of two opposite sides, hanging down in a loop between them, it should be lowered on to the mount so that the first touches it along a line at the middle of the picture. It is then quickly brought into contact all over, smoothed down with the fingers, always rubbing from the centre outwards, and put under slight pressure to dry.

New Books.

"La Photo-Sculpture Pour Tous." By T. Tranchant. Paris: Charles Mendel. Price 60c.

In this manual of 32 pages the author has described the methods of preparing reliefs, medallions, etc., by photographic methods. Among these are (1) the "carbon" method of producing a relief by washing out the soluble gelatine from a bichromated film after exposure to light, and (2) the swelled gelatine process. The details of preparing reversed negatives, of obtaining gelatine reliefs of the requisite depth, and of preparing casts from these latter are clearly explained by the author, who writes the results of his own lengthy practical experience on these processes.

MAKING LANTERN SLIDES.—A second edition of Herr Paul Hanke's "Herstellung von Diapositiven" has just been issued from the press of Gustav Schmidt, Berlin. It forms volume 20 of the well-known library series of photographic text-books, and in the new edition the author has given directions for the making of colour transparencies on screen-plates and by the three-colour separate methods such as the Sanger-Shepherd. Additional formulæ are also given for the making of warm-toned slides, whilst as regards the staple portion of the volume, the bromide and chloro-bromide processes, albumen, carbon, and collodion-emulsion, and wet collodion methods are, as before, the subjects of clearly written chapters.

New Materials, &c.

Bromoil and Oil-Ozobrome Materials. Supplied by Ozobrome, Ltd., 122, Allcroft Road, Kentish Town, N.W.

Ozobrome, Ltd., of 122, Allcroft Road, Kentish Town, N.W., are now issuing a special form of transfer paper for the production of bromoil prints by the oil-ozobrome process, and also they are issuing their special ozobrome "pigmenting" compound in the very convenient "tabloid" form prepared by Messrs. Burroughs, Wellcome and Co. The "tabloids" can be used in place of the ordinary ozobrome pigmenting solution, and they are equally suitable for the bromoil, bromoil or oil-ozobrome processes. The bleaching solution for either of the oil processes is made by dissolving one of the "tabloids" in one ounce of water and adding an equal quantity of 1 per cent. hydrochloric acid. For bromoil, the bromide print is simply bleached in this solution and then fixed, without washing, in a 10 per cent. hypo-bath rendered alkaline with ammonia. The special acid bath ordinarily used is dispensed with and the preparatory process is thus shortened, the final result being a faint brown instead of a green image. It is stated that after 3 to 5 minutes' washing pigmenting can be proceeded with, while as an alternative the bromoil print may be dried again and brought into condition for pigmenting by about 20 minutes' soaking in water. We tried both ways of working and obtained excellent results in both cases. The dried bromoil print, however, showed by far the greater contrast, and we should be inclined to recommend drying when a flat result is to be avoided. For the oil-ozobrome process the bromide print is soaked in 5 per cent. salt solution, while the special transfer paper is soaked in the bleaching bath. After a suitable time of immersion the two are

squeegeed in contact and left until the bromide image is bleached. They are then separated, and the transfer image is washed, dried, and then resoaked and pigmented, while the bleached bromide image is either washed and redeveloped, or at once fixed, washed, dried, resoaked, and pigmented as a bromoil print. Our test here gave an excellent bromoil print, while the oil-ozobrome was very promising. It, however, failed to pigment in the light half-tones, and possibly a better result would have been obtained if a little pressure had been applied to the squeegeed papers. Nothing, however, is said about this in the instructions. The loss of detail in the lights has always been a source of trouble with the oil-ozobrome process, and it would be an advantage if the cause of this trouble were specifically dealt with in the instructions. The new tabloid preparation is highly convenient and very effective for the bromoil process, and its introduction should be greatly appreciated. One statement on the first page of the instruction booklet we fail to understand altogether. It is stated that "none of the published formulæ for bromoil will work with this process." It is, however, a matter of common knowledge that some of them work excellently with bromoil, and also very effectively with oil-ozobrome, or ozo-oil, as it has also been called. Possibly, however, it is intended to say that none of the published formulæ will work with the ozobrome pigmenting solution or tabloids as now prepared. If this is so, it is very desirable that the fact should be more clearly stated, otherwise the workers who keep to the old methods will meet with considerable trouble. Certainly the introduction of tabloid "pigmenting" compound is a very great advantage, and this improvement will no doubt be highly appreciated by all workers of the bromoil process. The tabloids certainly give quite as effective results as the old preparation, while their convenience is far greater.

The Barnet "Super Speed" Plate. Made by Elliott and Sons, Ltd., Park Road, Barnet, Herts.

In the new Barnet plate which Messrs. Elliott and Sons, Ltd., have just placed upon the market, the aim has been at the combination of, first, great general speed, and second, a high degree of colour-sensitiveness. Such a conjunction of properties as this obviously must have the very greatest importance in the eyes of all classes of photographers. In studio work a great amount of advice has been given to the photographer of late years in the way of instilling into him the desirability of using a colour-sensitive plate. His reply has usually been that when employing a plate of the orthochromatic variety with the screen which is usually necessary for it, the exposure became protracted beyond what is feasible in commercial portraiture, or, if exposures of the usual time be given, the remedy for false tones and textures proves worse than the disease. Similarly, the great numbers of workers, most of whose photography is done with a hand camera have reason to appreciate the value of a plate which will allow them to give even slow instantaneous exposures when using a fair aperture of lens and a compensating light-filter. Therefore, in offering a plate, and one which is sold at the "popular" price of 1s. per dozen quarter-plates, giving both very high speed and a very considerable degree of colour-sensitiveness, Messrs. Elliott are assured beforehand of the interest of the photographic public.

In making some trials of the new introduction we had to be content with exposures made within a few yards of the offices of "The British Journal of Photography," and under atmospheric conditions which were not by any means the most favourable. In a light which required about 20 secs. to bring the paper of the Wynne meter to the standard tint we proposed to ourselves the test of an exposure of 1-10 sec. at $f/6$ through a filter which we had found by previous use might be taken with fair accuracy as being one of five times. If, under these conditions, we got negatives as fully exposed as are usually obtained when giving, say, 1-25 to 1-50 of a sec. at $f/6$ without a screen, we should be justified in describing the combination as one capable of the very widest use in hand-camera and studio photography. The negatives made in this way, which lie before us, show all the detail and other characteristics of a fully exposed plate, in addition to which the orthochromatic qualities of the emulsion are evidenced by the good rendering of foliage and that of a blue sky with clouds. While experts in sensitometry are still at variance as to what constitutes the speed of a colour-sensitive emulsion, we may be content with such a practical test as this, which will be sufficient to tell the photographer the capabilities of the plate as regards brief exposures through a filter. Although we gave 1-10

sec. we should say that a considerably shorter exposure would have been sufficient, the negatives attaining full density in ten minutes' development, despite the great speed of the emulsion. We found also that the plates fixed with considerable speed, and as regards their range of gradation and cleanness of working these are what one would expect of an orthochromatic emulsion of high quality. We have said enough to show that the new plate marks a notable step forward on the part of the makers of Barnet plates, and we are sure that among those practising both studio and outdoor photography a trial will show that in the Barnet "Super Speed" Messrs. Elliott have provided them with an important new power in all branches of photography. We would add that Messrs. Elliott are offering to send samples of the plate at 2s. 3d. per dozen half-plate, 1s. quarter-plate.

Paget Prize Phosphate Lantern Plates. Made by The Paget Prize Plate Co., Ltd., Watford, Herts.

Since reviewing recently the new phosphate paper manufactured by the Paget Prize Plate Co., we have received a small supply of lantern plates coated with the phosphate emulsion and placed on the market for the making of lantern slides and transparencies by precisely the same process as that employed with the phosphate paper. These phosphate plates thus allow the lantern-slide maker to produce a series of tones on transparencies by contact which are something quite distinct from those ordinarily obtained on gelatino-bromide and chloride plates. With the exception that the Paget Company advises the use of a somewhat stronger developer than that for the paper, namely, one made by diluting the stock solution with nine parts instead of with nineteen parts of water, the procedure is precisely the same as for the paper. In making some slides we found that, as with the paper, an increase in the exposure (which, we would interpose, is best given to daylight) gave us both warmer tone and softer character, so that the hardness or softness of a negative may be to a considerable extent remedied in the transparency made on the phosphate plate. The plates themselves are almost transparent, quite different in appearance from the ordinary gelatino-bromide lantern plate and resembling more nearly a collodion emulsion plate. The most convenient method, perhaps, of developing is to use a dish with a glass bottom held over a piece of white paper. The image is then seen to increase gradually in strength, and development can be most readily stopped at the right point simply by pouring off the solution and flooding the plate with water for an instant before putting it into the fixing bath. The opalescent appearance of the plates here disappears completely, it being just as easy to tell when the phosphate plate has been fixed as in the case of the semi-opaque bromide or chloride emulsion. The great transparency, however, of the phosphate plate is a point which the beginner in lantern-slide making will appreciate, as it renders the precise depth to which to take the plate in the developer more easy of judgment. For contact work, and particularly for obtaining a series of different tones with the greatest ease without altering the composition of the developer, the new plates certainly occupy a field of their own. The results show great transparency in the shadows, more nearly akin to a stain than to a granular silver deposit. They are marketed by the Paget Company at the customary price for transparency plates, namely, 1s. per dozen, $3\frac{1}{4}$ by $3\frac{1}{4}$ size.

Since the appearance of our first notice of Paget Phosphate paper, the following additional directions giving the revised formula for a developer for red tones and greater contrast have been published. The best and simplest light for developing is an ordinary candle. This light is sufficiently yellow not to do any harm even when the dish is held quite close to it.

For exposing, a white light is necessary; daylight, magnesium wire, and incandescent gas are all good, ordinary flat flame gas, lamps or candles are too yellow, electric light varies with the strength of current—when full current is on so that the light is white it is all right.

When we say that the tone depends on the exposure and not on the developer, this, of course, means so long as the same developer is used.

The addition of tartaric acid to the developer gives much redder tones when full exposures are given. It also gives greater contrast.

Tartaric acid	$\frac{1}{4}$ oz.
Water to make	20 ozs.

For use with ordinary negatives, take one part of above solution one part of the metal stock solution, and 18 parts of water. (For weak negatives reduce the water, even down to only eight parts.) We do not recommend the addition of the tartaric acid for cold tones, as it is more liable to fog with short exposures.

If, owing to under-exposure, forced development or the use of too strong light in developing, the whites of a print should be slightly fogged, the print may be cleaned by the reducing solution, diluted with three to six times its bulk of water, applied only as long as necessary and quickly washed off.

Phosphate prints may be toned if desired, after fixing and washing in any of the ordinary combined toning baths. In this way a further variety of colour is available.

"VICTORIA" AND "GROSVENOR" ART MOUNTS AND MOUNTING PAPERS.—Under these names Messrs. Houghtons Ltd., 88 and 89 High Holborn, London, W.C., have just issued two further series of mounting materials supplementing their excellent "Ruskin" mounts and "Ensign" art papers which we reviewed some time ago. The former, it will be remembered, are art mounts, each with a centimetre pasted-on tint of colour harmonising with the outside border, and also with prints of various tones, whilst the "Ensign" art boards, which are the materials forming the "Ruskin" mounts, are supplied in a series of eighteen different tints and textures, all of them free from pronounced colour, and therefore serving admirably for photographic purposes. In the "Victoria" Royal Art boards they have issued a further series of mounting papers in sheets 20 by 25 inches at a somewhat lower price, namely, 18s. per gross (thin) and 30s. per gross (thick). The series includes a very nice variety of colours, including a stone or buff, Nos. 62 and 72 (thin and thick respectively), a light brown, Nos. 64 and 74, a dark brownish-grey, Nos. 67 and 77, and slate-grey, Nos. 68 and 78. Though not possessing quite the character of surface of the "Ensign" art boards, the "Victoria" series, nevertheless, provides for the very tasteful mounting of prints both black and sepia. The "Grosvenor" mounts are selected from both "Ensign" and "Victoria" boards, and are put up in packets, each selling at 6d., and containing either 13 pieces, 8 by 6; 9, 10 by 6, 12 by 10. These boards represent a very convenient form in which to buy plain mounts for prints, and should be appreciated by the many who prefer an uncommercial looking mount or go through the trouble of multiple mounting in a small way.

PRINTING FOR PROFESSIONAL PHOTOGRAPHERS.—A booklet, specially issued to help the photographer in securing winter and Christmas trade, has just been prepared by Messrs. Walter Pearce and Co., St. George's Press, Brentford, W., of whose previous designs and booklets and similar literature we have had occasion to write appreciatively in the past. The present issue is a daintily printed 16-page leaflet, enclosed in a cover of linen-surface paper, very nicely embossed, and tied with ribbon, and providing a space for a photograph about 2in. by 2½in. This may be an actual photographic print or a half-tone reproduction, according to the photographer's desire. The text of the booklet bears the title, "Friend to Friend," and a few appropriate words makes a recommendation as to the suitability of a photograph as a Christmas or other gift. The wording may be varied somewhat to meet particular photographers' requirements. The booklet, which is issued at a moderate price by Messrs. Pearce, is supplied by them only to one firm in a given district.

Messrs. Pearce also send us a specimen book of the St. George's series of private Christmas card mounts, representing a very choice variety of mounts on linen surface and other papers, most of them in folders, providing a space for an oval, panel, or square print. Among them are also a series of very daintily produced calendars, and with space for the reception of an oval, circle, or rectangular print. There is nothing loud or garish about the colours, lettering, or ornament, and not a single card in the series would be considered out of place in the show-case of a photographer who prided himself on his tasteful work. Particulars of prices of the cards and of the small extra charge for alterations in the wording are obtainable on application to Messrs. Pearce, at St. George's Press, Brentford.

Hove Town Council have approved plans submitted on behalf of Miss Leeney for a photographic studio at 158, Church Road.

CATALOGUES AND TRADE NOTICES.

MESSRS. SINCLAIR'S CATALOGUE.—The new list of photographic articles supplied by Messrs. James A. Sinclair and Co., Ltd., 54, Market, London, S.W., has just been issued, and is sent post free on receipt of 6d. in stamps. This is a small sum for a cloth-bound list, which is not only a compilation of prices and descriptions, but also represents the personal recommendations in the way of apparatus and materials of Mr. James A. Sinclair, which is something of a good deal more than 6d. The first few pages of the list give the special designs in cameras and accessories obtainable only from Messrs. Sinclair, following which the remainder of the list is arranged alphabetically. Messrs. Sinclair's business has proved so successful in adopting the method of supplying only the best, that our readers, and particularly those in foreign countries, will find to their advantage to possess themselves of this latest catalogue, which is issued, we would remark, without the articles on photographic topics which accompanied the previous issue. These are now published separately, under the name of the "Sinclair Book of Photography," and represent the candid advice of a number of practical workers on current photographic processes. The book is obtainable, price 1s. post free, with or without the catalogue.

BALEAINS AT SLOANE SQUARE.—A bargain list of second-hand apparatus, just issued by the Sloane Square branch of the City Sale Exchange, 26 and 28, King's Road, London, W., reaches our hands, and contains, we find, a special closely printed four-page supplement, devoted to studio and field cameras and other professional photographic accessories, in the supply of which, new and second-hand, the Sloane Square branch of the City Sale have made a special feature of their establishment. The list also contains particulars of a large number of hand cameras, lenses, and other apparatus, and in which those about to purchase may be advised to get, without a view of paying a personal visit to the firm. The list, which is the general catalogue of the City Sale, is sent free on address-card to 26 and 28, King's Road.

CINEMATOGRAPH APPARATUS.—The season's list of bioscopes, lanterns, and lantern apparatus has just been issued by the well-known firm of R. R. Beard, 10, Trafalgar Road, Old Kent Road, London, S.E., and contains a description of the latest patterns of apparatus in lanterns and carriers, and the jets, arc-lamps, and the recently used Beard oxygen regulator. Mr. Beard's long connection with the lantern trade as an actual manufacturer entitles him to be named as a leading maker of apparatus, and the present list shows that his models are kept quite up-to-date.

SCHOOL OF PHOTOGRAPHY.—We are in receipt of the syllabus of a course in art and photography, held at the Studio, Compton Road, London, by Mrs. Mather, Miss Woolnoth, and J. Mather, M.A. In addition to classes in portrait painting, sketching from nature, etc., the curriculum includes instruction in portraiture in the studio, developing, enlarging, and mounting, working-up in black and white and colours, and miniature painting. The fees and other particulars are given in the syllabus.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

SATURDAY, SEPTEMBER 11.

London Photographic Society. Outing to Battlesbridge.
Sociological Society. Outing: Kingston to Hampton Court.
Sociological Society. Excursion to Sutton Park.

MONDAY, SEPTEMBER 13.

London Photographic Society. "First Steps in Bromoil." H. E. Gorfin.

TUESDAY, SEPTEMBER 14.

London Photographic Society. "Outdoor Portraiture without Retouching."
Sociological Society. Council Meeting.
Sociological Co-operative Camera Club (Govan). Club Meeting.

THURSDAY, SEPTEMBER 16.

London Sea Photographic Society. Indoor Meeting.
Sociological Photographic Society. "Mounting, Framing, and Hanging Photographs." Exhibition.

Commercial & Legal Intelligence

LEGAL NOTICES.—The partnership between Messrs. Walter Holmes and Joseph Geldard, carrying on business as camera bag makers, etc., at 90 and 92, Woodhouse Lane, Leeds, under the style of Holmes and Geldard, has been dissolved. All debts due to and owing by the firm will be received and paid by Mr. Holmes.

An application will be made at Leeds on October 18 for the discharge in bankruptcy of Mr. Henry Morton Pearce, lately carrying on business under the style of Morton's Star Photo. Co., at 26 and 28, County Arcade, Leeds.

News and Notes.

ELECTROPHOT ENLARGEMENTS.—Since commenting in our issue of August 20 upon the business methods of the Electrophot Company, of Welsbach House, Gray's Inn Road, W.C., we have been the recipients of a letter from the company, in which they point out the misleading, incorrect, and consequently damaging nature of our remarks. Whilst stating this they gave us the opportunity of investigating their business and reporting on the methods adopted by them in supplying the public with enlarged portraits from photographs. Of this opportunity we gladly availed ourselves and have pleasure in stating that our visit proved to us that the company carry on a satisfactory and *bonâ-fide* business. So many fraudulent methods being practised in the so-called "free-enlargement" trade it is right that we state that our visit of investigation, paid at a few minutes' notice, showed that the Electrophot Company is not to be classed with firms practising the various forms of the "free-portrait" trick, and we regret that we should have fallen into the error of attributing a character of this kind to the company. We inspected a large number of the 18 by 14 enlargements which the firm is at present offering for the sum of 1s. 3d. They represented a very creditable standard of enlarged portraits of this size made from a "copy" negative. We were allowed to inspect their files, and found hundreds of unsolicited testimonials respecting portraits supplied, and saw for ourselves that expressions of satisfaction were forthcoming from many classes of purchasers. We also inspected the studios and workrooms of the company, and saw that the technical part of the business was efficiently carried out on their own premises by their own staff.

THE CINEMATOGRAPH BILL.—This Bill was again brought up in the House of Commons on September 1. On Clause 7, "Application of Act to special premises," Mr. Cooper moved an amendment to Sub-section 2, which as drafted was to the effect that where premises were used only occasionally for cinematograph displays and on not more than two days in any one year, it shall not be necessary to obtain a licence if the occupier gives notice to the County Council seven days before the exhibition and complies with the various regulations. The alteration suggested was that premises connected with churches, chapels, mission halls, or schools, should be exempt from licensing under similar conditions if not used more than one evening weekly from October 1 to March 31. Mr. Gladstone, on behalf of the Government, said he could not accept the amendment. He pointed out that the licensing fee of £1 was a small matter. No representations had been made to him on behalf of religious bodies that they feared the drastic regulations of the County Councils. On the other hand, however, the London County Council and fourteen of the metropolitan boroughs had made most urgent representations to the Home Department on account of the danger of these performances. He (Mr. Gladstone) did not deny that when a cinematograph exhibition was properly regulated it was not a dangerous thing in itself, and though a film may take fire, there is no danger of the fire spreading. But there is no existing power to enforce the using of an iron box. It was also to be pointed out that there was a danger apart from fire, for a film may flare up and cause a panic. It was not in the least the intention of the Department to insist upon unreasonable or unnecessary regulations. Sir Daniel Goddard urged that the number of casual performances might be increased from two

per year. He had used a cinematograph himself, and he knew what accidents can happen from it. In his own town (Ipswich) the local authority had made regulations and insisted on iron boxes being provided. Therefore he did not understand what Mr. Gladstone meant by saying there were no regulations. He (the speaker) knew a place where a children's party was given once a month throughout the winter, and it was a common form of entertainment to have a cinematograph. Under the Bill these could no longer be given. Mr. Jeremiah MacVeagh said that the Bill began at the wrong end altogether, because it was not the building which should be licensed but the operator. The danger did not come from the building at all, but from incompetent operators. If the Home Secretary would confer with the cinematograph firms throughout the country, he would find that they themselves, for their own protection and for the advance of the industry, decided to hold examinations for operators with the view to the issue of certificates to those persons who were found to be competent. The manufacturers were obliged to reject 50 per cent. of those who came forward to be examined, and the very men who were rejected are giving demonstrations in the working of the cinematograph practically every night in the year. He (Mr. MacVeagh) thought that this was a strong point as showing that the danger does not come from the buildings, but from incompetent operators. He knew that the Home Secretary did not see his way to make arrangements for the granting of such certificates, as there were difficulties in the way; but surely with the large staff of factory inspectors in connection with the Department it would be possible to devise some scheme under which certificates could be given to operators who were found to have some scientific knowledge, and to exclude men who have no scientific training and no knowledge of the work in which they engage. In conclusion, he asked the Home Secretary to confer with the law officers on the Bill. Mr. Gladstone agreed with Sir D. Goddard that two performances in a year was rather small. After further debate the Sub-section was amended so as to make the number of unlicensed performances which could be given in a year six instead of two. On Clause 11, "Short title and commencement," upon the motion of Mr. Gladstone, an amendment was passed to the effect that the Act come into operation on January 1 next instead of August 1, 1909, as originally proposed. The Bill was read a third time and passed.

Correspondence.

- *• *We do not undertake responsibility for the opinions expressed by our correspondents.*
- *• *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

THE QUALITY OF NEGATIVES.

To the Editors.

Gentlemen,—I have read with considerable interest the article on above subject in No. 2,574, and, as a professional photographer of some fifteen years' experience, perhaps I may be allowed to make a few suggestions as to the causes why the majority of present-day negatives are wanting in "quality," "pluck," "correct density," and "freedom from fog" understood.

Firstly, I have found a great tendency at the present time to "rush" development, also I find, as a general rule, development of the day's exposures takes place "after hours"—i.e., when the studio is closed for sitters. Now if the operation is left to assistants to perform they know that the sooner the last plate leaves the wash the sooner they are free; consequently all are developed side by side, as many as can be packed in one big dish, a certain quantity of developer poured over, an occasional rock, then taken out as soon as they appear dark enough and fixed.

The evils of this method are that those that are over-exposed, the under-exposed ones, and the few—very few—that may be correct are all treated exactly alike. The developer is, as a rule, a normal one, generally very active, and contains little, if any, bromide. The consequence is that every batch yields a crop of indifferent negatives, most of which are flat and lifeless, due to

over-exposure; or else hard and contrasty, without half-tones, due being under-exposed. Recourse has then to be taken to intensifying, reducing, and other after-treatments in order to secure passable print; and, by the way, there are too many "passable results" nowadays.

On the other hand, if each plate was developed carefully negatives would be the rule. I suppose it would be considered absurd to suggest that all plates exposed in a busy studio should be developed separately, so I suggest an idea which I find practicable. The changing-room should contain three negative boxes, one for plates known to be under-exposed, for instance, child subjects and the like, which necessitate quick exposures; one for those judged as correct; and one for long exposures or those known to be over-exposed. Then when developing-time comes, by modifying developer for each batch I feel sure better results would be achieved.

Another reason which I think accounts for poor-quality negatives is the use at the present day of new "fancy" developers, of equally fictitious names. They are advertised as economical labour and time savers, "simply dilute with water and ready for immediate use," "can be used over and over again"—in short, "the lazy man's friend." Good old pyro seems to be gradually being pushed further and further into the background, and may in days to come, will be written in photographic history as one of the fearful concoctions used by the ancient pioneers of the craft (art if you like), with its disagreeable habit of staining of fingers and an occasional negative or two. Needless to say, it is by far the best developer science can produce for the development of photographic dry or wet plates, and as for its staining proclivities, well, they are easily avoided.

Now if I have any doubts about an exposure I develop purposely to get a stain, for I find a yellow-stained plate almost as good as intensifying. It may take a few minutes longer to print, but the odds are that I get a much better result than if I intensify and afterwards intensify. Thus the stain minimises labour. Moreover, there is a possibility in more than one direction of ruining that plate if one commences to doctor it up.

Another reason. Our grandfathers used to get very fine negatives—aye, negatives that will compare with the best obtained to-day; negatives that will print in any known process, one and all from the same plate. I can submit negatives taken forty years ago that cannot be bettered to-day by any photographer. What was the reason of their success? Their secret lies in the fact that they used "slow" plates, and to-day the tendency is for the fastest that can be made.

Consult the advertisements in the "B.J.": "S. and So.'s plates, the fastest in the world, 550 H. and D., reduces exposure to a minimum." That they do, but the trouble I have experienced with plates of phenomenal rapidity is that they refuse to develop up into bright, crisp, sparkling negatives. Unless they develop they are no use to me. I exposed six absolutely correct actinometer in the studio a short time ago; afterwards spent a half hour tinkering with them in the dark-room in order to get a "passable result." Is it any wonder, I ask, that present-day negatives are of poor quality?

If photographers generally would begin to use plates about 200 H. and D., and develop them with a recognised pyro and ammonia developer, I feel sure they would soon find a distinct improvement in their results, with a smaller percentage of flat, foggy negatives.—Yours truly,

TURB.
Crown Studio, Esplanade, Scarborough.

MR. W. TULLEY, photographer, of Glastonbury, has just published a photographic souvenir of the Royal visit to Glastonbury on June 22. The souvenir, which is very tastefully designed, contains a complete set of photographs of the ceremonials. An excellent frontispiece is made by a photograph of the Royal group, including their royal Highnesses and the Archbishop of Canterbury, the Bishop of Bath and Wells, the Marquis of Bath, etc. The souvenir is rendered complete by the story of the Abbey's history, told in an interesting manner, and also an account of the Royal visit, while the portraits are included of those local gentlemen who took an active part in the proceedings.

Answers to Correspondents.

- * All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- * Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- * Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
- * For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

1. Brookes, Castle Studio, Northwich. Photograph of Herbert Broomfield, Secretary, Football Players Union.
- A. Moore, 21, Sidwell Street, Exeter. Photograph of the Exeter City Association Football Team, Season 1909-1910.

SODA BISULPHITE.—I am afraid my query re diamidophenol developer was not explicit. I wanted the formula for bisulphite liquor, as I sent to chemists for same and they could not supply. Can you give the formula.—M. and SON.

As stated in M. Underberg's article, 2 grs. of soda sulphite cryst. dissolved in the minimum quantity of water, and with addition of 5 drops sulphuric acid is equal to 2 ccs. of commercial bisulphite solution of 40 per cent. strength.

GUILBERT.—The most likely cause we can suggest, supposing that the treatment of the prints in the acid baths has been properly done, is insufficient sizing of the paper in the first instance, or possibly the use of a paper of insufficient purity.

A. B.—Messrs. J. H. Dallmeyer, Ltd., 83, Denzil Road, Neasden, N.W.

COPYRIGHT.—A certain shopkeeper asked a photographer to photograph several views and make post-cards for him to sell in his shops. The picture side of the card has shopkeeper's name printed on the address side of card, the photographer's name, "—series." After some time the shopkeeper hears of another photographer, and for certain reasons wrote him and sent him one each of these post-cards, asking him to copy them and make post-cards, of course keeping the shopkeeper's name on the front of card. Of course, neither photographer has the right to sell them. They belong entirely to the shopkeeper. Is it right for him to copy them?—**QUERY.**

Certainly, the shopkeeper having paid for the taking of the photographs in the first instance can have them copied as he pleases and by whom he pleases.

FINISHING BROMIDES.—Is there any method whereby a bromide print can be worked up by separate washes in the same manner as a platinotype? If not, what is the recognised professional method?—**MAGDA.**

There is no universally "recognised professional method." Bromide pictures can be worked up in the same manner as platinotypes are, whether by washes of colour or otherwise. There are many different surfaces of bromide papers, and some may require a different method of working than others.

STEREOSCOPIC CURIOSITY.—I enclose herewith a print which was copied a good many years ago from an illustrated paper, but apparently the original was an engraving. The enclosed print when looked at through a stereoscope shows strong relief. Could you oblige me by saying how this result is obtained?—**J. F. DUTHIE.**

The relief is due to the fact that the print is a stereoscopic slide. The inscription states that it was "Stereographed, by permission, from the 'Illustrated London News,'" and you could find the original by searching the files for the period of the Crimean War. It may be a reproduction for a stereoscopic photograph, or

it may have been drawn stereoscopically. In the latter case it is a very clever piece of work. From the nature of the subject and the grouping we should say that it owes more to the draughtsmen than to the camera.

CLOUDS IN LANTERN SLIDES.—I shall feel much obliged if you will kindly advise me how to "print in" clouds in carbon lantern slides.—**H. WINGRAVE.**

The printing in of clouds by double printing in carbon lantern slides is by no means an easy matter. The simplest and the best way is to print the clouds on the cover glass. By this method very successful pictures may be secured with a minimum of trouble.

OZOTYPE, ETC.—I intend to try the ozotype process as described in Sir W. Abney's tenth edition, and procured the necessary chemicals for making the sensitising solution, as the manganous chloride and sulphate are very deliquescent, especially the former, I find it very troublesome to weigh a part without spoiling the rest. If I dilute each salt into its volume of distilled or boiled water (and then measure the required quantity), will it decompose? as I know not their stability or instability in diluted state, and am rather confused how to proceed. 2. Which is the best acid fixing bath for bromide papers that does not give sulphur fumes and that may be kept in stock solution, added to the hypo at time of use? 3. What material shall I use for making a tank to try development of negatives by the stand method? Will zinc do, and is it necessary to be coated to prevent corrosion of the metal?—**CIVIS.**

We think each salt might be dissolved separately in distilled water in quantity and the solution prepared from these stock solutions. We suppose you are aware that the process is patented and the property of Messrs. Ozobrome, Ltd., 122, Allcroft Road, Kentish Town, London, N.W. 2. Potass metabisulphite is the best acidifying agent. Add, say, $\frac{1}{2}$ oz. to a bath containing 4 ozs. of hypo per 20 ozs. of water. 3. Zinc rapidly corrodes in an alkaline developing solution. The best material is enamelled steel.

HALF-TONE POSTCARDS.—Would you kindly forward me the following information? I wish to produce a good enamel on half-tone post-cards. I have tried by floating prints on gelatine solution and then squeegeeing on glass, but have great trouble in them sticking, though I never had trouble with ordinary gaslight paper sticking. Is there any machine on the market for turning out quantities quickly? Would it make any difference if a hard gelatine was used?—**ALLEDALE (Auckland, N.Z.).**

By half-tone we surmise you mean prints made from half-tone blocks in printers' ink. We should say that the simplest way would be to coat them with a hard gelatine, allow that to well set, and then squeegee the prints on glass that has previously been soaped or rubbed over with French chalk. There is no machine for doing this class of work.

E. WELCHMAN.—The specimen you send is done by lithographic printing, such work being usually obtainable through the trade from German printing houses. We should say any litho printer could do a small job for you, but it would probably be somewhat costly. If we are not mistaken, the Autotype Company supply a similar article made by the carbon process.

ENQUIRER.—(1) From Messrs. Wratten and Wainwright. (2) From most ironmongers. The makers are Cementum Patent Company, Ltd., Tanner Street, Bermondsey, S.E. (3) On the score of convenience we think the advantage is certainly with the petrol lamp. As regards light, there is not much to choose between the two. (4) The titles are not written on the negative, but are applied by the method given on page 791 of the "Almanac," and frequently given in this column.

ROUGH PROOFS.—Will you be so good as to inform me, through the "Journal," if there is any way of preventing rough proofs from toning?—**PYRO.**

So far as we are aware, there is no method by which rough prints can be rendered "toning proof" without impairing their appearance before they are submitted to the customer.

LENS.—We do not appraise the value of second-hand apparatus. Your best way of getting an idea of the value of what you have to dispose of is by consulting our advertisement columns, and seeing what the dealers in second-hand apparatus quote for such things as you wish to sell. You say that one of the lenses has "Dall-

meyer's name on it." If you are in any doubt as to its genuineness, and send, or take, it to Dallmeyer's, they will tell you whether it is their make or not.

OLD LENS.—Could you tell me through the "B. J." if the following lens is of any value, and what kind and size of work it could be used for? The lens is marked "Lerebours et Segretan, à Paris." It is about 12 in. focus, with 3 in. diameter lens. Stops in front of lens. The front and back lenses are of the same size, but differ in "composition."—LYNN.

From the description, we should say that the lens is a portrait lens of early construction. From the fact that the stops are fitted in the front, we judge that it was made fifty, or perhaps more, years ago. If it is 12 in. back focus, it is what was called a whole-plate lens. At the present time it has practically no market value; probably not more than a few shillings. Still, it may be a useful tool. Better try it by taking a negative or two, and see what it will do.

H. J. G.—If you have advertised, or publicly stated, that your competitor has infringed your copyright, while from what you say you cannot possibly have any copyright in the pictures, you must not be surprised that he threatens legal proceedings. The best thing we can advise you to do is publicly to apologise for the wrong you have done; that will, possibly, save legal proceedings being taken.

UNSCREWING LENS.—Will you please tell me how to get a lens out of its mount? It seems to be screwed in so tightly that it defies all my strength to unscrew it. The lens is about two inches in diameter.—FIXED.

Run a little paraffin oil round the thread of the screw and let it rest till next day. It will then generally be found that the lens will unscrew easily. If it does not, gently tap round the outside of the mount evenly all round with a piece of wood. That treatment seldom fails.

RENOVATING LENS MOUNT.—My studio lens by long use had become in a very shabby condition. To improve it, as I thought, I thoroughly cleaned it with emery-cloth. I got the metal bright enough, but it really looks worse now than it did before, though the brass is quite bright, but shows scratches. How can I mend matters.—A. S. CONSTANTINE.

In the use of the emery-cloth you have removed the lacquer. The only thing now to be done is to have the mount relacquered by an optician, or a good brass finisher. You may, however, greatly improve the appearance of the mount in the following way:—Get some flour emery-cloth, the finest grade, and with it work out the scratches already made. That done, get some fine emery-paper, known as "blue back," and use that to get rid of the fine scratches left by the flour emery-cloth. In all the work the polishing medium must be used in one direction, and that only, namely, round the tubes. When a fine polish, free from all traces of scratches, has been obtained, the tubes must be lacquered. At most of the shops that make a specialty of varnishes a cold lacquer is sold. This is much easier for a novice to use than the ordinary, which requires heat, while the result is nearly as good.

DIFFICULTY IN MOUNTING WITH GELATINE.—Can you enlighten me in the following:—I want to mount some large (12 by 10) prints specially with gelatine, but I cannot get on with it. My difficulty is that when I have coated the whole of the back of the print the gelatine has set and will not hold to the mount. I have tried with three of the most expensive sorts in the market and they seem to all behave the same, so that it cannot be any fault with the gelatine. I have used the solutions both thick and thin, but that seems to make but little difference.—T. J. BRIDGOOD.

Your trouble is due to the use of an unsuitable gelatine. It has been of too good a quality. The gelatine best for the purpose is one of low quality as a gelatine. What is required is of the kind known as soup gelatine, or such as Nelson's "No. 2 soluble." With such as these you will have no difficulty with a moderately thin solution in coating the back of 12 by 10 pictures before any portion gelatinises.

NOVICE.—To copy a photograph the same size as the original with a lens of nine inches focus, the camera must be capable of exten-

sion to eighteen inches. It matters not what size the original may be, whether quarter-plate, cabinet, or whole-plate, the same conditions obtain. To copy any size picture the same size as the original the camera extension must be double the focal length of the lens employed. That holds good in all cases. For convenience in working it is well to have the camera an inch or two longer than is actually necessary.

D.O.N.E.—As the canvasser worked on commission only, with no salary, he was in law not a servant. He was only acting as your agent. That being the case you cannot proceed criminally against him. All you can do is to sue him in the county court for any sums that may be due from him to you. If he had been in receipt of a salary the case would be different.

CUTTING GLASS.—Will you please tell me how to cut down negatives, say from half-plate to quarters? I have bought two or three of the wheel cutters sold for the purpose. Sometimes I succeed all right, but more often than not I break the negative. They seem to lose their cutting powers after they have been used two or three times. Glazier's diamonds are so very expensive.—C. R. JOHNSON.

Some of these wheel cutters are usable for a time, but they are not to be depended upon. When they were first introduced, now many years ago, they seemed to be of a better quality than now, but they were of a higher price than at present. We remember having one in use for a year or two which was very useful. Nothing is so good for cutting negatives as a glazier's diamond.

GUTTA PERCHA.—The thin gutta percha in sheets, such as you refer to, may be had at most shops that supply indiarubber goods. It may also be obtained at many chemists' shops, as it is sometimes used for keeping bandages in a moist condition.

INDIARUBBER SOLUTION.—Will you please tell me how to make an indiarubber solution, such as you mentioned a few years ago, for producing carbon prints on Japanese papers? I have got some rubber ("bottle rubber"), cut it up into shreds, and put it into a bottle with some pure benzol. After digesting for days it does not dissolve. It merely swells up like gelatine does when soaked in cold water. Can you assist me?—RUBBER.

Some kinds of rubber behave in this way. What you had better use is what is known as "masticated rubber," or, better still, buy a tin of rubber solution and thin that down with benzol. This, and the masticated rubber, may be had from Hancock's, Goswell Road, E.C.

PROPOSED VISIT TO THE EARL'S COURT EXHIBITION.—We are informed that arrangements have been made for photographers to pay a visit to the Earl's Court Exhibition on Saturday, September 18, on payment of 1s. 6d., which includes admission, permission to photograph, and tea in the Quadrant Restaurant, and entrance to a meeting which is to be held in the evening at 8 o'clock under the presidency of the Rev. F. C. Lambert, M.A. Arrangements for this visit to the "Golden West" Exhibition have been made by Mr. Ernest Human, in conjunction with the London and Provincial Photographers' Association. Application for tickets should be made on or before September 15.

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The British Journal of Photography

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SUMMARY.

Messrs. Wratten and Wainwright have issued a booklet on lantern slides which contains the results of some important investigations. We reprint part of the booklet (p. 726), and comment on the subject in an article. (P. 719.)

An interesting article on "The Comparison and Measurement of Density and Contrast," by Dr. G. H. Bryan, F.R.S., describes a very simple form of photometer. (P. 723.)

The Salon is very fully reviewed. (P. 720.)

We describe a simple method of estimating the proportions of enlargements. (P. 719.)

We point out some advantages of film negatives for the single transfer carbon process. (P. 717.)

Some precautions advisable at this time in view of the rapidly falling light are suggested. (P. 718.)

Under "Patent News" this week will be found a new method of making a three-colour screen-plate. (P. 730.) A clockwork developing table is also described, and a one-solution sensitizer for ceramic work. (P. 731.)

In "Analecta" a new method of obtaining green tones on bromide prints is described. (P. 732.)

Another case of photographic canvassers being fined for failing to make out pedlars' licences is reported. (P. 734.)

A correspondent suggests smearing untuned proofs with celluloid varnish to prevent any subsequent toning being effected. (P. 735.)

EX CATHEDRA.

Films for Carbon Workers.

Given a good average negative of reasonable strength there is no print so easily made as a single transfer carbon print, and no other process gives anything like the same possibilities of securing varied results. The colour may be anything from red chalk, through an infinite range of warm and cool browns, to engraving black. The surface, as rough or as smooth as any other printing process will yield, and the colour of the support, white or tinted, bring still further variations. The one drawback is that single transfer prints are reversed laterally, and if the double transfer process is employed for occasional work the perfect simplicity of the process is to some extent lost. Not that double transfer is in itself difficult. At the same time the risk of failure is increased with each additional operation, and blistering is more apt to occur on the temporary support than on a single transfer paper of ordinary character. When an occasional order is taken for carbons we would suggest the negatives be taken on a film, and the Kodoid plate forms a very handy method of doing this without the need of any special appliance for holding the film. This plate may be used in the ordinary dark slide, placing behind it an old negative if the pressure spring be at all strong, to prevent any bulging of the cardboard and film surface. Negatives on films may be printed from the back, and the single transfer carbon print is then non-reversed, while the film is always available for any of the ordinary printing processes.

* * *

Show Room Specimens.

A remarkably effective method of exhibiting specimens in the show room is to have a slightly sloping shelf fixed along one side of the room, just the width of the length of the mounts in use. Along the front edge of this shelf a bead of wood is firmly attached, both bead and shelf being stained a neutral shade of brown. Cut to fit this shelf are a number of sheets of stout glass, and under the glass the specimen prints are laid. Card mounts should not be used, unless the prints are dry mounted or merely attached by the two top corners, for the cockling of a card mount will prevent the glass from lying flat. Of course, the ideal thing is a sheet of plate glass, possibly three feet long, and with polished edges, but if economy must be studied carefully selected stout window glass may be used, the sharp edges being taken off with a fine flat file, used *wet*. The shelf should be fixed along a wall at right angles to the window or windows, so that the specimens may be in a good light, for the idea is to show them through the glass, which protects them at once from the dust and from the wear and tear of handling. The expense of frames is avoided and it is a simple matter to change a dozen speci-

mens displayed in this way, the time taken being less than that required to remove one print from a bradded-up frame and substitute a fresh one.

* * *

Exposure in Early Autumn.

During the next few weeks the professional worker will have to face two changed conditions which have an adverse effect on his work. The light is failing—failing rapidly too, and under-exposure will frequently be found on development unless this changing character of the light is borne in mind. Not only does the declining altitude of the sun make the light actually weaker, but the autumn mists, particularly in the morning and late afternoon, filter out a good deal of the actinic rays, and so render the light less strong than it would appear to be from a visual inspection. Few professionals ever think of testing the strength of the light in the studio occasionally, yet an actinometer is so inexpensive an instrument and the test so easily and quickly made that there is really no excuse for the neglect of so obvious a precaution. As a rule most of the studio work is done with one stop and with plates of the same brand and rapidity, and if the strength of the light is taken at, say, 10 o'clock, 12.0 and 3.0 on two or three days each week a ready method of checking exposures is at hand without any calculation, for the camera exposures will be proportional to the meter-times. It goes without saying that the studio worker who is making sixty or eighty exposures per day becomes so accustomed to light variation, especially if the plates are being developed by an assistant immediately after exposure, that the actinometer is almost superfluous, but the operator whose connection is less extensive, and who, perhaps, has three or four sitters a day, as is the case in many small businesses, would find the meter a great help in light of a fluctuating character.

* * *

Temperature and Development.

The other condition to which we alluded in the previous paragraph as now rapidly changing is the temperature. In cold weather development is always much slower. All experienced workers know that during the dog days it is almost imperative to add bromide of potassium to the developer to prevent chemical fog, and do add it, though under temperate conditions they may prefer to omit it. Just as heat accelerates development cold retards it, and with the approach of colder weather the time of development must be increased and harshness must be guarded against. Much depends on the water supply, however. If the supply in the dark room comes direct from the mains it will generally be found that well into the autumn the water temperature will be high in comparison to the air temperature. Sea bathers know that the temperature of the sea is higher relatively to that of the air in late autumn than in early summer. If, however, water is stored in a cistern in the roof or other somewhat exposed position the temperature will not be so equable. Again, where the water supply does not come from large reservoirs and through great lengths of water mains, greater variations in the temperature will exist, and some spring supplies are very cold even in summer weather. As no general rule is possible we can only suggest that each worker should look into the matter for himself, for it is by attention to these variables that working conditions can be standardised and the failures or defective results lessened in number.

* * *

Halley's Comet.

The reappearance of this historic comet has been announced by Prof. Wolf, of Heidelberg, and his discovery has been confirmed by the examination of some photographs made at Greenwich a

few days previously. For the next two or three months it will be visible to the camera alone, and not till the end of January next will it be observable in small-size telescopes, while the unaided vision will not be able to see very much of it until April, 1910. Indeed, photography has succeeded in detecting its approach about seven months before it will be visible to the eye of the average person, which fact is a somewhat startling example of the enormous value that photography is to the astronomer. It may be noted that Halley's comet is of special interest to Englishmen, as it is the one that appeared just before the Norman Conquest. It was taken as a good omen by the invaders, while it terrified the English, and in record of this fact it was represented in the Bayeux tapestry. Photographers, however, need not expect their photographs to resemble the tapestry version, for, apart from the fact that this owed a good deal to the imagination, it seems that the brilliance of the comet has decreased considerably since those early days.

* * *

More Spirit Photography.

From a letter published in "Light" we learn that a Mr. Wyllie, who appears to be a producer of psychic photographs, is on his way to this country, if he has not already arrived, for the purpose of giving sittings. The writer of the letter suggests to the secretaries of the leading societies that at least one society in each district should form a sub-committee to arrange sittings, including test sittings "conducted by persons of ability and repute—and especially by well-known spiritualists." It is suggested that "this would be much better than for self-appointed and irresponsible individuals and amateur photographers, who know six or sixty ways of producing sham spirit photographs, but no single way of producing a genuine one, from harassing our invited visitor with their insulting absurdities." We presume that spiritualistic societies, and not photographic ones, are referred to in this letter, as the latter would hardly be likely to respond to such a courteous invitation. We note that if no "extras" appear on Mr. Wyllie's plates he is to be held blameless, while if they do appear the extras are guaranteed to be genuine. It appears that the first sittings are to be held at Rothesay, and at these amateur photographers who wish to photograph the sitter while Mr. Wyllie is doing his work are to be excluded. Why, is not very clear, because it would seem that two or more photographs made simultaneously by different people would afford good evidence in favour of the genuineness of the extras in question. Past experience, however, shows that genuine psychic "extras" never do appear in the presence of photographers who do not happen to be believers in spiritualism. "Reputable photographers will be allowed to assist, but "gentlemen who are dominated with a fixed idea of fraud" will not. This will, we fear, exclude many "reputable" photographers who have "assisted" at similar demonstrations before.

* * *

The R.P.S. Exhibition.

This exhibition opens to the public next Thursday, at the New Gallery, Regent Street, and will remain open till October 3. A certain amount of special interest attaches to the Pictorial Section this year owing to the fact that the selecting committee is almost a new one, including but only of the last year's members. Whether the change will be in any way reflected in the pictures on the wall remains to be seen. The private view takes place on Wednesday from 11 a.m. to 4 p.m. and will be followed in the evening by the annual soirée. The list of lantern lectures to be given in the evenings upon which the exhibition is open appeared in our issue of August 20.

ADVANCES IN THE MAKING OF WARM-TONED LANTERN-SLIDES.

THE article by Messrs. Wratten which we publish in this issue not only gives very full and complete details of the various methods of utilising Wratten lantern plates for making warm-toned slides, but also adds very considerably to our knowledge of the scientific principles that govern the production of warm tones. Hitherto the cause of the tones given by modifying exposure and development has been largely a matter of speculation. Various theories have been propounded, but very little experimental work has been devoted to investigating the matter, and as a consequence the results have sometimes been looked upon as of doubtful permanency. As it has now been demonstrated that the images consist practically of silver only, and that the colour does not depend upon the residual salts of silver left in the film, these doubts are dissipated. It must, however, be remembered that the tests described refer only to the Wratten plates, which are bromide plates, and that the conditions which prevail in bromide emulsions need not necessarily be exactly the same in the case of chloride plates. Further experimental work on similar lines with the latter plates would be very desirable in the interests of scientific knowledge.

Up to the present, many workers have shirked the development method of producing warm tones because they found the final result to be one of considerable uncertainty. The ultimate colour was often either warmer or colder than desired, and the conditions governing the exact tone were too vaguely understood to enable one to hit any desired colour, besides which, the colour could not be judged by inspection, as it changed considerably in the course of drying. A further trouble was the fact that the density of the slide could not easily be judged. These difficulties were not imaginary, but very real ones, for it is next to impossible to foretell the final result by merely examining the wet slide. The time system now introduced has, however, got over these troubles completely, and from practical experience we can say that it is perfectly easy to attain just the right final tone, if in the first instance we ascertain accurately the right exposure for a black-toned slide. A little care is necessary here, for such slow emulsions have considerable latitude, and very good results can be produced from slides that are exposed for a longer time than that really necessary. The unit of exposure should be the shortest one that will give a good black tone with the normal developer, and when this is once ascertained all the other tones can be attained with certainty by merely modifying exposure and development in the way shown by the tables.

At times complaints have been made that red tones produced by development methods are liable to change, or are, in fact, impermanent. We have noticed such changes ourselves in the case of chloride plates, but not with the Wratten bromide plates, for which the system of development described has been worked out. These changes may be due to the existence of a larger residual image of silver salts in the chloride plates than exists with the bromide plates, but, also, they may be occasioned by varying degrees of moisture in the films. If a warm-toned slide is wetted, a very remarkable change of colour at once takes place, and it appears quite likely that the colour normally varies, perhaps to only a very slight extent, with the amount of moisture present in the gelatine. The best preventive of such changes is to varnish the thoroughly dried slide with some reliable waterproof varnish, such as celluloid, which, indeed, is a precaution that should be taken with all slides. Still, even with chloride plates we have only noticed a marked change of tone in the case of pure red or pink tones, which are in general such undesir-

able tones that it does not matter much whether they are permanent or not. We have submitted toned images on bromide plates to fairly severe tests in strong, hot sunlight, and found no visible change, hence when it occurs with chloride plates the most probable explanation seems to be the darkening of the residual chloride image.

An interesting point is raised by the statement in the paper that the residual images found in both fast and slow lantern plates were completely soluble in a fixing-bath. It may be remembered that Messrs. Piper and Carnegie in their investigation of the action of the chromium intensifier found similar residual images in negative plates which were quite untouched by a fixing-bath, while in chloride lantern plates a similar image of remarkable strength and density was found. It would seem that these insoluble images are worth further investigation, for no satisfactory explanation of their existence or of their composition is at present available.

RELATIVE PROPORTIONS OF ENLARGEMENTS TO THE ORIGINALS AND HOW TO FIND THEM.

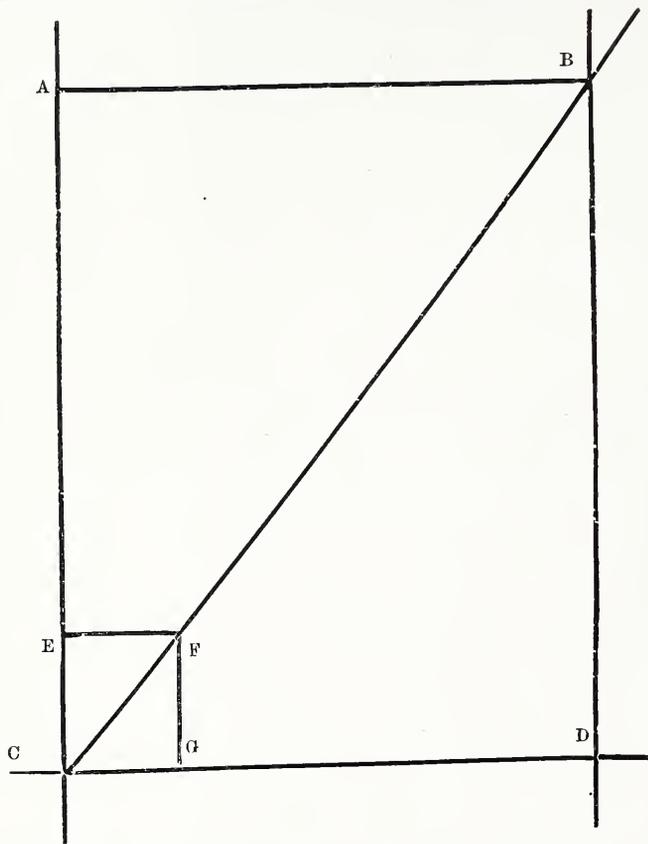
THE pictorial side of photographic picture making is without question receiving more attention on the part of photographers, both in portraiture and landscape work, than it has hitherto done. Greater attention is now paid to the trimming and mounting of the work, and it is fully recognised that the artistic merit of a picture in great measure depends upon quite small things—such as the cutting away of the subject included in the negative in one or other direction, or, possibly, both. This applies equally to portraits, landscapes, and figure studies. Very much frequently depends upon the judicious use of the trimming knife. A half or a quarter of an inch off the subject top or bottom, or off one side or the other, may make all the difference between an artistic production, and the reverse. As this applies to the effect in small pictures it is obvious that it applies in an amplified degree to the case of enlargements made from them.

Those who do their own enlargements are able to see by the enlarged image on the focussing screen how much, or how little, of the subject it is desirable to include in the finished picture and act accordingly. But not a few, both professionals and amateurs, do not make their own enlargements; they send their negatives to professional enlargers with instructions to make the enlargement of a certain size. Now enlargers have their regular set sizes as shown in their price lists. But in very many instances they are not of the same relative proportions as those of the original negatives that have to be dealt with. Therefore if the negative is sent to have an enlargement made of a given size, as per price list, it may happen that if the whole of the subject in one direction—say, the length—is made the full size, then the width of the paper is more than sufficient to include the subject in the other direction. On the other hand, if the width be made the full size it is manifest that something must be sacrificed in the length, and if that is done the picture may be considerably marred by the angle of view being curtailed.

Few of the set sizes as given in price lists are in unison with those of negatives. There are, however, one or two exceptions—the 5 x 4 and the 20 x 16 for example—they are in exact proportion. With the picture postcard size (5½ x 3½) obviously they are not, so that it is impossible to make a 20 x 16 enlargement from that size original which will fill the whole of the plate, or paper, as the case may be. If the full amount of the subject is included in the longest dimension it is clear that there must be a large amount of blank space the other way. On the other hand if the narrowest dimension be filled out then a considerable

proportion of the length must necessarily be left out. This fact is often overlooked, and we have heard from professional enlargers that when pictures have been sent home customers have complained that the enlargements have not been the full size ordered—as per price list.

The above trouble could, of course, be avoided were the



photographer to send with the negative a print trimmed according to what he thinks the best proportions, with instructions to make an enlargement so that it will include that portion of the negative on a given size paper. If this were always done there could be no disappointment and much trouble would be saved, particularly when the enlargement has been expensively finished to the order of the photographer.

It is easy by the rule of proportion, which we were all

taught at school, for the photographer to arrive at the actual size each way that the enlargement will be from any size negative—or any portion of the subject, that has to be included in the picture. But there are many who do not like figures, especially when fractions of an inch are concerned. There is, however, a very simple method of arriving at what the amplified proportions of one dimension will be to another without any arithmetical calculations at all. It is as follows:—Let us imagine that we have a negative, say of the half-plate size, to enlarge, and we wish to have a certain dimension of the subject in one direction of a given length and want to know what will be that of the other.

We take a sheet of paper somewhat larger than the enlargement is to be, a newspaper will answer the purpose quite well; indeed it will be very convenient for the purpose, inasmuch as the margins are always true and the lines of printed matter will serve as a guide for parallelism in the diagram we have to draw. The newspaper we will suppose is represented by A B C D. In one corner we set out the size of the small already trimmed picture represented by E F C G, or better still secure it in that position. We then rule a long line, diagonally, through the points C F to B. This done we have only to mark on the line A C the length the picture is to be and then from that mark rule a line at right angles across the paper. The distance from the mark on the edge of the paper to where the line intersects the diagonal one gives us the correct width the enlarged picture will be. If, on the other hand, we desire to know what the length will be from a given width we measure that on C D, mark it and then rule a line at right angles from that point to where it intersects the diagonal and that will give us the length the enlargement will come.

It need scarcely be mentioned that by proceeding in the reverse direction it is as easy to arrive at what will be the dimensions—each way—of a small picture when reduced from a larger one. This is often convenient to know when a small copy has to be made from, say, a larger painting. In this case, of course, ruling lines of the picture is out of the question, but the matter is still simple enough; all that has to be done is to stretch a fine cord or thread diagonally across the painting and treat that as the diagonal line in the diagram, the bottom or side of the picture serving for the lines A C, C D.

THE SALON.

THERE are two innovations in the exhibition of The Linked Ring in Pall Mall. The first is the absence of the usual American work, with the exception of ten pictures sent by half a dozen people; the second innovation is the presence of a loan collection (the first of a series, we are told) of photographs bearing an interest apart from the rest of the exhibits. This collection is a sort of "Old Masters" or "Deceased Masters" show in the manner of the winter displays at Burlington House. It is comprised of originals and reproductions of the masterly work of D. O. Hill, who practised photography in its infant days when present pictorialists were for the most part neither born nor thought of. That his subject matter should be good is not surprising when it is remembered that he was a talented painter—a member of the Scottish Academy; and that he succeeded so well technically only proves him to have been a man of skill and resource as well as an artist. Had he been a clerk or a counterman we could better understand the note of wonderment and adulation sounded in his praise in the catalogue. If his works here shown do indeed put to shame the modern man working with modern advantages the obvious conclusion is

to the detriment of the modern man. It is not salutary that Hill should be regarded as an abnormally shining light in artistic photography. We imagine that few pictorial photographers would care to acknowledge themselves as lacking artistic vision and technical skill; yet this contrast between old work and new must be accounted for somehow. One or the other is off the normal line. "Oh," say the moderns, "let Hill be above the line, otherwise we shall be said to drop below it."

To come now to the moderns. Miss Warburg leads off with "Portrait" (1). It is fine in its way; the forehead and hands are full of beautiful modelling; but what of the whole thing? Why this quasi old German style, and the flatness of the body and its clothes? It is not sufficient to supply modelling in the face, which may yet be flat, like a bas-relief. Hill's heads are round things, and his figures have action and animation. In the "Portrait Study of a Young Girl" (6) Mrs. Käsebier comes up to Hill's mark. To look from that end wall to her young girl is to suffer no shock, no disappointing drop. But in the next but one, "Le Roy Beaulieu" (9), she falls back again to the photographer's ideal of superficiality. This gentleman,

esting as he undoubtedly is, and frail also, no doubt, has the form and texture of a flower that has been pressed for years in a book. Between these extremes comes her third, an exquisite piece of sentiment, entitled "When the Sands Are Running Low" (7), and representing two ladies, one of middle age, who clasps the head of an aged friend or relative. Here again everything is sacrificed to the faces, the modelling of which is almost monotonous in its wealth and delicacy. No one can but admire the beauty of the idea and the design of the work; but it sounds the prevalent note of photography of this class—truth that is falsely given: microscopic modelling that misses the truth: analysis at the expense of synthesis.

Furley Lewis's well-known formula is exemplified in his "Mirie Macdonald, Esq." (3) and a safe one it is artistically, though likely to land him into mannerism. At any rate, he gets design and evidence of life in his sitters. In this respect he ranks with F. H. Evans, whose portraits are models of taste and accuracy. The forceful "Hubert Bland" (32) is perfectly arranged with the characteristics of the handsome sitter in view. And when we come to that "A. J. V. Chodyko, Esq." (36) of Malcolm Guthrie, and we ask ourselves what is the use of that display of historical models of portraiture on the end wall? Is Mr. Guthrie not absolutely and entirely without any vestige of ideas to design, composition, posing, modelling, tonality, that he should suffer this thing to occupy valuable space in his name? If it is not, then why does he suffer it, and why do his brother photographers suffer it? O! for Steichens, Stieglitzs, Coburns, and Hoppers again if this is what creeps in in their absence! E. O. Hoppé has made great advances. "Jerome K. Jerome" (54) and "David C. Murray" (55)—the latter might have been given the initials "R.A."—are two good things, especially the Jerome. Like Mr. Hoppé's series of German gentlemen will help his reputation. They are all fine subjects, handled with keen appreciation of their merits. In his treatment Mr. Hoppé has become tedious. Why do photographers think that a print stained to a deep amber is better than one in its natural scale of light and dark? What are they supposed to be emulating? Is it the staining of antiquity in museum examples? because that is a thing which would all gladly obviate. When Mr. Hoppé puts his "copper-tinted divinities" upon harsh light-grey mounts the total effect sets one's teeth on edge.

J. Craig Annan has better traditions. His "William Strang, Esq., A.R.A., LL.D." (72) is a perfect portrait managed with rare skill and taste in the lighting and background. "Grant Richards, Esq." (70) is less good, being a little unfortunately placed on the paper, and suffering from the impression that the sitter is sitting upon something uncomfortable in his coat-tail pocket. "Eustace Calland, Esq." (64) is a portrait of a different order, smaller in scale and in light silvery tones. Here the figure—what there is of him—is merely accessory, being overwhelmed by the dining-room effects. Three ghostly heads of figures come from Augustus Thibaudeau, but they do not interest us much. There appears nothing clever or happy in mere faces that can only be seen properly from the opposite wall. Any enlargement can boast that effect. A "Portrait" (84) by Francis Bruguiere is much nicer, being a choice piece of modelling relieved at one side by a bright window curtain, and a very effective "Portrait of a Young Girl" (91), said to be by Gustav Courant—we always thought the gentleman's name was Courant—is a captivating picture of a damsel in fancy costume. The print is charming, in spite of a curious stripey treatment in the background. Mrs. Anny Heimann's two intimate profile profiles, called "Geschwister" (92) are worth attention. There is, indeed, Reginald Craigie's beautiful "Young Brunette" (95), so rich and varied in tones. Mr. Craigie has always been himself, and has not inconsistently run after every dodge that the fashion introduces. We are delighted also with Mrs. Courant's strong and skilful "Walter Nevelle, Esq." (100) which is modelling "in the round," not "in the flat." We fear, on

the other hand, that Eustace Calland's "Portrait Study" (103) can never be regarded as more than a piece cut out of a larger print, so aimless are its lines and masses. Will Cadby has three of his delicate child studies which are, in our opinion, much better than anything else he has done in the same way. The best is certainly the little boy busy eating and drinking, which is called "Important Business" (111). In this we do not miss essential qualities as we used to do in earlier studies. Though a light key is employed the thing is "all there," as the phrase goes. H. Mortimer Lamb's "Portrait" (112) is of a lady so lugubrious as to spoil our pleasure in it.

That finishes the portraits as far as we are concerned. Of the landscapes we are pleased to note that they are, on the whole, a distinct advance upon those in recent shows, though many of them belie those noble sentiments embodied in the catalogue's Forewords. Starting at the commencement again we come to "The Harbour at Low Tide" (2), by J. C. Warburg. It puzzles us. Under what natural conditions, we may fairly ask, does a view appear at all points, far and near, of equal strength and equal distinctness? This has the look of a faint stencil. We know Mr. Warburg to be a man of taste and discernment, and that he can talk with sustained eloquence upon matters of pictorial art. We are astonished, therefore, that he should out-Cadby nature in this way, and we hope he will immediately quit the anæmic school and return to robustness. Charles Job's "Seascape" (4) has the smack of nature, and is therefore more comforting. We could only wish that he had kept his foreground stretch of sand and flat water more equable in lighting. The only reason for a variation of lighting over these planes is the reflection of a light patch in the sky; but that need not have spoiled the sensation of flatness in the sand nor have entailed the conventional photographic dark corners. F. H. Cliffe, in his "A pillared shade, high overarched" (5), walks too obviously in the footsteps of Mr. Evans. There are other ways of treating church interiors. A gratuitous challenge of comparisons serves no good purpose. Let him do something better than Mr. Evans and we shall highly commend him. The Salon would not be complete without the annual miniature from Charles H. L. Emanuel, and here it is as pretty as ever: "The Fishmonger's Shop" (8). His "Paris Courtyard" (22) is of larger scale, but it suffers from hanging immediately over the Demachy, the quality of which it cannot boast, though it is quite good in other respects. John H. Anderson grows year by year towards a finer sense of style, and his work this year proves that his hand is equal to grasping the nettle of oil-printing. "A Windmill" (10) is within an ace of being the picture of the Salon; but a little falling short in natural truth debars it that distinction. He has here a fine composition and splendid pictorial material; moreover he has invested his print with an etching quality that is highly attractive. It fails, nevertheless, on account of a general flatness and an unconvincing sky. The natural lighting of the objects has been suppressed, and the tell-tale remains of this original lighting look ridiculously out of place under the clouds born of the brush. The sky also is very granular, which would not matter so much if it were only less granular than the solid and earthly things of the picture. Mr. Anderson should make a pilgrimage to South Kensington, or the British Museum, and study Rembrandt's etchings. His "Off Yarmouth" (11) is really better, though not so attractive. It has fine movement, and the water has a real washy swish about it. This also applies to the water in "Fishing Boats making Yarmouth Harbour" (18). Here we can almost hear the splash at the cutwaters. The sails and the shadowed parts of the hulls are, however, the ruination of all by reason of their unrelieved blackness. "A Harbour, Evening" (16) is nice in feeling and broad in style; but we should think some little glitter of light might have shown to advantage in the dark right-hand bank. Another etching-like print is the house-front elevation in the manner of Dutch art of the print shops. This Mr. Anderson

calls "Old Home Dortrecht" (23). Mr. Eustace Calland's "At the Seaside" (12) is frankly modern in style, subject, and sentiment, and possesses a deal of charm and sparkle.

In the four examples by Archibald Cochrane we have the true old Salon flavour of art beyond the comprehension of common folk—something so precious as to be naturally caviare to the general. Again we think of those Forewords, and wonder whether the misfortune of the artistic temperament is not sitting rather hardly upon this thoroughgoing Link. His least temperamental picture is by far the best, for it has a sky of tenderness with a touch of nature. This is "The Viaduct" (17), but the others do not appear to us to have that sincerity of motive that would entitle them to serious criticism. "The Ferry Boat" (20) of W. C. S. Fergusson is a little over soft and woolly. D. Giuseppe Tesio shows a really true effect of moonlight in his delightful subject of picturesque Italian houses. It is well named "Plenilunio" (24).

F. J. Mortimer, F.R.P.S., is well to the fore this year. Oil printing has done much for his artistic reputation. His "Bruges" (25) is highly successful, especially in its suggestion of vaporeous light across the canal and on the wall beyond. "Waterloo Bridge" (27) is perhaps the best of his works. The composition is first rate, and the picture is full of feeling and subtlety. We demur once more to the eternal dark corners, without which few photographs seem to exist. In "The Harvest Moon" (38) the impression is given that the moon itself is not so bright as its reflection. We feel, too, that in "The Mill on the Dyke" (76) the trees on the right are too dark; but we like the sky. "Tara Bridge" (77) had better have been omitted. Its composition is unpleasantly angular and its tones hard. "Lambeth Bridge" (78) is a much better thing. We admire the delicate way in which Mr. Mortimer has lighted up the lamps. Bertram Park essays a landscape, rather too heavily handled in oil, which he calls "Willow Pattern" (26). The title, however, must not be allowed as an excuse for a very formal and unpictorial view of horizontal bank and vertical trees. There is an appreciable feeling after effect here; but true landscape feeling does not appear. In a print of the straightest variety F. H. Evans shows what feeling may lie to hand in a natural view uncontrolled. "Dirge in Woods" (28), to which the catalogue supplies a Meredith excerpt, exhibits the solemnity that pine trees always seem to possess. The stately view well illustrates the poem. It is pure unsophisticated photography, free from dark corners and other defects. There is a nearer approach to control in "Spilt Sunshine" (29), though we do not suppose that control here went beyond a certain easiness of focus. It shows a woodland scene with a picturesque tree in front, and a middle distance where the sunshine is spilt in an effective streak. "Night on the Hills" (31) is a little gem of the utmost breadth. The great gable mountain towers up into the evening sky—all detail lost in the failing light. But such light as there is constitutes the picture. Seldom does one see so deep and luminous a sky in photography. We confess that the vertical lines of the pillars in "Bourges Cathedral" (30) are too much a series of upright lines for our enjoyment, though we believe Mr. Evans considers this the crowning charm of the collection. If only a charwoman had been there to shake a mat and fill this void with some softening dust motes there would have been less monotony in the length of these verticals. The interest of "Free Seats" (99) lies in the carved stall ends of the bare forms which accommodate impetuous worshippers.

Arthur Marshall gives us a repetition of an old success in his misty view of public buildings in "Dublin" (35). The magnificent pile of architecture and the sky are both fine; but they sadly need the set-off that the near boat should give them, which it does not do because it is too faint in tone. Mr. Marshall's other contribution is an attempt at realism in colour by the oil process. As such it is a highly creditable achievement, but as

a picture considered upon its own merits we must admit that it is somewhat sodden, and lacking in the breezy vigour that a sea piece, called "Away to the West" (107) would be expected to show. "Limehouse Hole" (37) is by Walter Benington, whom we regret to say, does not surpass his earlier efforts in pictorial photography. This absolutely unpictorial elevation of ugly houses is without any interest to our minds, and the lights in a window childishly picked out, have not saved the situation. "The Cab Rank" (39) is more ambitious and more successful and should have been a really good thing had Mr. Benington possessed more observed facts of the effect he portrays. The subject is a crowd of cabs in a railway terminus, beyond which the brighter light of day can be seen through the semi-circular roof—a fine subject, the beauties of which are missed. Mr. Benington stops his light hard and fast at the entrance of the station. He appears to be ignorant of the fact that the light would creep into the covered parts, flashing and glinting in less and less strength upon every available surface until all but lost in the foreground. Such an effect should be the soul of the picture. All his cab roofs are nevertheless innocent of the slightest stray ray, being uniformly dark from front to back where the light suddenly drops across the opening like a porch. The woolly "Gates of Fairyland" (45) is a park-like scene, including a small domestic group, but somehow it has no message for us. There is good design and open air in "Toile of the Field" (40), by R. S. Kauffman. We now come to a group of landscapes by Malcolm Arbuthnot, of which it is pleasurable to be able to say that they are far in advance of his figure work. Our old familiar branch across the picture—that never-failing resource of photographers—comes in well in his "Decorative Landscape" (41). Its lines are carried on in the meadow bay or whatever it is beneath, skirting which are two little figures in black and white, happily placed. "Water Sports" (42) is an interesting and animated scene of nice quality; but "La Laveuse" (43) is more smug and sophisticated. Better style and feeling exist in "Château Galliard" (44), where a castle on a mountain height is finely rendered with due realism. The trees upon the left, however, are formal, and lack pictorial qualities. By far the best of this series is "A Thames Wharf" (53). This is a most happy selection, which composes excellently, and has a good tone pattern. A charming little print called "On the Lagoons" (46), is the best work sent by J. Dudley Johnston. This little boat with set sail catches the light in a captivating way. The whole print is scintillating with light, and is full of subtle differences of tone that proclaim the proper spirit for work of this kind. But photographers are the most unrequited people in the world, and appear to be devoid of self-criticism. Mr. Johnston's next work, "A Venetian Impression" (47), has no sensation of light at all, although we can see the sun shadows that exist in the original negative. Why this hard indigo-drab record should be called an impression passes our comprehension. In "The Valley of the Dragon" (48) there is more mood. It represents a craggy valley, behind a peak of which a blazing sun peeps out, with that eating away of the contour of the rock which the strong rays would naturally cause. It is one of the most striking landscapes in the gallery; but for our own part we think the one strong beam that shines diagonally from the orb across the front of the hill is unexplained, for there is no apparent reason why the rays should show more just there than anywhere else. We have already spoken of "In Memoriam" (49), Mr. Johnston's last picture. We might add that the sculptured figures, seen in silhouette against the fog, are effective in the highest degree, and reflect credit upon the designer of the memorial as well as upon the present photographer. Another fine subject is David Blouin's "Tyne Bridges" (52). Unfortunately it is tame in effect, being in want of some sort of treatment that should imbue it with some of the sparkle and variety of the busy life it depicts.

We have now to speak of the landscapes of J. Craig Annand.

some of them he adopts an old-fashioned style of presentment, which harmonises with the calotypes of Hill. Indeed, in the case of "The Cooperage" (56) it is easy to believe that the old style of premises, the funny little shop, and the top-hatted gentleman have suggested to Mr. Annan a treatment in imitation of photographic prints of half a century ago. As a subject, "A Genoa Harbour" (57) is finer, though it has a treatment similar to "The Cooperage." Here horses and boats and the distant shore buildings combine into splendid subject matter. "Bolney Backwater" (58) we think a little too contrasted in tone, and its water too light in tone, for judging by the effect the sky which is reflected would be considerably darker than that which is seen, yet the water is lightest of all. "The White House" (59) and "The Water Garden" (63) are not so interesting as "The Ruined Castle" (68), hard and forbidding as it is and should be. "Man Sketching" (69) is in reality a close view of some rocky cleft. It is very impressive, and would be of greater success if Mr. Annan had come again some day when the man was not sketching. "Sloe Blossom" (71) is a hark back to the "æsthetic" manners of the early eighties, and shows an "utter" lady in profile contemplating a sprig of sloe in a sparkling glass.

Mrs. Minna Keene shows to good advantage here. Her two pleasant women, one plucking a goose and thus "Preparing for Christmas" (60), and the other "Combing Flax" (62), are both unusually good character pieces in rich bright prints. Her "Basuto Girl" (61) is only less good because of some emptiness in the shadows. Frank H. Read is not a well-known name, but deservedly will become so, for its owner evinces good landscape feeling. "The Bay" (65) shows us our old friend the pine ranch, beyond which a nebulous sort of landscape retires into a misty distance. The Bay itself looks not a little as though it owed some of its existence to the "putty rubber" of the painter. Some figures in a rowing boat under willows is the subject of "A Silhouette" (67), so called because they are in shade against the light. It is a most effective and charming little design, though we think the foreground is too long and the reflections of the trees too dark. When will photographers learn that reflections can never be so dark or so light as the objects that cause them? Mr. Read's "Outdoor Portrait Group" (66) is all good but the near back view of the man's figure, which is out of scale and generally awkward. Not every snapshot will bear enlargement just as it stands, and this is one that would not. Very depressing, but yet touching in a way, is J. Huysen's "Sickness and Poverty" (79), which shows a Dutch peasant ill in a panel bed and an old woman sitting by. It is a fine piece of work. More idyllic is H. Mortimer Lamb's little "Girl in the Rushes" (86), a tastefully treated figure.

Alexander Keighley adheres to his old methods, which are,

by comparison with those now in vogue, somewhat flat and tame. His subjects are worthy ones, full of fine pictorial possibilities; but they miss success because of the shortness of their tonal range. In "An Italian Courtyard" (93), for example, what shadows might lurk under the arches! And what fine effect of chiaroscuro could be given by the oil process! The same reflections are prompted by "The Rest Is Silence" (94) and "The City on the Hill" (96). The landscapes that please us as much as any here are those of Harry Wild, whose name we do not appear to have met before. His two mountain pieces are as full of feeling and romance as anything could be. "The Crucifix" (97) depicts a plateau or shelf half-way up the vertical side of a crag, and upon this, in the solitary fastnesses where the level ground is out of view, stands a solitary crucifix looking towards the soft and level sunlight. Not the least of the beauties of this view is the light that comes across the chasm to strike upon the sacred image. "Montsalvat" (98) purports to be the castle in which is guarded the Holy Grail, and here our imagination is stirred and helped by Mr. Wild's choice of view. The castle stands upon an inaccessible height towering and solitary with guardian peaks around it. Both prints show subtlety of mind and delicacy of workmanship. John M. Whitehead gives us once more his gentle fearsomeness of nature in a castled crag at the margin of the sea at sunset, with the title "Sic transit gloria mundi" (101). "Twilight" (102), by A. R. F. Evershed, is a gloomy woodland scene where the effect of light in the trees is suggestive; but there should have been a little more light on the path, for artistic and natural reasons. In the spirit of German landscape W. H. Porterfield gives us "Italian Woodland, Evening" (105). It has what the Germans call "stimmung," which might be translated as "a message," or "something to say." Without this romantic landscape is futile. Mr. Porterfield's picture does not rely upon deep blacks and indefinite depths. It is tender and full of light, and it makes an appeal that is absent in the similar subjects of Dr. Evershed and Mr. Park. An excellent colour-gum is submitted by George Hilderley, called "Light and Shadow" (106), and representing a bend in a narrow street. We have only to complain of the sky, which is too opaque and granular. But the sky of "Jan's Return" (108) is too awful for words. Another colour attempt, with a Dutch figure cut out against Dutch flats and an unpleasant sky, is by Arthur W. Ward. We have now arrived at the last picture, a pretty photograph of a "Cobweb" bedecked with dew. This, needless to say, is by Carine Cadby, and is distinctly more picturesque than some of her flower pieces, culled and without any apparent means of support. This spider's web is stretched across the points of some weedy growth—we forget the variety—but it is in its natural conditions, and is interesting from a point of view of natural history as well as of art.

THE COMPARISON AND MEASUREMENT OF DENSITY AND CONTRAST.

THE handbooks of instructions which commonly find their way into the hands of the photographic beginner generally contain but scanty information, if any, as to the precise meaning of density and contrast of negatives and the proper ways of measuring them. It is pointed out that, in developing, correct contrast is to be aimed at rather than uniformity of density, and that this end is secured by calculating the time of development according to certain rules, increasing the time if it is desired to increase the contrast, and *vice versa*. But in applying the rules mistakes are very easily made, and hence, when a number of negatives have to be developed, it is of importance to have a ready means of testing the contrast of the first batch without waiting till they have been dried and prints made

from them. Very often negatives which look very pretty when held up to the light do not give bright prints, while others which look as if they were hopeless yield excellent prints.

The measurement of density is equally important in calculating the exposures required for making lantern slides, bromide enlargements, or prints on any of the "gaslight" or other papers which blacken by development, and not by exposure to light. The necessity of some preliminary test became evident as soon as I commenced to enlarge a long series of snapshots taken on a summer holiday. Had it been necessary to make a preliminary trial for each separate negative on the test pieces, the series would never have got enlarged. What is needed is to compare the exposures required with negatives of

widely varying density in order that several can be printed off in succession when the proper allowances for the intensity of the light and speed of paper have been determined by means of one or more exposures on the test pieces.

At the time when I began experimenting in this direction I had not succeeded in obtaining definite information regarding the densitometer and the test box which have been patented for the purpose of calculating exposures in enlarging, otherwise I should probably have purchased one of these apparatus. It thus became necessary to devise and rig up some simple home-made arrangement which might possibly answer the purpose. When this was done it soon became evident that the device was even more useful for testing the contrast of negatives than for calculating their relative exposures in enlarging.

The simplest device that can be constructed for the purpose, and perhaps the best for those who work with artificial light, is the photometer shown in Fig. 1. It consists of a box open at both ends—a cardboard box would do, or a small table might be substituted—containing an opening in the top sufficiently large to allow of two negatives being examined side by side. Underneath the middle of the opening is fixed an isosceles prism, or double inclined plane of white cardboard, with the faces sloping up at an angle of 45 deg. or thereabouts. The two faces are to be illuminated by equal sources of light—say candles placed on opposite sides of the box. Now let two negatives be taken, and suppose in the first instance that they have the same *contrast*, but are of different *density*. Place them above the two faces of the cardboard prism. Then if the two lights are at the same distance from the faces of the prism,

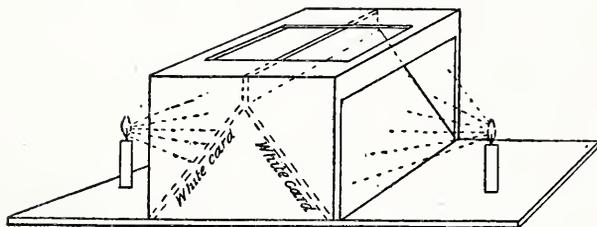


Fig. 1.

the denser negative will appear to be the darker. Now move the lights until the two negatives appear to be of the same density, and measure the distances of the lights from the two faces respectively. The illuminations on the two faces will be, by the well-known law of optics, inversely proportional to the squares of their distances from the sources of light, and their ratio will give the ratio of the total quantities of light required to produce similar prints from the two negatives, under similar conditions. If, for example, the distances are as 4 to 1, the quantity of light required to print the denser negative will be sixteen times the quantity of light required for the thinner negative. In order to make the time of exposure the same it would be necessary to expose the denser negative to a light sixteen times as strong as that required for the thinner negative. If, on the other hand, the intensity of illumination was the same for both, then, according to all ordinary assumptions, the denser negative would have to be exposed for sixteen times as long as the thinner one. I am not sure that it is always mathematically true that a certain intensity of light acting on a sensitised film for sixteen seconds will produce exactly the same effect as a light of sixteen times the intensity acting for one second, but this law is always assumed in comparing exposures with different stops, and it is sufficiently approximate for ordinary purposes. If the distances of the lights from the faces are as 3 to 4, the exposures will be as 16 to 9, or approximately 2 to 1.

Practically, it rarely happens that two negatives have exactly the same contrast. If the distances of the lights be adjusted so that the transparent parts appear equally bright, the opaque parts will appear darker in the negative which has the stronger

contrast. If, on the other hand, the opaque parts are made to look equally dark, the transparent parts will appear brighter in the negative having the greater contrast. We thus have an easy way of testing the contrast of negatives. A negative which gives exceptionally good prints should be taken as a standard. When the first one or more of a batch of fresh negatives have been developed and fixed, they may be compared with this standard, and it will be at once evident if they possess excessive or defective contrast. In such cases the necessary modifications of treatment may be decided on before proceeding with the remainder of the series. The photographer who has been misled by the appearance of his negatives when held up to the light will be at once disillusioned when he makes this simple test. Moreover, when he comes across an exceptionally weak negative he will not waste his paper and lose his temper over trying to get a print from it without previously taking some steps to remedy or overcome the defect.

If it is desired to test negatives while still wet, a preliminary test should be made by taking a negative that is of no use and soaking one half of it in water. On placing the dry and wet halves over the two faces of the prism, the effects of drying can be examined and allowed for in future observations. In comparing yellow negatives, such as those developed with pyro, with black negatives, such as those developed with hydroquinone, it is necessary to look at the two through a piece of blue glass.

An apparatus of this kind is very suitable in connection with

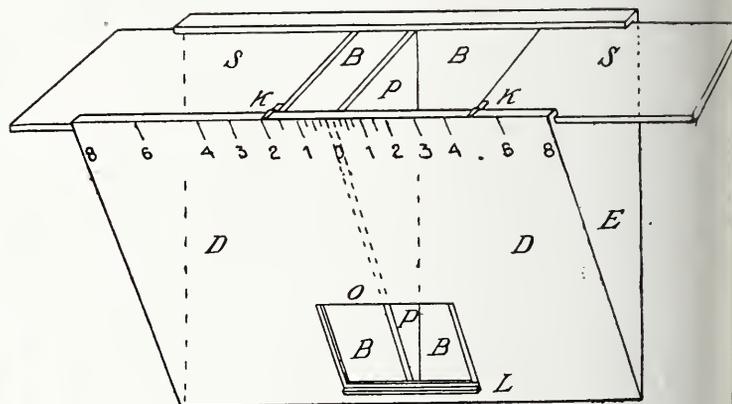


Fig. 2.

contact printing with artificial light. The simplest plan is to keep the time of exposure always the same, and to vary the distance of the printing-frame from the source of light, making it in every case proportional to the corresponding distance of the source of light in the photometer. The objection to the method is the trouble of always providing a pair of candles of the proper height. There is also the necessity of measuring the distances of the candles, though this difficulty can be got over by the use of suitably graduated scales.

For these reasons, and also because my principal object is to test negatives with a view to daylight enlarging, I use the "contrast gauge," of which Fig. 2 is an attempt at a representation, looking down on the apparatus from above, so as to see the front and back in one diagram. This very handy piece of apparatus consists of a large box of triangular shape or desk, closed at both ends and open at the back. The base B, is covered with white paper, and the whole of the interior should also be covered with white, not black, paper, so as to give as uniformly diffused illumination as possible. The interior is divided into two parts by a triangular partition, P, like the partition in a stereoscope, but also covered with white paper. Near the bottom edge of the desk is an opening, large enough to allow of the greater parts of two quarter-plate negatives to be viewed side by side on opposite sides of the partition, and the dark line, L, represents a ledge against which the negatives can rest. At the back are two shutters,

which can be slid in and out horizontally in grooves, and these carry pointers, K, whose positions can be read off on the graduated scale shown on the top edge of the disc.

The apparatus is placed with its back close up to a window which is exposed to uniformly diffused daylight. The two negatives to be compared are placed over the opening on opposite sides of the partition, and the light, falling on the parts of the base underneath them, is adjusted by drawing out the shutters. When these have been adjusted so that the two negatives appear equally dense, the readings of the pointers will give the ratio of the exposures.

The "contrast gauge," from its construction, is not mathematically accurate, but it gives results well within the limits of accuracy obtainable in calculating exposures. The deviation from mathematical accuracy lies in the fact that the illumination on either half of the base is not quite uniform even over the area underneath the opening. This defect can be remedied by making the apparatus large. In mine, which is suitable for quarter-plate negatives, the desk only measures 12 in. by 3 in., but a larger size would be better in this respect. If this should be found unwieldy, it might be easily made to fold flat when not in use. A further precaution is, where possible to compare those parts of the negatives which are near the partition and towards the bottom, for which purpose the negatives should be turned round into various positions, to enable different parts to be critically compared. Moreover, the observer should stand well over the gauge, so as to look down from above on the back parts of the base, which are most nearly uniformly illuminated. In adjusting the shutters they should be moved to and fro till the right adjustment is obtained, as, if they are left long in any position but the right one, it is very easy for the eye to make a misleading comparison.

In my gauge the full opening is marked 8, and there are graduations at the points representing $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{2}$, 2, 3, 4, 6. The range covered by this scale is sufficient for many purposes, and if two negatives are of such unequal density as not to fall within the range in question, the comparisons may be effected most easily by using negatives of intermediate density. On the other hand, the range of the instrument may readily be increased fourfold by fixing across the back on one side of the partition a grating of horizontal bars, the spaces between which are one-third of the width of the bars, so that only one-quarter of the light passes through them. Instead of this I use a piece of perforated zinc, the holes in which form about a quarter of the whole area. When placed in position on one side of the partition, the two halves of the base were found to be equally illuminated when the apertures of the shutters were as 4:1, thus testing the effect of the screen. For greater ranges of density a screen with a factor of 16 or more can easily be substituted.

In comparing the exposures of well-contrasted or over-contrasted negatives, the object is to bring out the details without sacrificing the high-lights. For this purpose the comparison must be effected between the denser portions. With an under-contrasted negative, the exposure must be sufficient to blacken up the shadows. Even with no negative at all, or with one in which the transparent parts are perfectly clear and glassy, a certain minimum exposure is needed for this; consequently, attention must be paid to the transparent parts in calculating the exposure. For daylight enlargements from weakly contrasted negatives I use a slow gaslight paper, with which, roughly speaking, hours have to be given in place of the minutes required by the fast bromide papers, minutes taking the place of seconds. An experimental test made by exposing the same negative on the two kinds of paper shows a very much stronger contrast on the slow paper, and in this way bright prints can be obtained from negatives otherwise hopeless.

In photographing a bright landscape with the sun high up

in the sky the well-known trouble crops up of the chalky foreground and leaden sky. The best cure, after the negative has been developed, is to estimate separately the exposures for the two parts and make the necessary differences with a moving screen. Sometimes the light reflected from the sky is stronger near the horizon than high up, so that by turning the daylight enlarger in a suitable direction the effect can be cured more simply. For P.O.P. prints I place the frames in sunshine in a place where the shadow of the edge of a window will slowly move across the frame as the sun changes its position; this is a very useful dodge, but the frame requires constant watching and moving.

If the testing is carefully done, two negatives with calculated exposures in the ratio of 100 to 1, or even 300 to 1, may be enlarged in succession, and the prints when developed together in the same bath will reach the stage of complete development almost simultaneously.

The contrast gauge makes a very convenient desk for retouching and spotting negatives.

I should strongly recommend every amateur photographer who wants to avoid failures to adopt some method of testing his negatives equivalent to the methods described above. Even for P.O.P. printing it is an advantage to recognise badly contrasted negatives, instead of making futile attempts at getting good prints from them. The remainder of this article is intended to give a simple account of some of the theoretical considerations underlying the measurement of density and contrast.

By placing a negative on one side of the gauge, or photometer, and no negative on the other, an absolute measure of the density of any part of the negative can be calculated. It is only necessary to reduce the illumination on the uncovered side till that side appears of the same darkness as the portion of the negative under observation. If then the ratio of the illuminations on the covered and uncovered sides is as 3:1, the photographic film only transmits one-third of the light falling on it, and we may say that its *density factor* is 3. For these comparisons it is useful to cover up the opening of the gauge with a card perforated with two holes, through which the part of the negative under examination and the uncovered base on the opposite side of the partition can be seen. Without such arrangement the eye is apt to be misled by the parts of the negative not under examination.

The ratio of the density factors of the thickest and thinnest parts of a negative may be called its contrast ratio. If the thickest part has a density factor of 48 and the thinnest a density factor of 3, the contrast ratio is 16. If we have another negative in which the corresponding greatest and least density factors are 24 and $1\frac{1}{2}$, this will also have a contrast ratio of 16, and if the second negative be given half the exposure as the first, the two prints will have the same contrast, provided the other conditions remain the same. Thus, if the ratio in question is the same for two different negatives, they possess the same amount of contrast. It does not follow that they will give equally artistic or picturesque prints, for a pretty photograph depends not only on the actual contrasts, but also on the way in which these are distributed over the various parts of the picture. So far as my experience is worth anything, a negative that is to yield good prints on self-toning paper or good enlargements on rapid bromide paper ought to have a contrast ratio of not less than 16. Yet I have a very transparent negative whose contrast ratio is less than 3 (tested with the aid of blue glass), and I have a rather good enlargement from it on gaslight paper, obtained by a prolonged "soaking" in very dull, cloudy weather, with care in directing the thinner parts of the negative towards the brighter parts of the sky.

Let us now apply the "Index Method" previously described in this journal by the present writer in an article reproduced from "Knowledge." Suppose that we have a film which trans-

mits half the light falling on it, and whose density factor is therefore 2, the index of this in the system proposed is 1. Let two such films be placed one above the other. Then each transmits only half the light falling on it, with the result that only one quarter of the original light gets through the combination, and the index is 2. According to this method, the density index of any film is measured by the number of films of unit index required to produce the equivalent density. If, then, we have several films of different thickness, but alike in every other respect, the density index of each film will be proportionate to its thickness.

This view of the matter may be easily tested by a simple experiment. Messrs. Marion, some time ago, issued a cheap set of three orthochromatic films giving 2, 4, and 8 times exposure. On placing the 2 and 4 times films in contact, and holding them up to the light, they will be seen to be identical in appearance with the 8 times film. And no better example can be given of England's neglect of mathematics than the fact that, to my knowledge, a firm some time ago advertised for sale a 3 and 5 times colour screen, and stated that by using them together an 8 times screen would be obtained! Of course, the real result would be a 15 times screen, and I can imagine many failures resulted which were not attributed by the users to the mistakes made by the manufacturers.

Next, suppose that we have an over-exposed negative, and suppose that the upper layer down to a certain depth is of uniform density throughout, so that the variations which produce contrast are all below this depth. Let the upper layer be removed by ferricyanide of potassium without touching the lower layer. Then the density will be reduced, but the contrast will be unaltered. It is only if the upper layer shows reversal that its removal will increase contrast. If there is any direct contrast in it, the contrast of the negative will be reduced instead of being increased by its removal.

Let us, in conclusion, ask the question why it is that a thin, under-contrasted negative looks so pretty when laid film downwards in contact with a sheet of white paper? The light which reaches the eye has to go through the negative to the paper and to come back again through the negative. If the contrast ratio of the negative is 8, then the paper receives 8 times as much light through the thin as through the thick parts and the proportion of the light so falling on and reflected by the paper, which, passing through the film on the return journey, is again 8 times as great in the thin as in the thick parts, consequently the contrast ratio appears to be 64 instead of 8; and it is easy to see that in all such cases the contrast ratio appears to be squared. It is not doubled; its index is doubled. The effect is practically the same as if two films, each similar to that of the negative, were placed one above the other.

The whole of the ideas in this paper have been worked out quite independently of anything which may have previously been written on the same subject. Whatever may be the result of future investigation as to the extent to which they have been already anticipated, it is hoped that there may be some interest in a paper written by one who has to get the results he requires by working things out mathematically, and who has neither the time nor the inclination to aim at attaining the same objects by compounding chemical formulæ.

NOTE.—The method of making transparencies of different density look equally bright by varying the illumination is practised by every lanternist when he tries to make the best of the lecturer's over-exposed failures by turning up the light. According to the present suggestions, the experiment should be tried with the negatives, and allowances made for variations of density when the positives are being printed. This would often save an explosion of gas on the part of the lantern, followed by an explosion of temper on the part of the lecturer.

G. H. BRYAN, Sc.D., F.R.S.

NEW METHODS IN LANTERN-SLIDE MAKING ON THE WRATTEN PLATE.

[Since the introduction some months ago of the new bromide lantern-plate by Messrs. Wratten and Wainwright, that firm has been investigating in its research laboratory the conditions under which warm tones are produced on the plate by direct development. The results are embodied in a booklet just published under the title of "Lantern Slides," and obtainable free on application. From the extracts made below and our comments on the results on another page it will be seen that the makers of the new "Wratten" plate have provided slide-makers with still further means of obtaining the widest range of tones with, at the same time, a full scale of gradation. The very succinct instructions in which Messrs. Wratten have embodied the results of their experiments certainly deserve to be regarded as a most important contribution to the practice of making warm-toned transparencies.—Eds. "B.J."]

Lantern Slides.

It is generally acknowledged that a really good lantern slide forms one of the finest prints which can be obtained from a negative. A good lantern slide should render the gradation of the negative from clear glass to full black with an almost perfect accuracy of range, and, while there should be very little clear glass in the slide, it is essential that there should be no trace of veil upon what clear glass there is. The first essential, therefore, of a satisfactory lantern plate is that it should work with perfect cleanliness and should resist fog, even under severe trial.

Not less important than cleanliness is the necessity for accurately rendering gradation. Plates of the "gaslight" type tend to give too great a jump between clear glass and the next tone, so that slides made on those plates seem to have an appearance of baldness in the high-lights; the delicate gradations of the sky, which are so well rendered in a negative taken on a panchromatic plate, may be lost in the making of the slide. These gradations are best obtained upon faster plates, and the Wratten "Ordinary" plates will give most exact rendering of gradation. Unfortunately, however, such plates will not give the slides of warm tone which are most in favour, and in order to get the pleasing sepias and browns which are required, most slides have hitherto been made upon plates containing more or less chloride of silver.

As a result of a series of investigations we succeeded in obtaining

an emulsion from pure bromide of silver, in which the bromide is so fine a state of sub-division that warm tones can be obtained easily as upon chloride plates.

Bromide of silver is very much more resistant, both to development fog and to climatic effect, than chloride of silver, so that the emulsion will withstand development to a greater degree than an lantern slide emulsion previously prepared, and the plates may all be relied upon to keep under the most trying conditions of climate. Moreover, the use of bromide of silver ensures that the gradation shall be satisfactory, and especially that the finer gradations in the high-lights are retained unimpaired. A bromide of silver emulsion is therefore in every way preferable to one containing chloride.

The Development of Warm Tones upon Lantern Plates.

While lantern plates which have been developed to a black tone can be changed in colour by an after toning bath, this not only involves a separate operation, but it is the opinion of expert workers that slides prepared in this manner are rarely so satisfactory, either in tone or gradation, as those in which the warm tones are obtained during development.

The cause of the warm tones obtained by developing lantern plates with a solvent of silver (usually ammonium carbonate) present in the developer has been a subject of considerable discussion without

very definite results based on experimental evidence having been arrived at.

The general opinion seems to have been that the image developed in this manner does not consist of pure silver, but of a mixture of silver with more or less silver bromide, which, owing to its close association with the silver, is not dissolved out by the fixing bath, and, on this view, the warmer the tone the greater would be the amount of bromide present.

In order to investigate the matter we took a fast plate, developed to a black image, and also a slow lantern plate, developed by the aid of ammonium carbonate to a bright red image; the two plates were then treated with an acid permanganate solution (which removed the silver), and, after washing with a solution of sodium sulphite to remove the brown stain from the manganese di-oxide, both plates then proved to have a very faint trace of image remaining, which trace could be completely removed by a fixing bath, or could be considerably strengthened by a developer, showing that it almost certainly consisted of silver bromide. We see, therefore, that, while it is true that small amounts of silver bromide are associated with the silver in developed plates so completely that they cannot be removed by a fixing bath, yet the warm tone plate developed with ammonium carbonate had no more of the silver bromide than the black tone plate, and the warm tone cannot therefore be due to silver bromide.

Inasmuch as it is well known that silver can be produced, especially in solutions containing gum or gelatine which is so finely divided that it will not settle, and that this silver is frequently brightly coloured, it seemed to us desirable to try to find out whether the warm-toned images differed from the black toned images simply in the fineness of division of the silver constituting them. This we found to be the case; whereas an image developed in the ordinary way on the "Wratten" lantern plate has grain which is just visible under the highest power of the microscope, if the image is developed to a warm tone the grain is no longer visible at all under the microscope. In order to see it we therefore had to adopt an ultra-microscopic method of examination. In this method, which is of comparatively recent introduction, the plate is illuminated, not by light coming through from underneath, but by strongly convergent light entering the film *sideways*.

If there is nothing in the film the field under the microscope remains black, but if there are any particles there, even if they be too small to be seen by the microscope in the ordinary way, they will reflect the light and appear as small bright points of light, just as the dust floating in a room, which is quite invisible to the eye, shines out clearly when a sun-ray falls in the room, the little particles of dust reflecting the light and catching the eye.

On examining warm-toned plates in this manner we found that the grains were indeed very fine, and we were able to observe that the warmer the tone the finer the grain. At the commencement of development a warm-toned slide has the finest possible grain, and if dried appears of yellow colour. This is succeeded, as development progresses, by reds, browns, and sepias, the grains growing larger all the while, so that the image always consists of pure silver, the colour of it being determined by the size of the grain which is produced. It may be noted that the warmest tones of all are indeed identical with what is known as green fog or dichroic fog, except that they do not cover the whole surface, and they are indeed strongly dichroic, the red images appearing green by reflected light. The theory of the production of warm tones will therefore be the same as that of the production of dichroic fog. These finely divided forms of silver are produced by using a developer which contains an active solvent of silver bromide, so that a considerable quantity of silver bromide can be dissolved in the developer, and be ready for deposition as finely divided silver. There is no more certain cause of dichroic fog, for example, than the presence of hypo in the developer, while the usual cause for it is the use of ammoniacal developers, ammonia being a strong solvent of silver bromide.

In order that satisfactory warm tones should be obtained upon a lantern plate, it is therefore necessary to use solvents of silver, and since silver chloride is very much more easily soluble than silver bromide the best warm tones have hitherto been obtained upon chloride plates. Just as it is easier, however, to dissolve a solid which has been powdered, so a substance always dissolves more rapidly the finer the state of its division, and for "Wratten" lantern plates we have succeeded in getting the silver bromide into so fine

a state of division that it will dissolve as easily as silver chloride in chloride plates.

It has already been pointed out that the conditions which favour the production of warm tones upon lantern plates also favour the production of dichroic fog. Dichroic fog will not appear as general fog unless the unexposed salt becomes slightly developable. Silver chloride, however, is always subject to this trouble, and consequently the great difficulty in getting warm tones on chloride plates has been that if development were sufficiently prolonged to get a satisfactory tone the plate was very liable to general fog. This difficulty does not apply in the case of a bromide plate, and consequently very strong solvents of silver, far stronger than can be used in the case of a chloride plate, can be used with the Wratten lantern plate. Such powerful solvents as hypo and thiocarbamide, which would produce heavy fog with a chloride plate, can be used to produce excellent tones with perfectly clear high-lights on the new plates.

The Exposure of Wratten Lantern Plates.

The best dark-room light for handling these plates is a bright yellow light. A suitable "Wratten" "safe-light" is the Series OO.

The exposure of any plate behind a normal negative may be calculated in the following manner:—The unit of light is one British standard candle, which is near enough to ordinary wax candles for practical purposes. The unit of light intensity is that given by one candle at one metre (39 inches) distance. The unit of exposure is therefore that given by exposing a plate for one second to a candle distant one metre. *This unit is known as the candle-metre-second (C.M.S.).*

Since the intensity of light varies inversely with the *square* of the distance from the source, if we expose a plate for one second to a candle at half metre distance, we shall give it $\frac{1}{4}$ C.M.S. exposure. If at one-third metre (13 inches) $\frac{9}{16}$ C.M.S., and so forth.

Now, the exposure behind a normal negative (a landscape developed for the time given by us with a non-staining developer) to get a good positive may be taken as 1,000 candle-metre-seconds, divided by the Watkins speed of the plate. Thus, on the Wratten speed plate (300 Watkins) the exposure will be 1,000-300 C.M.S., or $3\frac{1}{3}$ seconds at 1 metre to 1 candle.

On the Wratten Ordinary plate (12 Watkins) the exposure will be 1,000-12 C.M.S., or 83 C.M.S.

(This calculation will, of course, not apply to colour-sensitive plates, whose speeds, measured to daylight, are not comparable when candle light is used.)

The Wratten lantern plate averages $1\frac{1}{2}$ Watkins in speed, and therefore requires 750 C.M.S. exposure.

Thus, if a 10 candle-power batwing burner is used at 1 metre, 74 seconds' exposure will be required.

Similarly, an incandescent C burner (40 c.p.) will require 18 seconds' exposure. An equivalent exposure will be found to be one inch of magnesium ribbon at $1\frac{1}{2}$ metres (about 5 feet).

If magnesium ribbon is used, the following table may be of use:—

Black tones (unit exposure)	1 in. ribbon at 60 in.
Exposure factor 2	1 " " 43 "
" 4	1 " " 30 "
" 8	1 " " 22 "
" 16	1 " " 15 "
" 64	2 " " 11 "

Development of Wratten Lantern Plates for Black Tones.

To get a black-toned slide all that is necessary is to expose the plate for the unit exposure, as described in the previous section, and then to develop the plate in any developer which does not contain too much bromide. Too much bromide in the developer will give greenish or brownish blacks, the latter tone being pleasing and the former the reverse.

A suitable formula without bromide is that given as "A" for warm tone development, without any addition of "B." Really dead, blue-grey, or grey-blacks, however, are most easily got by development with thiocarbamide.

If the contrast of a negative is to be increased, the slide should be under-exposed and development lengthened; if the reverse, the

slide should receive full exposure and short development. If greater contrast is required, the following developer should be used:—

A. Hydroquinone	25 gms.	$\frac{1}{4}$ oz.
Potass. metabisulphite	25 "	$\frac{1}{4}$ "
Potass. bromide	25 "	$\frac{1}{4}$ "
Water.....	1,000 ccs.	10 "
B. Caustic potash (pure, in sticks) ...	50 gms.	$\frac{1}{2}$ "
Water.....	1,000 ccs.	10 "

For use, take equal parts "A" and "B." This developer is prone to give yellow stain, especially if development is forced with it in warm weather.

Development of Warm Tones on Wratten Lantern Slides.

We have already explained:—

- (1) That the production of warm tones depends upon the presence in the developer of a solvent of silver bromide.
- (2) That as development proceeds the tone darkens and becomes colder.

It must also be remembered that in all development the contrast increases with the prolongation of development, and that range of contrast is entirely governed by the duration of development. So that while warm tones may be obtained from the same developer by varying the time of development, that is, by varying the exposure so as to produce sufficient density in various times, yet only one time of development will give correct gradation.

Consequently the time of development for a given constitution of the developer should be regarded as a fixed quantity. If a different tone is required the developer must be varied as well as the exposure.

Many of the muddy and blocked-up warm-toned slides, which are too often seen, are due to non-observance of this rule. They have been over-exposed, and development has been stopped far too early, with the result that, while the density is correct, yet the gradation is entirely wrong.

The tone, then, is to be regarded as fixed by the constitution of the developer.

The exposure is similarly fixed, since it is that exposure which will be necessary to produce sufficient density in the given time of development.

The Time of Development.

It is well known that it is extremely difficult to judge the density of a warm-toned lantern slide during development. Fortunately, however, there is no need at all to attempt to judge the density. The best way of developing slides is undoubtedly by time. When developing negatives by time, the objection which is sometimes urged that variations in exposure may necessitate variations in development may have some force. It is true that most people are liable to make those compensating variations in the wrong direction, though sometimes a skilful worker may improve a negative by departing from the fixed time of development. (Anyhow, even a skilful worker will probably be helped by knowing how long the fixed time of development is.)

But in the case of lantern slides, when wrong exposure merely means making another, this objection has no force whatever. If the exposure is wrong, then alteration of the time of development may save the slide as regards density, but gradation will suffer, and the slide will be inferior. It is a poor lantern slide maker who is content to use a slide in the making of which a mistake has been made.

The best method of dealing with wrongly exposed slides is to put them for a few minutes in nearly boiling water. When carefully cleaned they make excellent cover-glasses.

The time of development naturally increases as the developer is more restrained and warmer tones are obtained, but at the same time the "Wratten" lantern plates do not require the very prolonged developments which were formerly necessary to produce warm tones.

The time of development for each constitution of the developer is given in the following table, but, inasmuch as the time of development is very greatly influenced by the temperature it is probably better to use Mr. Watkins' "factorial" method. The time is observed from the pouring on of the developer to the first appearance of the image, and this time (known as the "time of appearance") is multiplied by a fixed "factor" to get the time of development. For all warm tones the factor for our developer is 8; for black tones, 6.

These factors give slides of density suitable for ordinary lime-light lanterns. If the slides produced by them are considered too thin, the factor should be increased; if too dense, the factor should be diminished; but once the factor has been settled it should be adhered to, and if the resulting slide is incorrect, then a new exposure should be tried.

Exposure.

As the developer is more restrained the exposure must be increased, and must be increased far more rapidly than the time of development. While the time of development increases arithmetically, the exposure increases geometrically.

The unit of exposure is taken as the exposure necessary to get a black-toned slide with an unrestrained developer, and will depend upon the negative in the manner described in the section dealing with exposure. The times of exposure in the table are given simply as multiples of that unit exposure.

It may be mentioned again that intensity of illumination, and consequently exposure, varies inversely as the square of the distance between the source of light and the printing frame. One inch of magnesium at one foot, for instance, gives nine times as much exposure as one inch at three feet.

TABLE OF DEVELOPERS, EXPOSURE, AND TIME OF DEVELOPMENT FOR WARM-TONED SLIDES AT 60° F.

Normal Developer.			
A. Metol	44 grs. or	10 gms.	
Hydroquinone	22 " "	5 "	
Soda sulphite	1 oz. "	100 "	
Soda carbonate.....	1 " "	100 "	
Water.....	20 ozs. "	2,000 ccs.	
Restraining Solutions.			
B. Ammonium carbonate	1 oz. or	50 gms.	
Ammonium bromide ...	1 " "	50 "	
Water.....	10 ozs. "	500 ccs.	
C. Sodium thiosulphate (Hypo)	1 oz. "	50 gms.	
Water	10 ozs. "	500 ccs.	

Tone.	Developer (1 oz. contains)	Exposure Multiple. (in mins)	Develop- ment time
Warm black	$7\frac{1}{2}$ drms. A, $\frac{1}{2}$ dr. B	... 2 ...	2 $\frac{1}{2}$
Cool sepia ...	7 " A, 1 " B	... 3 ...	4
Warm sepia	$6\frac{1}{2}$ " A, $1\frac{1}{2}$ " B	... 3 $\frac{1}{2}$...	8
Sepia brown	6 " A, 2 " B	... 6 ...	10
Brown	$6\frac{1}{2}$ " A, $1\frac{1}{2}$ " B, 1 dr. C	... 3 ...	5
Brown purple	6 " A, 1 " B, 1 " C	... 5 ...	10
Purple	$5\frac{1}{2}$ " A, 2 " B, $\frac{1}{2}$ " C	... 10 ...	12
Carmine	$4\frac{1}{2}$ " A, 3 " B, $\frac{1}{2}$ " C	... 48 ...	20

The Production of Warm Tones on Faster Plates.

When lantern slides have to be made by means of reduction, owing to the size of the negative, it is not always convenient to use so slow a plate as the "lantern" plate. In this case first-rate slides can be made on the Wratten "Ordinary" plates, but such slides are necessarily of a cold tone unless they are afterwards toned in some way.

Results identical with those obtained by the restrained development of slow plates can, however, be obtained by the following method, which was recently published by Mr. Welborne Piper.

A rather thin black-tone slide on the Wratten "Ordinary" plate is prepared, and this is bleached in a solution consisting of:—

Potassium bichromate	$\frac{1}{4}$ oz.	2 $\frac{1}{2}$ gms.
Hydrochloric acid	$\frac{1}{2}$ "	5 "
Water.....	10 "	100 ccs.

After bleaching the slide is well washed.

We have now a slide in which the image consists of silver chloride and this can be developed by any formula for the production of warm tones.

The warmer the tone the denser the final slide will be, so that the warmer tones we must either use a very thin black slide or must stop development in the restrained developer before completing fixing out the undeveloped silver chloride.

The Chemical After-Toning of Lantern Slides

Black-toned lantern slides can be changed in colour by any of the usual toning baths.

Sepia toning, either by bleaching and sulphiding, or by the hy-

alum bath, gives satisfactory results, probably more satisfactory than those obtained by means of copper, uranium, etc.

As a general rule, after-toning produces the brighter and less often required colours, while restrained development is used for the warm blacks and sepias, which are most in favour.

The extreme tones (violets, carmines, and reds) produced by restrained development are of very little use, and are more easily obtained by toning with copper or uranium; but the sepias and blue-blacks, produced by ammonium carbonate or thiocarbamide, are not easily produced by after-toning.

Chemical toning always gives an appearance of "double-toning," unless it is allowed to complete its work, when bright colours are produced, and it is for this reason that restrained development is so much more satisfactory for most purposes.

Blue, Blue-Black, and Violet-Blue Tones by Development.

It was mentioned in the introduction that the "Wratten" lantern plates, owing to the way in which they resist fog, enable use to be made of other solvents of silver bromide than those which can generally be employed.

One of the chief of these silver solvents is thiocarbamide. If thiocarbamide is used for ordinary negative plates it will be found that, after development has proceeded for a short time, the *unexposed* silver bromide begins to develop rapidly with a brownish deposit, while the exposed silver bromide remains clear in proportion to the intensity of the exposure, so that a *reversed* negative—i.e., a positive—is produced, the highest light being represented by a light deposit of black silver. This action was first described by Major-General J. Waterhouse.

The rationale of this reversing action of thiocarbamide seems to be as follows:—Thiocarbamide is a powerful solvent of silver bromide, and induces a general deposition of fine-grained silver similar to the dichroic fog produced by hypo in the developer (which also shows this reversing action). The solution of silver bromide and consequent precipitation of silver is, however, greatly retarded by the presence of traces of soluble bromide. Now when a developer containing thiocarbamide is poured on to a plate it first begins to develop the ordinary exposed image. In doing this it impregnates the film *wherever the image is developed* with the soluble bromide formed as one of the products of development.

Consequently, when the general deposition of silver, caused by the thiocarbamide, begins, the places where this bromide exists—i.e., where the greatest exposure was received—will develop last, and we shall obtain a positive. The truth of this explanation is borne out by the fact that the positive image is always a little indistinct in outline, and that there is always a tendency for such objects as a church spire projecting into the sky, which should appear dark, to fail to develop owing to the diffusion of the soluble bromide sideways in the film.

This strong solvent action possessed by thiocarbamide suggested that if suitably restrained with bromide it might be found to give a different group of tones in development, and this was found to be the case, the tones varying from a blue-black to blues and violets, and even finally carmines, according to the amount of ammonium bromide and carbonate which is added.

The thiocarbamide is used in the form of a 1 per cent. solution of tetra-thiocarbamide ammonium bromide.

This solution is taken by dissolving 33 grains of thiocarbamide and 1 grain of ammonium bromide in 10 ounces of water. We may term this solution T.

The following table gives the exposure and developing factors for the production of blue tones with thiocarbamide:—

Tone.	Developer.			Exposure Multiple.
	drms.	drms.	drms.	
Dead black (neutral)	7 A +	$\frac{1}{2}$ B +	$\frac{1}{2}$ T	2
Blue black	6 A +	$\frac{1}{2}$ B +	$\frac{1}{2}$ T	4
Blue	$5\frac{1}{2}$ A +	2 B +	$\frac{1}{2}$ T	8
Violet	5 A +	$2\frac{1}{2}$ B +	$\frac{1}{2}$ T	16

The time of development with thiocarbamide depends so greatly on the temperature that visual inspection is necessary. Neither time or factorial methods are of any use.

"Physical" Development of Lantern Plates.

In the wet collodion process the image is received upon a surface of silver iodide, and is then developed by means of an *acid* reducing

solution, which does not change the silver iodide, but which precipitates silver from the free silver nitrate solution contained in the film.

This is generally referred to as "physical" development, as opposed to the "chemical" development, in which the silver bromide of a dry-plate is dissolved and precipitated as metallic silver by means of an *alkaline* reducer.

A physical developer is, therefore, distinguished as containing free silver nitrate, and also as being acid. Physical developers are best known to modern photographers, unacquainted with wet collodion, because they are sometimes used as "silver" intensifiers, where they deposit silver on the developed image of a dry-plate in order to produce greater density.

Dr. Lüppo-Cramer has shown that slow chloride plates can be developed by means of physical developers, and he gives the following formula as being the best:—

Metol	2 gms.	88 grs.
Citric acid	10 "	1 oz.
Water.....	100 ccs.	10 ozs.

To which add 1/10 volume of 10 per cent. silver nitrate solution.

We have found that this formula is quite satisfactory with the "Wratten" lantern plates, and gives very beautiful pictures of a bluish tone and of great delicacy and transparency. For seascapes and mountain scenery the results obtained in this way are magnificent, but the process is not an easy one to work.

The plates used for physical development must be quite fresh; plates which will give perfect results with ordinary development may give fog with acid silver.

The exposure required is about four times that required for ordinary black tones.

The dish used for development must be very clean; it is usually better to wash out the dish, measures, etc., with nitric acid or acid permanganate solution, to get rid of any traces of deposited silver.

The exposed plate is then put into the dish, the given amount of silver nitrate solution (not more) added to the developer, and the developer poured over the plate, which is then rocked for four minutes.

The silver may deposit over the whole face of the plate, on the dish, and on the fingers of the operator, from which acid permanganate will remove it.

The developer is then poured off, the plate rinsed, and then the whole surface of the film scrubbed fairly hard with a pledget of cotton wool.

The general deposit of silver will be found to rub right off, leaving the image unaffected.

If the density attained is not considered sufficient on looking through the plate, the dish is cleaned, as before, the back of the plate scrubbed with cotton wool, and the plate is placed in a fresh lot of developer until sufficient density is attained. The plate is then fixed and washed as usual.

FORTHCOMING EXHIBITIONS.
1909.

- September 10 to October 23.—The Photographic Salon. Sec., Reginald Craigie, 5A, Pall Mall East, London, S.W.
 - September 23 to October 30.—1.—Royal Photographic Society. Sec., J. McIntosh, 35, Russell Square, London, W.C.
 - October 6 to 13.—Portsmouth Camera Club. Entries close September 20. Sec., James C. Thompson, 25, Elm Grove, Southsea.
 - October 21 to 23.—Rotherham Photographic Society. Entries close October 11. Secs. H. C. Hemingway, Tooker Road, Rotherham, and F. Sargeant, 17, Aldred Street, Rotherham.
 - November 10 to 13.—Hackney Photographic Society. Entries close October 12. Sec., Walter Selve, 24, Pembury Road, Clapton, London, N.E.
 - November 23 to 26.—Southampton Camera Club. Sec., S. G. Kimber, Oakdene, Highfield, Southampton.
- 1910.
- April 5 to 9.—Sheffield Photographic Society. Secs., J. A. George and J. R. Wigfull, 14, Parade Chambers, Sheffield.

VIVE CAMERA COMPANY, LIMITED.—A correspondent asks for the London and American addresses of the above-mentioned company. Possibly some of our readers may be able to supply the information required.

Photo-Mechanical Notes.

Exposures in Screen Negative Making.

In the September number of "Le Procédé" L. Villemaire gives a table of exposures for wet collodion in screen negative making, which is the most practical and thorough of any yet published, inasmuch as it takes account of the varying screens in general use, the varying reductions, and also has columns for the two different sorts of originals—namely, black and white and warm toned. Moreover, the author is aware that collodions vary, so he has given the formula of the collodion he uses himself, and a correction factor for a commercial collodion that is commonly used in Paris. With regard to the lighting, he gives a description of the lamps he uses, and also the time they take to darken a Wynne actinometer, thus enabling a further correction factor to be worked out for any different set of lamps. With such a table properly used, it would seem difficult for the veriest beginner to go far wrong in exposure when making a screen negative on wet collodion.

Collodion Emulsion.

We are invited by an American correspondent to make some remarks about collodion emulsion for three-colour negative making, which, he says, is only slowly winning its way in America. He complains of "spots" and asks for recommendations as to emulsion. If he wants to make up his own emulsion he cannot do better than refer to the formulæ given in the "Almanac," the emulsion of Hübl being expressly designed for process work. If, however, he wishes to buy the emulsion, then Dr. Albert's, or that of Sillib and Bruckmann enjoy great favour, and both sell the emulsion in powder form, and issue instructions in English. One precaution is very necessary—namely, pure ether must be used.

With regard to "spots," such spots as are caused by airbells are, of course, due to sheer carelessness; but many spots in collodion emulsion seem to come, in spite of the most painstaking care. Naturally, they are more frequent when every precaution is not taken. The utmost cleanliness is requisite everywhere, the glass must be perfectly cleaned, the substratum used must be filtered over and over again, all the rooms must be free from dust, the same slide that is used for wet plate must not be used for emulsion, and, finally, the temperature must be low and the air sufficiently moist. If all these precautions are carefully attended to, and plenty of regular work is done, the troubles with emulsion will be greatly minimised, and it will be found an economical medium; but if the work is intermittent and the conditions are anything short of what we postulate above, then we strongly recommend the use of colour sensitive dry plates, instead of emulsion, for, although their cost is apparently greater, they will really be cheaper in the longer run, considering that there will not be the waste with them that there inevitably is with collodion emulsion, unless it is worked under almost ideal conditions.

PHOTO-MECHANICAL PATENTS ACCEPTED.

HALF-TONE NEGATIVES FOR RELIEF-BLOCKS.—No. 17,215, August 15, 1908. This invention relates to a method of making half-tone negatives for producing so-called half-tone relief printing blocks, in different patterns, whereby the desired relief effect and the desired patterning effect are simultaneously produced. The original is photographed on an ordinary dry plate, which is intensified so as to obtain a rather dense negative semi-opaque in the shades, and from this negative a diapositive is made. These plates are placed slightly out of register, and a suitably figured or patterned glass plate, which may also be ground or semi-opaque, is interposed between them. Upon photographing by transmitted light through such three superposed plates, a picture is obtained which, in addition to the relief effect due to the said negative and diapositive plates, will also contain the patterning or figuring effect due to the interposed plate, and upon the thus produced plate being photographed through a screen, a picture is obtained reproducing the relief and pattern in a state ready for etching.

By figuring or patterning the interposed plate in different

manners different effects and varied grounds may be obtained more readily than according to the customary method.—Niels Bendixen, 1, Mariendalsvej, Copenhagen, Denmark.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

Applications for the following patents have been received from August 30 to September 4:—

REFLEX CAMERAS.—No. 19,803. Improvements in reflex cameras. Walter Dockree, Herbert Holmes, and Houghtons Limited, 88, High Holborn, London.

DEVELOPMENT.—No. 19,809. Improved contrivance for developing photographic negatives. Charles Edwin Layton, 22, Southampton Buildings, London.

ARTIFICIAL LIGHTING.—No. 19,838. Means for artificially lighting halls or other places in which cinematographic or magic-lantern pictures are exhibited, or photographic operations and the like are carried on. Ernest Grenier, 47, Lincoln's Inn Fields, London.

PAPER.—No. 20,046. Improvements in photographic paper for grained photographs and in the process of manufacture of same. August Albert, 57, Lincoln's Inn Fields, London.

PRINTING APPARATUS.—No. 20,049. Improvements in photographic printing apparatus. William Lowthier Cole, 37, Chancery Lane, London.

LENS ATTACHMENTS.—No. 20,088. Improvements in devices for fitting supplementary lenses or other attachments to lens hoods of varying dimensions. George Leonard McAlpine and John J. Griffin and Sons, Ltd., Kemble Street, Kingsway, London.

CAMERAS.—No. 20,103. Improvements in photographic cameras and the like. Samuel Newsome Player, 18, Hertford Street, Coventry.

REFLEX CAMERAS.—No. 20,147. Improvements in or relating to photographic cameras of the type known as reflecting or reflex cameras. Arthur Lewis Adams, 24, Charing Cross Road, London.

ACETYL CELLULOSE.—No. 20,195. Improvements in or relating to the manufacture of acetyl cellulose. Kodak, Ltd., Chancery Lane Station Chambers, High Holborn, London, for David E. Reid, United States.

PLATE RACK.—No. 20,204. Improved folding portable plate or drainage rack. Ernest George Marshall, 17, Sterndale Road, Hammersmith, London.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

COLOUR SCREEN-PLATES.—No. 11,147, 1909 (May 11, 1909). The invention is an improvement on the process of patent No. 3,252, 1908 ('B.J.," Oct. 16, 1908, p. 796), of preparing a three-colour screen-plate by attaching coloured grains of celluloid or glass to a transparent tacky plate.

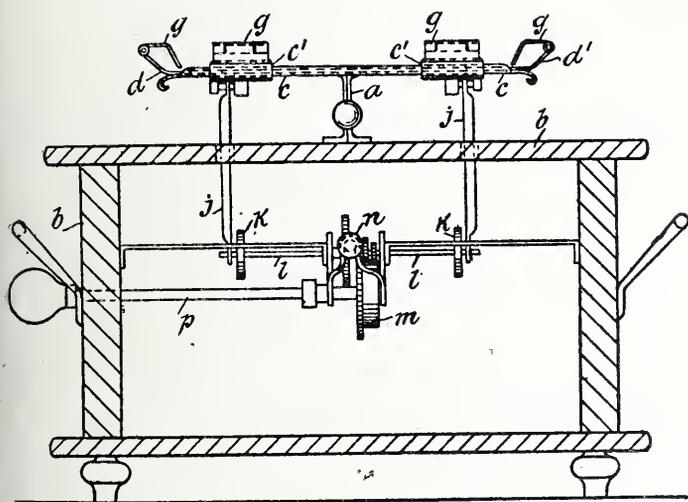
In the improved process the tacky substratum is itself stained yellow, red, or green, or a combination of two or more colours in various proportions adjusted to the light by which the photograph has to be made whether by daylight or by artificial light. A special compensating light-filter is thus unnecessary: the necessary correction is made in the colour-screen itself.

A solution of gum gamboge is made by boiling the gum turpentine spirit. A small portion of red dye may be added such as that obtained from alkanet root. In this is dissolved sufficient pale gum copal to make a solution of suitable consistency for coating the supporting plate. A suitable quantity bleached linseed oil is added to retard the drying of the subst

tum for a sufficient length of time to form the screen, but any other suitable absorbing dyes may be used, or any substratum giving a tacky surface.

The coloured grains having been spread in one layer in close contact with each other over the tacky stained surface are, after the substratum has become sufficiently dry, then rolled under heavy pressure down to the surface of the carrying sheet. The grains are thus flattened out, and at the same time most of the stained substratum is pressed from underneath, and is forced up and between each coloured grain, thus forming an exceedingly fine ring of transparent yellow round each grain. This acts as an efficient stop to white light being transmitted by the screen, and adds the desirable portion of fixed yellow. The small residue of stained substratum left underneath the grains forms the necessary correction to the light passing through the blue and green grains without having any absorbing action on the red grains, thus giving in the finished photograph a correct colour reproduction. John Bamber, 56, Lansdowne Road, South Lambeth, London, S.E.

CLOCKWORK DEVELOPING TABLE.—No. 1,196, 1909 (Jan. 18, 1909). A bracket, *a*, is fitted on stand, the bracket being capable of rocking from side to side. An elongated clip, *c*, is fitted on the top of each end of the brackets, and a like clip, *c*¹, is fitted on the slips at a right-angle thereto at an equal distance from the centre



of the stand. Two flat bars, *d* and *d*¹, are placed in each of these clips with their inner ends meeting at the centre of each clip when closed, and capable of sliding therein, but prevented from being entirely withdrawn therefrom by a small projection, *e*¹, engaging in a slot, *e*, along the centre line of the clips: each of the sliding bars has a hinged clip *g* at its outer end. The elongated clips and sliding bars are caused to rock by being connected by a rod, *j*, under each of the clips *c*¹ to an eccentric, *k*, on each end of a rod, *l*, on which a tooth wheel is fitted that gears into a wheel connected to a coil spring, which gives motion to a train of wheels; a plate, *m*, or an equivalent, is fitted on the spindle of one of the wheels, and a stop rod, *n*, is fitted in proximity, so as to engage with or be released from the plate.

When a plate requires to be developed, a tray or dish of corresponding size is placed on the flat bars *d* and *d*¹, which are withdrawn to the extent required, and the hinged clips *g* at their outer ends are turned over the edges of the dish by which it is retained in position. The clockwork mechanism is then wound up by the rod *p*, and the stop rod *n* withdrawn from the plate *m* on the spindle of one of the geared wheels in the mechanism, when the tray or dish will be caused to rock, either until the mechanism has run down, or, if required to stop sooner, the stop rod *n* is pushed in, thereby engaging with the regulating plate *m* and stopping the mechanism. Thomas Anthony Bowers, "Woodlands," Walton Road, Stockton Heath, and James Stanley, Craik, "Greenbank," 276, Manchester Road, Warrington.

CERAMIC PHOTOGRAPHS.—No. 17,432, 1908 (August 19, 1908). The invention relates to the use of a ground or roughened glass surface in making enamel photographs with a one-solution sensitiser such as that described in Patent No. 24,214, 1907 ("B.J.," May 15,

1908, p. 382). The rough surface obviates the use of nitro-cellulose in the sensitiser. The following are suitable sensitisers:—

Lithium bichromate	2 gms.
Honey, invert sugar, or other carbohydrate ...	4 gms.
Ethyl alcohol or wood spirit	100 ccs.
Calcium or strontium bichromate	2 gms.
Honey, invert sugar, or other carbohydrate ...	4 gms.
Ethyl alcohol or wood spirit	100 ccs.
Sodium bichromate	2 gms.
Honey, invert sugar, or other carbohydrate ...	4 gms.
Ethyl alcohol or wood spirit	100 ccs.

Some precautions are necessary during the washing process, when the plate is first placed in the water, to prevent the film dissolving away underneath the pigment, and the image being thereby distorted.

The invention may be applied to surfaces of ground glass, glass etched with hydrofluoric acid, or roughened by any other means. It may, in fact, be applied to a roughened surface of any material whatsoever, provided the latter be not absorbent.

It is possible to apply the process to absorbent rough surfaces provided they be rendered non-absorbent by first coating them with a suitable material.

In cases where the invention is applied to ground glass or other vitreous surfaces and it is desired to remove the rough appearance, the glass, etc., may be subjected to sufficient heat to vitrify or fuse the surface sufficiently to attain the object desired. Arthur Robert Ling and Theodore Rendle, 74, Great Tower Street, London, E.C., and Ernest William Colbrook, 65, London Wall, London, E.C.

CERAMIC PHOTOGRAPHS.—No. 17,433, 1908 (August 19, 1908). The invention consists of a one-solution sensitiser (free from water) for enamel or ceramic work. This solution does not involve the addition of water as does that described in Patent No. 24,214, 1907 ("B.J.," May 15, 1908, p. 382). It consists of a bichromate and a suitable carbohydrate dissolved in a solvent of both.

Chromic acid itself cannot be used in presence of carbohydrates since it rapidly oxidises the latter, undergoing reduction itself. This oxidising action may be restrained (*a*) by the addition of a certain amount of a base (less than is necessary to form the bichromate), or (*b*) by substituting a more resistant hygroscopic substance, such as glycerine, for the carbohydrate. It follows from (*a*) that the polychromates are available for the process, but they are not so satisfactory as the bichromates, owing to their liability to be reduced in the sensitising solution.

When glycerine is used in place of the carbohydrates, a lower proportion is necessary, but the exposure has to be considerably lengthened to overcome the tendency of the pigment to adhere generally to the plate, and the pigment is not retained so firmly on the exposed surface, so that greater care has to be exercised in washing.

Either the commercial or the anhydrous solvents, bichromates or polychromates may be employed, although in practice the commercial substances will be used.

A convenient proportion of bichromate to use is about 1gm. per 100 ccs., but any proportion of bichromate can be used up to its limit of solubility in the solvent or solvent mixture.

The two following examples will serve to illustrate the practical application of the invention:—

Lithium bichromate	1 gm.
Honey, invert sugar, or other carbohydrate	2 gms.
Ethyl alcohol or wood spirit mixed with ether or ethyl acetate	100 ccs.
A nitro-cellulose soluble in the solvents used ...	0.4 gm.
Sodium bichromate	1 gm.
Honey, invert sugar, or other carbohydrate	2 gms.
Ethyl alcohol or wood spirit mixed with ether or ethyl acetate	100 ccs.
A nitro-cellulose soluble in the solvents used ...	0.4 gm.

With chromic acid:—

Chromic acid	0.5 gm.
Glycerine	1 gm.
Ethyl alcohol or wood spirit mixed with ether or ethyl acetate	100 ccs.
A nitro-cellulose soluble in the solvents used ...	0.4 gm.

In all the above examples the carbohydrate, where specified,

may be substituted wholly or partly by glycerine. The quantity of glycerine used would be, for example, about half that of the carbohydrate replaced. Arthur Robert Ling and Theodore Rendle, 74, Great Tower Street, London, E.C., and Ernest William Colbrook, 65, London Wall, London, E.C.

The following complete specifications, etc., are open to public inspection, before acceptance, under the Patents Act, 1901:—

CINEMATOGRAPHS.—No. 19,028. Manufacture of opaque cinematographic images for projection by reflected light. Dupuis.

TELE-OBJECTIVES.—Photographic tele-objectives. Zeiss.

New Trade Names.

ASTARID.—No. 315,040. Chemical substances used in manufactures, photography, or philosophical research and anti-corrosives. Blagden, Waugh, and Co., 50 and 51, Lime Street, London, E.C., chemical manufacturers. July 22, 1909.

ISTARAS.—No. 315,041. Chemical substances used in manufactures, photography, or philosophical research and anti-corrosives. Blagden, Waugh, and Co., 50 and 51, Lime Street, London, E.C., chemical manufacturers. July 22, 1909.

SPIROGRAPH.—No. 315,436. Cinematographic apparatus and photographic films bearing finished pictures for use therewith. Charles Urban, Urbanora House, 89-91, Wardour Street, London, manufacturer. August 7, 1909.

GEVAERT PERFECT PICTURES (DESIGN).—No. 315,310. Photographic printing-out, bromide, gaslight, collodio-chloride, papers and postcards. Gevaert, Ltd., 26 and 27, Farringdon Street, London, E.C., manufacturers. August 3, 1909.

Analecta.

Extracts from our weekly and monthly contemporaries.

Green Tones on Bromide Paper.

There are reliable and simple processes (writes Mr. M. Kugler, in "The Amateur Photographer and Photographic News" for September 14) for toning bromides blue, sepia, and shades of red and red-brown, but those for green are not so satisfactory. After trying several of these with indifferent success, I worked out the simple process described below, and found it to work smoothly in every instance. Three solutions are required. They are:—

A	Potassium ferricyanide	5 gms. or 77 grs.
	Ammonia.....	5 drops or 7 drops.
	Water	100 ccs. or 3½ ozs.
B	Concentrated ferric chloride ...	5 ccs. or 80 minims.
	Water	100 ccs. or 3½ ozs.

Or if ferric chloride is not at hand, one can use:—

	Ferric ammonium citrate	2 gms. or 33 grs.
	Hydrochloric acid.....	5 ccs. or 80 minims.
	Water	100 ccs. or 3 ozs.

C	Sodium sulphide	1 gm. or 15.5 gr.
	Water	100 ccs. or 3½ ozs.
	Then add hydrochloric acid ...	5 ccs. or 80 minims.

This solution may become turbid, but no attention need be paid to that.

Having made up the solutions, one sets to work as follows:—The washed bromide print is placed in solution A until bleached through to a light brown. This usually takes from two to three minutes. The solution is now poured back into the bottle, and the print washed until the whites are free from the yellow colour of the ferricyanide. Upon the thoroughness of this washing the ultimate purity of the whites depends. Having washed the print, it is placed in solution B for five minutes, then rinsed once or twice, and transferred to solution C for five minutes. A short washing completes the process.

The chemical reactions involved are as follows:—When the bromide print is placed in the ferricyanide the silver reduces it with forma-

tion of silver ferrocyanide. When this is treated with the ferric chloride solution, the iron combines with the ferrocyanide radical to form Prussian blue, while the chlorine unites with the silver, giving white silver chloride. At this stage the print is a bright blue. On now treating it with the acidified sulphide solution the silver chloride is converted into yellow silver sulphide, which, together with the Prussian blue previously formed, gives the green of the finished print.

An Opaque Non-Cracking Screen.

It is by no means a difficult matter for one to prepare his own screen occasionally, when occasion arises (writes B. W. Adams in the "Kinematograph"). The materials, etc., required are: Convenience to wash the sheet or screen, four pounds of whiting, four pounds of good size, a couple of ounces of boiled linseed oil, half an ounce of alum, a brush, about an ounce of soft soap, and a pinch of ultramarine blue.

First mix the materials by soaking for an hour or more the whiting in sufficient water, after which time the surplus water may be poured away. Mix the ultramarine blue in a small quantity of water, and pour slowly into the whiting, meantime stirring it well. Melt the size, and add to it the boiled oil, then pour this in, also stirring well. Next dissolve the soft soap in boiling water and add this, and finally dissolve the alum in boiling water and pour that in. It must then be well stirred, and although at first the mixture will foam up it will soon settle down again.

Having washed the screen and well rinsed it in clear water it should be stretched on, say, a wall, and the mixture well brushed on with even strokes. It is necessary that this coating be done whilst the sheet is very slightly damp. When the screen thus prepared is dry, it will be found to be coated with a fine opaque surface, which will be sufficiently pliable to prevent cracking even when folded up.

New Books.

"Elementary Photo-Micrography," by Walter Bagshaw. Second Edition, 1909. 2s. 6d. net. (Iliffe and Sons, Limited, London.)

This very useful little work should be welcomed by those numerous amateurs who are desirous of attempting the production of photo-micrographs, either with the aid of a well-equipped microscope stand or without the aid of any stand at all. The author describes the use of the microscope as a magic lantern, to which purpose many never think of applying it. He also describes the method of fitting up a very simple photo-micrographic outfit before proceeding to deal with the use of the microscope proper. In describing the essentials of the microscope, he mentions as desirable features rackwork draw-tube, centring sub-stage with rack and pinion, and mechanical stage, all of which are no doubt desirable though we should hesitate to describe them as essentials except for very high-power work. They add considerably to the cost of the stand, and much good work can be done without them with moderate-power objectives. We think also that the author might have dealt more in detail with methods of obtaining good definition with ordinary objectives not corrected for photographic purposes. Compensating oculars are mentioned, but there are various simple expedients, such as the use of colour-screens, which the amateur would find useful when limited to the ordinary optical systems. We are glad to see that the writer recommends the use of an eyepiece. Most amateurs come to grief in their first attempts at photo-micrography through attempting to work without it, but it use greatly simplifies matters, especially in the hands of the beginner. The book is very clearly written, and contains numerous practical hints and a glossary that should be of considerable aid to the beginner.

AMATEUR PHOTOGRAPHIC COMPETITION.—The "Graphic" announces another of its amateur photographic competitions, which have met with great success and attracted much interest among amateur photographers the world over. The prizes offered are: First prize, £21; second prize, £10 10s.; and third prize, £5 5s. The competition closes on February 28, 1910.

CATALOGUES AND TRADE NOTICES.

BARGAINS AT LIME STREET.—The City Sale and Exchange, 54, Lime Street, London, E.C., have issued a list of second-hand and shop-soiled apparatus, which they are offering at greatly reduced prices. The items include a large number of hand, stand, and reflex cameras, enlarging lanterns and field glasses, all by well-known makers whose names are sufficient guarantee as to the reliability of the goods. The firm also state that any goods will be supplied either for cash or on the deferred payment system, and that customers' apparatus may be taken in exchange as part or full payment. Copies of the list can be obtained by sending a postcard to the City Sale and Exchange at the above address.

Meetings of Societies.**MEETINGS OF SOCIETIES FOR NEXT WEEK.**

SATURDAY, SEPTEMBER 18.

Borough Polytechnic Photographic Society. Outing to St Paul's Cray.
South London Photographic Society. Excursion to Hampstead Heath.
Kinning Park Co-operative Camera Club (Govan). Outing to Houston.
South Suburban Photographic Society. Excursion to London.

SUNDAY, SEPTEMBER 19.

United Stereoscopic Society. Outing to Surrey.

MONDAY, SEPTEMBER 20.

South London Photographic Society. "Models I have Photographed." P. R. Salmon, F.R.P.S.
Southampton Camera Club. Judging, by Members' Votes, of the Slides Produced in the Previous Competition and Projections of other Slides.

TUESDAY, SEPTEMBER 21.

Jackney Photographic Society. "Our Easter Trip." A. J. Linford. "Sports Day Pictures." Alec. Akerman.

WEDNESDAY, SEPTEMBER 22.

South Suburban Photographic Society. The Affiliation Prints (with Illustrated Lecture).

THURSDAY, SEPTEMBER 23.

Wandsworth Photographic Society. "Ensyna and Phosphate Printing Papers." J. Gough and A. A. Major.

THE ROYAL PHOTOGRAPHIC SOCIETY.

ORDINARY meeting held Tuesday, September 14. Though this was simply a meeting held for the election of new members, yet it had a special interest, owing to the fact that it was the first business meeting of the Society held in the new premises at 35, Russell Square. The President, Mr. J. C. S. Mummery, took the chair, and in a short speech informally bid the members welcome to their new abode. The formal opening of the new premises will, however, come later. During the evening some Autochrome slides were shown upon the screen by Messrs. Marriage, McIntosh, and others, while Mr. H. Armitage Sanders exhibited portraits of Dr. Cook and Commander Peary, of North Pole fame.

Commercial & Legal Intelligence.

A PHOTOGRAPHER'S "SIDE-LINE."—Louis Baga, photographer, Berne Bay, was charged at Canterbury, on September 11, for, on August 3, selling to another person the return half of a ticket to and from London, such ticket not being transferable, contrary to the by-laws of the South-Eastern and Chatham Railway Company. Defendant: I must plead guilty, not knowing I was doing wrong, as I thought I could get a few ha'pence. Mr. H. H. Groves, who appeared to prosecute, said this was a prosecution by the Railway Company under By-law VI., according to which defendant was liable for a first offence to a fine of £2, and for a second offence to a penalty not exceeding £5. The by-law in question was framed with a view to meeting circumstances prevalent in the case, which were that the defendant approached a lady and asked her if she was in want of a ticket to go to London. She was going to London, and purchased a ticket from defendant for 6d., being the return half not required by some passenger who had come down. In this instance the railway authorities learnt of the fact, and the lady was not allowed to travel with the ticket. It

was through her that they learnt about the defendant. At the instigation of the railway authorities, she purchased another ticket from the defendant, and they found that he was doing a regular trade in this sort of way. Defendant told the lady when he sold her the first ticket to London that he was able to obtain handfuls of them, and that if she did not purchase from him she would have to pay 5s. Therefore, contrary to what he stated, he was thoroughly conversant with what he was doing, and the railway company was being defrauded.

Defendant: This lady is a customer of mine. I had taken her photograph, and I happened to find the ticket on the beach. When I took her photograph she told me her husband was coming down. After finding the ticket I met her with her husband, and she said her husband was going back that day. I said "I have got a ticket," and I did not ask for any money. She gave me a shilling, and after going to the station she came back and gave me another 2d.

Did you give her the photographs in exchange for it?—Defendant: No.

The Chairman (Mr. F. H. Wilbee): Do you say that was the only transaction you have had with tickets?—Defendant: No, sir. I admit another transaction with the same lady.

The Chairman: Those are the only two?—Defendant: Three, your worship. This lady has said a handful of them, and I cannot help people coming to me. I have boat tickets (producing some), and others I find on the beach. People open their purses and lose their tickets. I have a sick wife and four children at home, your worships, and I have been fairly trapped into this.

The Chairman: Well, Baga, you have pleaded guilty to this charge, and some of the magistrates are rather afraid you have been in the habit of carrying on this trade for some time. As this is the first time you have been here, however, they will let you off with a nominal fine of 5s. and the costs, which are 18s. The money was paid by a friend of defendant's who was in Court.

A BOGUS CAMERA.—At the Westminster Police Court, on September 11, William Henry Robertson, 31, described as a chef, was charged, on remand, with obtaining money by false pretences.

At the first hearing three women, the wives of Chelsea workingmen, deposed to paying the prisoner small sums on deposit for photographs which he apparently took of members of their families or themselves. He called upon them with what purported to be a camera, and pretended to be able to take photographs of the inmates of the house while the machine was outside. He made a speciality of producing copies of photographs of aged persons taken many years ago, and also of babies. The prisoner did considerable business in Chelsea, but never delivered any photographs. A few days ago one of his victims accidentally encountered him at Fulham, and called a policeman.

A further charge of obtaining 13s. from Mr. Robert Sawyer, a Putney laundryman, had been preferred while the prisoner was under remand.

Amusing evidence was given by the prosecutor. He said that the prisoner called upon him at his laundry, where were employed some forty-five girls. He had what looked like a camera, and as he was "down at heel" and apparently anxious to earn a little commission, the witness showed him over the premises, and allowed him to take photographs. He ranged up the girls, and the prisoner walked up and down among them. The witness noticed that the prisoner did not take the cloth off his camera, and when he spoke to the prisoner about it, he said the camera got so hot that he could not remove the covering. He frequently turned a handle. As he said that prepayment would enable him to draw his commission at once, the witness gave him a cheque for 13s., and this was passed through the bank in due course. He (prosecutor) had reason to remember this cheque. When he drew it he wrote out another for £25 for Messrs. Lever Bros., of Port Sunlight, and did not fill in either counterfoil. Later, information reached him which induced him to stop the cheque he had given the prisoner, but instead of doing that he gave the number of the cheque drawn in favour of Lever Bros. (Laughter.) The prisoner gave him the address of a firm in Shaftesbury Avenue, and he (prosecutor) wasted four hours one afternoon trying to find it.

When arrested by Detective-Sergeant Davey at Wormwood Scrubbs Prison, the accused said others were in the affair besides himself, but he expected they would clear out now.

It was also stated by Mr. Sawyer that the prisoner obtained 7d. from a boy earning 5s. a week, by promising to send him some photographs on postcards. The prisoner, who had been previously convicted, asked to be dealt with, and was sentenced to twelve months' hard labour.

A SHARP SENTENCE.—At the Marlborough Street Police Court, on Friday last, Ralph Edgar Pavey, 19, a porter, living in Mercers Road, Tufnell Park, was charged with stealing, in November, two cameras, of the value of £6, belonging to his employers, Messrs Marion and Co., Soho Square.

The prisoner pleaded guilty, remarking that it was his first offence, and that he did not like his life spoilt by being sent to prison.

Mr. Mead (to the accused).—It is spoilt by committing a theft I regret to say that these offences by young persons are very frequent. It seems to be a general idea that the first offence can be met by an expression of sorrow. I cannot deal with this under the Probation of Offenders Act, because, if I did, instead of being a benefit, the Act would be most mischievous, because it would raise the presumption in the minds of persons like you that they could steal with impunity. You must go to prison for four months in the second division.

THE AFFAIRS OF A FOLKESTONE PHOTOGRAPHER.—The first meeting under the failure of William Tiddy, 60, Tontine Street, Folkestone, photographer, was held at Canterbury. The statement of affairs showed total unsecured liabilities £172 19s. 5d. and net assets £26 5s. 11d. Creditors of £10 and upwards were scheduled as follows: Brown, E., 112, Snargate Street, Dover, £15; Houghtons Ltd., 89, High Holborn, W.C., wholesale photographers, £10; Moodie, Thos., Bassenthwaite Lake, near Cockermonth, £12 3s. 2d.; Philp, Mrs., 30, Allendale Street, Folkestone, £10; Watts, Arthur Edward, 51, Guildhall Street, Folkestone, solicitor, £29 7s. 9d. It was decided to leave the matter in the hands of the Official Receiver.

At the public examination which followed the debtor stated that he started business as a photographer at Folkestone about eighteen years ago with a borrowed capital of £100. He carried on the business successfully until 1900, and repaid the loan. He kept books, but never made up a balance-sheet. Three years ago he found the business was going down, and he began to think he was insolvent, but he kept on in the hope of better times. He had been paying premiums on four life policies, the total amount he had paid being £500. He deposited the policies at the bank to secure an overdraft. The surrender value of the policies was £345; they would have turned out a good investment if he had been able to keep up the premiums. The furniture belonged to his wife under a deed of gift. He gave it to her when he was perfectly solvent. The examination was closed.

PEDLARS' LICENCES FOR PHOTOGRAPHIC CANVASSERS.—Two well-dressed men, named William Harvey Stringer and James William Johnson, hailing from Liverpool, were charged at the Northwich Police Court last week with acting as pedlars without having certificates.

P.C. Lodge stated that in consequence of complaints received from several tradespeople, himself and Sergeant Robinson kept the prisoners under observation. They followed them to several of the houses they had been to and found they had been selling frames and photographs at 4d. each. They asked them had they got certificates and they said: "No; they were not aware they wanted one."

The Magistrates' Clerk (Mr. C. E. Newell).—They do not require a licence to take photographs, but in this case they have been offering the frames for sale as well.

P.S. Robinson corroborated, and remarked that the photographers from whom they received complaints considered it very unfair competition. One photographer in the town did the photographs (produced) at 3d. a dozen, whilst the prisoners charged 4d. each with a small frame. The local photographers thought it an injustice that they should pay rates and taxes and then the prisoners come in opposition to them without paying for a licence.

Stringer said they were under the impression when they bought the camera last May that no licence was required. They had travelled about twenty large towns and had never been asked for a licence before. The frames they sold were necessary for the photographs.

Johnson said he was a married man with five children in Liverpool, and was it reasonable to think he would run the risk of being shut up for forty hours as he had been for the sake of a 5s. licence? He did not know one was required. He was working in Warrington Road for three hours on Saturday afternoon and took 19s., so he must have been pleasing the people.

The Clerk said a licence was required, but it would not be necessary if they took the photographs home to develop.

The Chairman said the prisoners had committed a breach of the Pedlars' Act, and they would be fined 5s. each.

Johnson: I assure you I will take a licence out as soon as I get back to Liverpool.

THE first meeting of creditors in the failure of Alfred Churcher, photographer, 41, Dorset Road, Clapham Road, S.E., and late of 252, Lambeth Road, Stockwell, will take place on the 21st inst. in the Bankruptcy Buildings, Carey Street, W.C. The public examination is fixed for the 27th prox. in the same place.

DISSOLUTION OF PARTNERSHIP.—The partnership between Mr. Frank Wilkins and Mr. S. G. Holyoake, photographers, of 2, Sydenham Road, Sydenham, trading as Wilkins and Holyoake, was dissolved on September 1. All debts due to and owing by the firm will be received and paid by S. G. Holyoake, who continues the business.

News and Notes.

THE MANCHESTER SCHOOL OF TECHNOLOGY.—The Photography and Printing Crafts Department of this school, under the able direction of Mr. C. W. Gamble, commences its work on Monday, September 20, and will continue until July 22, 1910, with vacations of two weeks at Christmas and one week each at Easter and Whitsuntide.

PHOTOGRAPHIC AWARDS AT THE WHITE CITY.—The following is the list: Professional and Commercial Section: Grand prize, Ca Hentschel, Langfier, Ltd.; diploma of honour, Mattype, Maya, John Swan, New Zealand Government: Gold medal, Miss Agnes Jennings, Miss Ellen Macnaghten, Wakefield, André and Sleight, Pa Laib. Club exhibits: Grand prize, Postal Camera Club, Wearside Photographic Circle; diploma of honour, Photographic Society Ireland, Glasgow and West Scotland Amateur Association, Bow Park Photographic Society; gold medal, Oxford Camera Club, South London Photographic Society, Society of Night Photographers.

PORTSMOUTH CAMERA CLUB.—The twenty-second annual exhibition of the Portsmouth Camera Club (formerly known as the Southsea Photographic Society) will be held at the South Parade Municipal Pier, Southsea, from October 6 to 13, inclusive. In the classes nine bronze plaques will be placed at the disposal of the judge, Mr. F. J. Mortimer, for award, together with a special prize of a silver vase for the exhibitor showing the best picture in class A—framed prints, any subject. Entry forms are now ready, and may be obtained, with full rules and conditions of entry, from the hon. secretary, Mr. James C. Thompson, 23, Elm Grove, Southsea.

MR. CHERRY KEARTON IN EAST AFRICA.—An interesting letter in the "Daily Graphic" of September 8 from Mr. Cherry Kearton shows that this well-known nature photographer is having some exciting experiences in the East African bush while photographing the numerous wild beasts at home. He has once been treed by a rhino whom he unwittingly disturbed in the middle of a nap, and one night immediately the flash-light went off a lion took a leap of twenty-five or thirty feet straight at the camera, and went off with the camera cover, the photographer himself fortunately being in a tree at the time. By dint of spending many weary nights in the purpose of manipulating the flash-light, Mr. Kearton succeeded in securing some fine pictures of the larger animals in the bush, but he describes it as work that is extremely fatiguing mentally and physically. We may expect some very valuable results from the enterprise of Mr. Kearton, whose skill in nature photography has been so fully proved in less adventurous fields.

Correspondence.

We do not undertake responsibility for the opinions expressed by our correspondents.

Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

THE QUALITY OF NEGATIVES.

To the Editors.

Gentlemen,—In reply to Mr. Turner's attack on fast plates, I am a special friend of the high speed which seizes opportunity, and I had a Norman knight to represent me. Speed of plate H. and D. backed, developed with sodinal, no bromide, and no weighing and measuring and bother about time and temperature; simply development. It enlarges up to about four times in height quite well smooth bromide, and is an absolutely ideal negative. I am an artist, as well as a member of the P.P. Association, caring little for means, but a great deal for the results.—Yours faithfully,
SYDNEY A. DRIVER.
September 13, 1909.

SEASIDE LIGHT.

To the Editors.

Gentlemen,—In "Photographic Scraps," No. 241, p. 72, it is stated by the writer that "the actinic value of seaside light is not likely to vary to any appreciable degree." Why "seaside" light should not be subject to the usual variations of the other brands of that commodity I am at a loss to understand. The matter may, perhaps, interest the makers of exposure meters.—Yours faithfully,
R. W. WICKS.
Brighton, September 9, 1909.

AN AUTOCHROME EXPERIENCE.

To the Editors.

Gentlemen,—I shall be glad if you will publish the following in the correspondence column of your next issue:—Can you explain the cause of the disappearance of the colour from the most perfect Autochrome portrait after it had been finished in the usual way, without any variation from Messrs. Lumière's instructions? It was developed with quinomet and reversed with acid potassium permanganate, and subsequently intensified with Messrs. Lumière's intensifier, fixed, washed, dried and varnished with vitriol varnish—a cover glass was attached with adhesive strips fixed with a hot iron. Shortly afterwards it was discovered the colours had entirely disappeared from the whole of the plate, with the exception of a very small portion adjacent to two edges; it looked exactly like an ordinary cold grey monochrome positive without the slightest indication of colour. On examination with a microscope, it was found that the starch grains were in no way injured, their colours being as brilliant as ever. The only visible change was that the background, which was dark green velvet, had a slightly brownish appearance. Another plate which was developed and completed at the same time has so far shown no sign of the same defect.—Yours faithfully,
WALTER BOURKE.
September 9, 1909.

We have never experienced any effect of the kind described, but possibly some of our readers have done so, and may be able to offer suggestions.—Eds. "B. J."]

TONING ROUGH PROOFS.

To the Editors.

Gentlemen,—I note in the column of "Answers to Correspondents" of September 10 a query by "Pyro" respecting the toning of rough proofs submitted to customers. I would make the suggestion that if "Pyro" would use a trace of celluloid varnish on the rough proofs before sending out, toning is prevented. My procedure is as follows: I give a touch with cork from varnish and smear over the face, etc., with the finger, the varnish being noticeable. Should toning then be tried a most disagreeable effect will be the result. It is an undoubted fact that a great number of rough proofs are returned by customers and taken to other photographers to tone.

In my own experience well-to-do people have brought me proofs by leading West End firms with the intimation that I should tone and finish them.—Yours truly,
GEO. MOSS.

Christchurch, Hants.

September 20, 1909.

Answers to Correspondents.

- * * All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- * * Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- * * Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
- * * For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

- W. H. Warburton, Harris Promenade, Douglas, Isle-of-Man. Two Photographs of Mr. Hall Caine.
- S. B. Reynolds, 8, Victoria Road, Brentwood, Essex. Two Photographs of the Fire at the Great Eastern Stores, Brentwood.
- W. Berry, 8, Row 100, South Quay, Great Yarmouth, Norfolk. Photograph of the Winterton No. 2 Life Boat and Crew, "Eleanor Brown." Photograph of the Ceremony on the Winterton Life Boat, "Eleanor Brown."
- A. Dungey, 100, Cambridge Road, Mile End, London, E. Photograph of Group taken at the Foresters Music Hall, September 9, 1909, consisting of Young Josephs, Sam Ives, Harry Chamberlain and Officials.

DRAWING REGISTERED:—

- G. Guthrie, 26, Panmure St., Brechin, N.B. Drawing adapted from old seal of the Duke of Montrose and Earl of Crawford in 1488 (while he held both titles).

TERRY HUNT.—If the man who gave you the order to take the photographs was the authorised agent of the firm you can sue it in the County Court of your district for any money that may remain due to you for work done. You are quite under a misapprehension with regard to the copyright in the pictures. That is vested in the firm whose agent gave the order to you to take the pictures. If it does not pay for them, it makes no difference, inasmuch as a debt for them has been incurred which is recoverable in a court of law.

MERCURY IODIDE INTENSIFIER.—I have some negatives that I intensified some two or three years ago with mercuric iodide. I followed the instructions, and after intensification gave them five to ten minutes in a developer. The light deposits on the negative have gone a yellowish green, rather similar to the colour obtained by toning a slide with iodide. The denser deposits do not appear much affected. I am told by a chemist that there is not much hope of putting them right now. I should be much obliged if you could let me know: first, the reason for the change; secondly, if there is any remedy.—D. H. HALL.

We cannot give the reason for the change, as the conditions of the image are so very complex. Neither can we suggest a remedy which will be certain. We should, however, be inclined to attempt the removal of all mercury compounds with a strong bath of potassium bichromate and hydrochloric acid, and after washing follow with a strong hydroquinone and caustic soda developer. Exposure to sunlight or to magnesium will probably be necessary to make this act. As an alternative, the effect of the developer might be tried first. If it fails, then try the bleaching and redevelopment process.

SOCIETY FOR PHOTOGRAPHIC ASSISTANTS.—A short time ago I thought I would join the National Union of Shop Assistants, Warehousemen, and Clerks, and with that object I applied to the local secretary, who, after my filling in a form, gave me a membership card, and I paid two separate fortnightly sums, viz. 1s. I then heard that the local secretary had heard from the head office re my application, but same must stand over until their organiser came into this district. He has now been, and during a chat

with him he told me I was not eligible; I was not engaged in the "distributive" trade, but employed by a "manufacturer" (a photographer). Of course, I could do no other than return my card, and they are going to return my contributions. It was rather a surprise to me. I should be obliged if you would tell me, through the columns of the "B. J.," if there is a society open to photographers' assistants (a "benefit" society, I mean). If so, could you give me address of same?—O. R.

We are not aware what the rules are of the society you mention, but it seems clear, for the reasons stated by the organiser, that you are ineligible for membership. It is clear that a photographic assistant is not really connected with a distributive trade—a shop assistant. There is no benefit society at the present time connected with photography. There was one once, but it died through its not being supported by those it was intended to benefit.

DISPUTED ACCOUNT.—I took six different positions of a motor-car for a gentleman ($\frac{1}{2}$ plates), and developed and finished all, and submitted them to my customer, who then ordered nine dozen all told, which I sent along when ready, enclosing my account at 6s. per dozen, in all £2 14s. I now have what I consider a rude reply from him, to the effect that my price is "silly," stating he will not pay such a price, and even suggesting the return of photos. I feel my price is very reasonable, and have replied to this effect, that I shall accept no rebate, as these were produced to his specific requirements, and are of no use to me in the ordinary way of trade. I should be obliged if you will kindly answer in your journal what I can best do with him, and your general opinion as to price.—WHITTLESEY.

What you will have to do is simply to sue the gentleman in the County Court for the sum due. The price you have charged is very moderate indeed. Many photographers would have charged him much more.

VARIOUS QUERIES.—Will you kindly give me a little help through the "B.J."? Last week an annual show was held at —, not far from here. I asked at the booking office, if I went in the grounds, could I take a few snapshots? As soon as I got in I came in touch with a party that were catering for refreshments. They wanted me to take their photograph. Seeing the secretary close by, I asked him if he had any objection. He threatened to turn me out of the grounds if I put my camera up. Of course, I did not earn sixpence all the day. About 1,500 people there, and no photographs taken. Was not that a public place after I paid my shilling? I call it fraud. 2. Can you tell me where I can get in touch with the following firms: Cinematograph film makers, Christmas postcards and designs? 3. What speed shutter, lens, and plates for taking a horse water-jumping? What kind of camera (hand) for same? 4. If I supply a man with a photograph, is he at liberty to take it to the local press? The Territorials had a field day, and I took a photograph of officers. I do not want it in the press, as it stops me selling them direct.—XIX.

In most such functions photography is not allowed unless permission is previously obtained, and then usually only by payment of a certain fee for the privilege. There is no fraud in the matter, as the place was not a public one. 2. Only by applying to the publishers of such subjects. 3. A reflex camera best for such work. The speed of the shutter must, of course, depend upon the light at the time. 4. Yes, certainly, unless you have registered the copyright in the pictures.

COLLOTYPE PROCESS.—I should be glad if you would kindly answer the following questions through your paper: 1. The names of one or two firms who make the machinery for colotype work. 2. Are there any books published dealing with the work? If so, please give names.—COLLOTYPE.

1. Try Penrose and Co., 109, Farringdon Road, E.C., or Griffin and Son, Kingsway, W.C. 2. There are many such books. Possibly "Practical Colotype," by W. W. Fithian, or "Photo-Mechanical Processes," by W. T. Wilkinson, will serve your purpose.

X-RAYS.—Having taken in your "B.J.P." for eight years and read it, will you kindly give me a little idea how to go about taking photographs with the aid of X-rays? A doctor of my acquaintance has all the ray apparatus and has invited me to make a

series of photographs for him. Will you let me know what to take in the way of plates and lenses?—BROOKLYN.

No lens is required at all. You had better obtain some special X-ray plates, but we fear you will not get much in the way of results at your first attempts. You had better study "Practical Radiography," by A. W. Isenthal and H. Snowden Ward for details of working.

WAGES IN LIEU OF NOTICE.—Will you kindly inform me in your next issue if an assistant can give his master a week's wages (as he is paid weekly) in lieu of a week's notice to leave?—DEVONSHIRE.

Yes, if he was engaged as weekly servant. But if he was engaged for a given term he cannot, though he may be paid weekly.

P.O.P.—Will you kindly let me know of a place in London where I can learn to mix emulsions, coat, and finish printing out paper, known as P.O.P., as used by photographers, and much obliged?—J. J. FORSYTH.

There is no such place in London that we are aware of. Manufacturers of the commercial papers naturally keep their formulae and methods of working to themselves. However, if you refer to page 799 of the "Almanac" you will find formulæ for P.O.P. if you wish to make your own, though we fancy you will find it more economical to buy it than to make it. We do not refer to correspondents by post.

THE AFFILIATION.—The annual gathering of members of affiliated societies will take place at the New Gallery, 121, Regent Street, W. (by the courtesy of the Royal Photographic Society), Friday evening, September 24, at 7 p.m. The chairman of the Executive Committee (Mr. P. Bale Rider) will give a brief address on the work of the affiliation at 8 o'clock, in the North Room, and will present the plaques and certificates awarded in the recent slide competition. The 1909 set of competition slides will be shown during the evening. Admission to the New Gallery will be granted on presentation of the "Red Book," and the half-price tickets contained therein will be available for members' friends.

HACKNEY PHOTOGRAPHIC SOCIETY.—The annual exhibition of the society will be held at the King's Hall, Hackney Baths, from November 10 to 13, inclusive. There are five open classes, one of which is specially devoted to colour photography—prints or transparencies by any photographic process—and in all of these the awards take the form of silver and bronze medals, with a special award of a gold medal for the best picture sent in. The judges will be in the hands of Mr. F. J. Mortimer. Entry forms, together with the necessary entrance fees, must reach the hon. sec., Walter Selfe, 24, Pembury Road, Clapton, London, N.E., on or before October 12, and exhibits must be delivered, carriage paid to the Hackney Baths between November 5 and 8. It is stated that exhibits will be collected from the R.P.S. and Salon exhibitions without additional charge on receipt of the signed official receipt, and free carriage is also offered for exhibits entered for the Southampton exhibition (November 23 to 26). Further particulars together with entry forms, may be obtained on application to Walter Selfe, 24, Pembury Road, Clapton, N.E.

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SUMMARY.

The Royal Photographic Society's Exhibition.—In the pictorial section the artistic level of the work is higher than it has yet been, a condition which naturally prevents any particular work from standing out pre-eminently. Amongst the prints in colour, however, there is one, an oil print, which marks the highest achievement so far in the direction of pure realism. As a whole the exhibition may safely be said to have benefited by the impetus given to pictorial photography by the oil and bromoil printing processes. The hanging of the works is this year more upon the lines of decorative spacing and balancing, the walls being divided into groups and panels which assist materially in localising and memorising the position of prints. Light frames and passe-partout mounting are very generally adopted, the walls gaining in lightness and attractiveness by the absence of the sombre wooden frames of past days. Picture sales commenced at the private view, at which the general consensus of opinion was that the show surpassed those of recent years in interest. (P. 738.)

An analysis of the printing processes used in the pictorial section shows that oil and bromoil are in a considerable majority. (P. 745.)

Photographs of the selecting and hanging committees in the pictorial, technical, and colour sections are given. (Pages 739, 740, and 741.)

Velarium. (P. 754.)

In the technical section the chief support has been obtained from many photographers of natural history subjects, including a collection exhibit by members of the Zoological Club. Among the general scientific exhibits spectroscopy, radiography, astronomy, and photographic work are very adequately represented. (P. 746.)

Colour photography on paper shows up very badly. The Autochrome section contains a good deal of very interesting work, including one Autochrome of an express train taken in 1-25th of a second. (P. 747.)

The fine work of Crooke dominates the professional photography section, which is this year of greater interest than usual. One notable point is the oil print pigmented for professional purposes. (P. 748.)

Among the process exhibits the first example to be shown of the dry-plate method of photographing direct on to the metal plate will be found in the north gallery. These include proof of a half-tone portrait made direct from life on to the block. (P. 747.)

The trade exhibits include the apparatus and materials of a considerable number of leading firms. (P. 749.)

Some lectures which will NOT be delivered at the New Gallery during the present exhibition are published without admission of responsibility. (P. 753.)

The announcement is made in several of our German contemporaries of the combination of the chief camera manufacturing firms in Germany. (Page 737.)

Some of the points which require to be borne in mind in making spectroscopic photographs of near objects are mentioned in an editorial article. (P. 738.)

owing to great pressure upon our space many articles, reviews, and paragraphs are held over.

EX CATHEDRA.

An Amalgamation of German Camera Makers.—The announcement is made in several of our German contemporaries of the amalgamation of the largest camera manufacturing firms in Germany which has just been concluded. Those who have just entered into this combination are the firms of Hüttig and Sohn, of Heinrich Ernemann, and of Emil Wünsche and Co., all of Dresden, the firm of Dr. R. Krügener, of Frankfort, and the camera department of Carl Zeiss, Jena. In the new form which this combination of interests will take, the business will be conducted with a capital of 4,000,000 marks. It is anticipated that a step of this kind, in which the largest camera makers are brought into intimate association with one of the most eminent optical houses, is certain to be of great importance, not only to the home market, but still more in the maintenance and expansion of German trade in photographic apparatus in foreign markets. The step is one which is evidently taken with the object of meeting foreign competition.

* * *

Removing Prints from their Mounts.—A writer in the *Evening Standard and St. James's Gazette* suggests a method of removing prints from their mounts which is, to say the least, risky. Briefly, the instructions are to first soak in very hot water, then bend back the card until it leaves the print. The latter is then pressed between blotting paper until nearly dry, when it is cleaned from all traces of gum or mucilage. After this, it is again pressed and left between the blotting boards until quite dry. No doubt this method would work well with albumen or collodion prints, but with gelatine the results would certainly be disastrous, unless the film had previously been rendered insoluble by treatment with formalin. This hardening process could not, however, very well be conducted on the mounted print without affecting the mountant, and if this happened to be gelatine or gum, then the mountant would become as insoluble as the film. Our experience is that it is no easy matter to unmount a print on a gelatine paper, but the most promising method is to soak well in cold water, then lay print face down on a piece of glass and rub away the mount from the print with the finger-tips. Much care and patience is needed, and the print generally requires frequent re-soakings.

* * *

Photography at the North Pole.—The controversy raging over the discovery of the North Pole has drawn attention to the difficulty of any explorer proving that he has actually visited it. Some, who have evidently not given much thought to the problem, have suggested that the only convincing proof would be a photograph of the stars as seen in a camera placed with the lens pointing vertically upwards. No doubt such a photo-

graph would be very convincing, but it is not likely to be forthcoming, for the simple reason that the stars are invisible even to the camera at mid-day in the summer time, which is the period during which both explorers claim to have reached the Pole. If photographic evidence is produced at all, it will most likely consist of photographs of the sun, but even these will probably not be of much value unless they have been produced in a photo-theodolite which will record the horizon at the same time.

STEREOSCOPY WITH NEAR OBJECTS.

SOME writers in our contemporary, the "Photo Revue," are discussing the old question of the advantages and disadvantages of using converging lenses when making stereoscopic negatives of near objects. Nearly all the earlier workers used this method, and they usually employed a single camera, which was traversed from one position to the other on an arc of a circle, the centre of which was situated at the subject. Their object was the centring of each view on its own plate, but they omitted to note, as do many modern advocates of the same method, that as the swinging of the camera round the arc set the two plates at an angle with each other, it was therefore essential that the two views of the finished stereoscopic slide should also be set at an angle. If the two prints are to be mounted on one plane slide, as is usual, it is absolutely necessary that the plates upon which the negatives are made should also be in one plane.

There is, however, another point to note. It is in most cases quite correct and very advisable to carefully centre the views on each plate, and when using the ordinary single plate camera the adjustable front is employed for this very purpose, but this centring process makes no difference in the ultimate mounting separation or in the trimming required when the object is very near. It does make a difference in the trimming in the case of distant objects, for with these we can use a wide mounting separation and utilise every portion of the negative, but with very near objects we can never in any case utilise the whole of the negative because the mounting separation is too small to allow of it. Subjects such as flower studies are generally taken so near that the mounting separation for a prismatic stereoscope, if worked out by the rules given in the "Almanac," often comes to two and a quarter

inches or less. That is, it is an inch less than that required in the case of more ordinary subjects, and therefore the prints have to be an inch less in width. It will be smaller than this if the lens separation in the camera is much over two inches, and if we remember this point it is obvious that the converging lens idea has no merits whatever. The old workers used it because, with its aid, they could work at a very wide lens separation. They did not, however, understand that this involved a very small mounting separation, and as a consequence their slides often show most alarming distortion. The old daguerre type slides were often made in a single camera, moved so as to keep the lens axis directly on the object, and it was often moved so far as to render the correct mounting separation very minute. We have tried to remount some of these old slides correctly, and have found it quite impossible, as in some cases the two pictures should occupy the same position (or be mounted with a zero separation) to get rid of the distortion.

There is yet another fallacy with regard to the convergence of the lens axes. It has been argued that as the eye axes converge on to the subject the lens axes ought to do so as well, even in a single plate camera, but whether they do or not the images will be exactly the same, and the final slides will not differ in any way. This should be obvious to anyone acquainted with the elementary optics of lenses, and it is surprising to see the fallacy with regard to convergence so often repeated.

We fear that modern workers are just as loth to consider the matter of mounting separation as were their ancestors. Anyone who doubts the importance of correct mounting should make the following experiment: Select some small object of such a nature as to readily reveal any distortion of form. Make a stereoscopic negative of it on a scale of nearly full size, then mount one pair of prints with a separation of about $3\frac{1}{4}$ inches, and another pair with the correct calculated separation. Comparison of the two slides in the stereoscope will at once show the defects peculiar to wrong mounting separation. We may point out that as the correct separation may work out to only two inches an object must be selected that is less than two inches in width, otherwise some of the images may have to be cut away in trimming. Stereoscopy, being largely used at the present time for the photographing of near objects, but we regret to say that correctly mounted slides are extremely rare, and as a consequence correct representations of the near objects are rare also.

THE ROYAL PHOTOGRAPHIC SOCIETY'S EXHIBITION.

WITH the opening of the Royal Photographic Society's exhibition yesterday the selecting committees may rest from their labours and congratulate themselves that in every section, with the exception, perhaps, of that of the colour prints, there has been brought together a remarkably fine collection. The pictorial section is quite distinctly an advance upon last year's, whilst the fostering care which has been given to the technical section has borne fruit in the greater interest of the exhibits. Process, too, particularly in the case of the method of making half-tones direct on the metal plate by the process of Mr. Arthur Payne, once again takes a prominent place in the exhibition, whilst progress in photographic manufacture is very fully

represented in the trade sections. Professional photography, as in previous years, gains somewhat scant representation in the New Gallery.

In reviewing the exhibition we shall, as in previous years, arrange our notices in the order in which the visitor most usually makes a tour of the New Gallery.

Pictorial section, West Room.

Technical and colour section, Gallery and North Room.

Process Exhibits.

Professional work, South Room.

Trade exhibits, Court and North Room.

THE PICTORIAL SECTION.

It will be generally agreed that this is an extraordinarily good display of pictures. This fact, in conjunction with the

other fact that its selecting committee was composed of men, with two exceptions, will not unnaturally lead to the con-

lusion that the altered conditions of selection have resulted in the better show. Prima facie this is sound argument enough; but it is not necessarily the whole explanation of affairs. It must not be forgotten that the standard and style of work at the R.P.S. has been rising and developing steadily for many years past. It is to-day quite an international show, and no longer a kind of pick from the work of the London and provincial photographic clubs. For our own part, we have not a jot more confidence in the artistic judgment of the present committee than we had in the last, a little less if anything; and we are convinced that, by reason of the still further development of printing processes, the spreading interests of the society, the increased number of works submitted, and the smaller amount

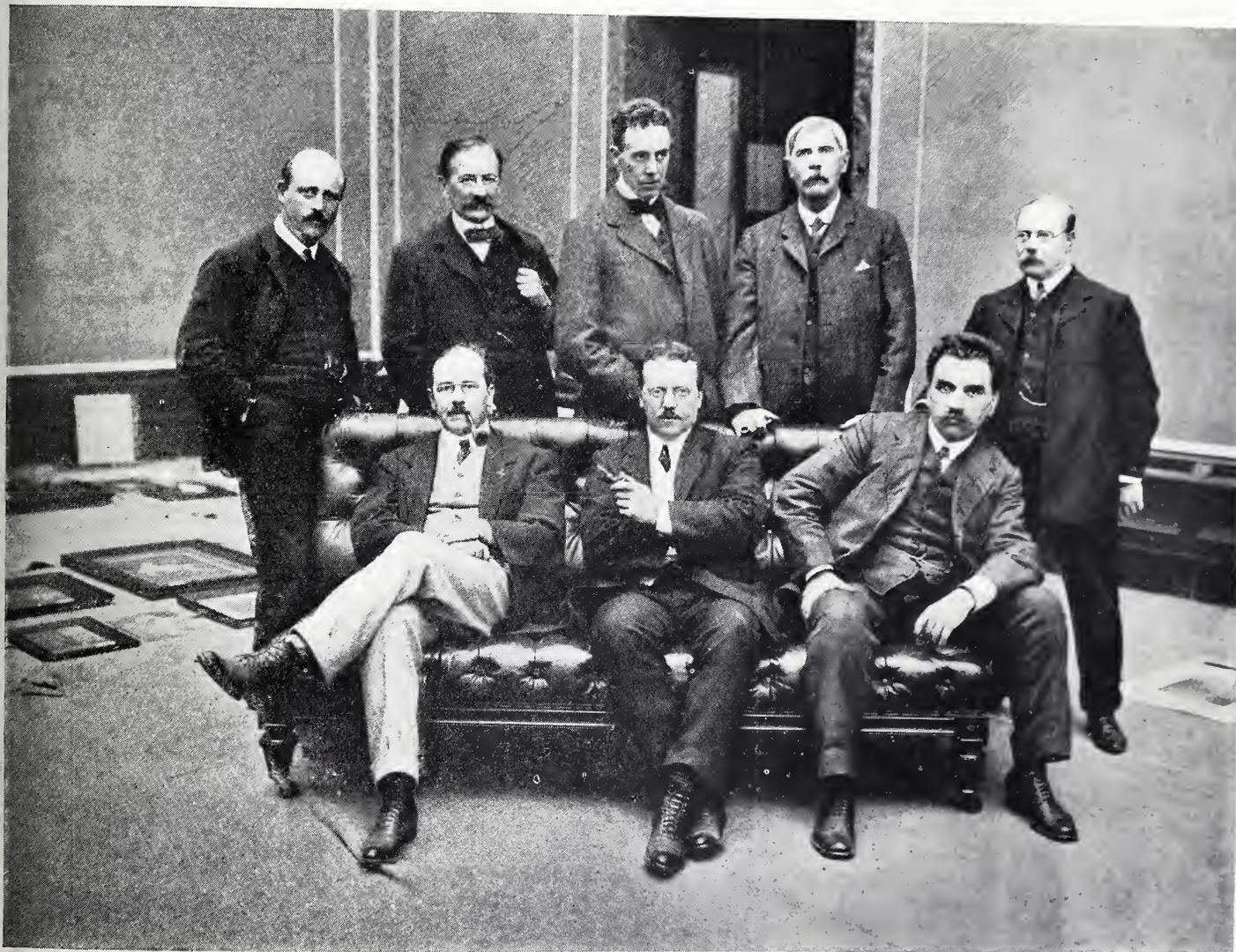
room, and has a distinctly depressing effect by reason of its curtailment of space, light, and air.

Amongst the pictures, oil prints and bromoils figure very largely, and there can be no doubt that this fascinating process is proving a fresh incentive to good pictorial work.

In order that our readers may locate the prints to which we are referring we shall paragraph this notice in accordance with the panelling of the walls, as we did in our review last year.

East Wall, Right-Hand Division.

No. 1 is called "A man of cheerful yesterdays and confident to-morrows." The title is suggested and borne out by a good-humoured expression in the face of the sitter, but such parts



THE PICTORIAL SELECTING COMMITTEE OF THE ROYAL PHOTOGRAPHIC SOCIETY.

[Hana Studios, Ltd.]

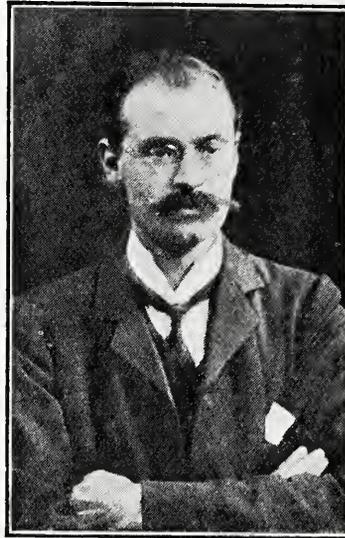
Reading from left to right the names are as follows: (standing) E. T. Holding, A. H. Blake, F. T. Hollyer, Harold Holcroft, J. McIntosh (Secretary); (seated) Arthur Marshall, F. J. Mortimer, C. F. Inston.

an usual selected, it is unlikely that an even less capable committee could have made a selection much different from the one we are about to review. Where the new committee have particularly asserted themselves is in the matter of gallery decoration, and here it is quite a question as to whether their alterations are improvements or not. Their white tape is a good deal more staring than the old "styles" which broke the walls into panels, and the velarium is a luxury which we feel ought to enjoy, though we cannot precisely see its advantages, as here arranged. The velarium of a picture gallery is designed to shade the spectator's eyes effectually whilst it concentrates light upon the pictures; but this complete roofing of the web does but diminish the illumination of the gallery without affording a rest to the eye by extra shade in the middle of the room. Moreover, it dwarfs the noble proportions of the

of the print as are not black have an unpleasant stony texture. The collar is particularly bad in this respect. The print is by John Moffat, who, we think, ought to have more regard for the general roundness of a sitter's head. C. H. Hewitt is one of the few control-printers who are not too proud to preserve detail, which in the interesting picture of "Bickleigh Bridge, Devon" (2) is one of the chief delights of a fine print. Another bridge at closer quarters is shown in "An Ancient Waterway" (3), by J. C. Nunn. This, too, is a print of excellent quality and great pictorial interest. A bromide print called "In the City" (4), by Peter Orr, gives an extremely dignified view of a street in a large town. The centre house of white stone introduces a light passage among the dark houses, and connects with the sky in a happy way, and the classic portal on the right comes in with good design. "Peonies" (5) is a superb

flower piece, by M. A. Smart, combining the utmost realism with decorative effect. Louis Fleckenstein sends a photograph of "The Life Class" (6). There appears to be a small attendance. Only two students are visible, and one of them is in the foreground, whilst the model, as though she and Mr. Fleckenstein himself were both ashamed of the whole proceedings, is far removed into a distant corner. The most uninteresting elements of this view are those which are given in largest scale and greatest force of tone. We think Mr. Fleckenstein has missed a good opportunity. A Thibaudeau

a boat drawn up on a beach and some boys, not free from self-consciousness, and all at a back view, employed variously in what are supposed to be repairs. The print has a good design, but errs a little on the side of all-overishness. It is by T. Carter. The mediæval cut of the hair of a "Choir Boy" (10) gives the picture of a little fellow in a surplice and holding a book a decided extra interest. The lighting is charming. Dr. E. G. Booia has, we think, let his pretty picture of a girl talking to a bird on her wrist suffer from too much laxity of focus in the distance. The figure seems to be lost amongst the



SELECTING COMMITTEE IN THE TECHNICAL AND SCIENTIFIC SECTIONS.

Upper Row—C. Thurstan Holland, F. Cheshire, Douglas English, and W. Farren.
Lower Row—C. E. Kenneth Mees, A. J. Newton, and Major General Waterhouse.

shows a large head of a handsome, robust girl, named "Cleo" (7), which is very flat in treatment and almost in a single tone, but yet gains solidity and rotundity at a little distance.

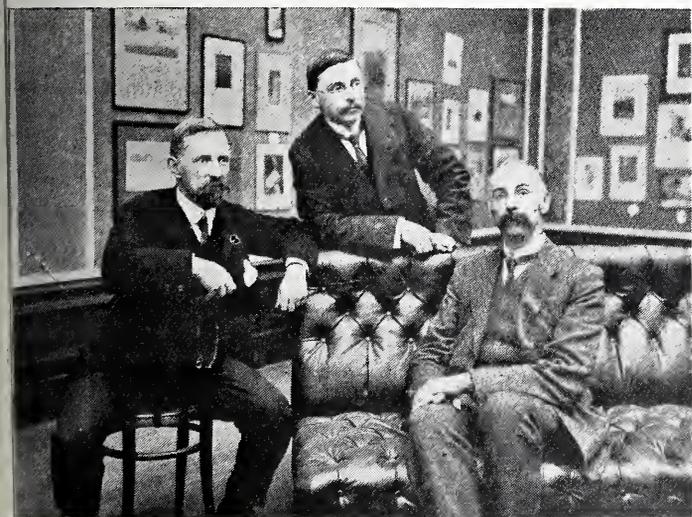
We suppose that W. L. F. Wastell quite knew what he was about when he placed his Trafalgar Square fountain in the centre of his print. There are certain interests of light on the extreme right and left hand sides which he perhaps did not wish to sacrifice. He has very successfully secured an effect which must have charmed us all at different times, namely, the light in the spray and its reflection in the water below, backed against what is, by contrast, a misty darkness. He calls it "Ripples and Spray" (8). "Repairs" (9) depicts

blur of disquieting surroundings, but there is fine quality in his picture of "My Neighbour's Pergola" (11). Another missed opportunity shows in "The White Swan" (12) by H. W. Batley. The glory of a swan is largely its whiteness, but in this print the very full middle tones discount that particular charm, although the spread of the wing and the grace of the neck could scarcely be better. The water is characterless—that that matters much—but another choice of view might have helped matters of contrast. We do not like to see the water go out at the top of the picture without a finish. There is a deal of dignity and splendid composition in "The Pillars of St. Mark" (13), by John M. Knapp. The two loafing figures

the right-hand side are an excellent foil in the sentiment as well as in the making of the picture.

South Wall, Left Panel.

In "The Viaduct" (14) Harry Wild gives us another of his effective mountainous landscapes. The viaduct itself is a good motive, but we miss the more romantic theme of crucifix or castle, such as particularise his subjects at the Salon. William Davenport has chosen his view of "St. Nicholas, Amsterdam" (15) with most precise ideas as to symmetry. The effect is not bad when one recognises it, but at first glance it is a little wearying to find commonplace objects ranging themselves in such symmetry. We think the sky should have been lighter behind the dome and tower, and we believe he has overstepped the mark when he makes clouds take a pair of dome shapes on each side of the central architectural dome. G. P. Higgins gives us two nice orderly portraits, showing nothing out of the way, of "William Roberts, Esq." (16) and "Miss Cochran" (17): There are also a pair of John M. Whitehead's effective landscapes, "Lown Waters" (17) and "In the Lough Hills" (18). They are both quite different in mood and above his



SELECTING COMMITTEE IN THE COLOUR PHOTOGRAPHY SECTION. From right to left—James A. Sinclair, F. Martin-Duncan, and Ernest Marriage.

average, which is saying a good deal, and it is difficult to make a preference. "The Cornfield" (18), by Gideon Clark, is fine in its tones, and we cannot say we admire its composition. Neither is there much composition to boast of in W. C. S. Egusson's "Holly Tree" (19). H. Essenhigh Corke shows the extremely attractive head and shoulders of "Miss E. W. S." (20). His print is very low in tone. In "The Silent Pool" (21) we have the never-failing attraction to photographers of reflections of trees shown at great length and with more regard than the originals which cause them. Such a print as this may be thought to be decorative in a certain way by some people, but it is curious landscape art after all.

South Wall, Central Panel.

John Dunlop very dramatically presents a "Thames Tug" (22) under the most awful conditions of weather due to "contrast" of some sort or another. When we come to George W. Mer's "Wood Magic" (25) we are face to face with an old-fashioned subject, singled out by old-fashioned ideas, of what is beautiful in nature and art without any obtrusive "decorative" quality or without unduly forced effect of lighting or colour. This is simply an honest selection by a man who has his own innate ideas of what he likes, and in our opinion it is one of the nicest landscapes in this exhibition. It depicts a trees and bracken with a misty distance—commonplace

subject enough, and photographed thousands of times; but it does not pall as do Dutch canals, Dutch bridges, reflections of things we cannot see, and other photographic resources of that kind. "St. James Street, Lincoln" (26) is a rather hot bromoil print by Bertram Cox. Judging from the way the light falls on the tower and on the road, the full-faced lighting of the chief object has been falsified in the pigmenting. There is no harm in enhancing an effect when printing with control, but we think one should keep a consistency in the natural phenomenon of a view. As it is, Mr. Cox might have given a little less light to the gable and a little more to the tower. "The Old Jetty" (27), a toned bromide, is unwarrantably low in tone, although the subject is one of brilliant sunshine. It is a very picturesque selection where some dark figures give the necessary accent. "A Gleam of Sunshine" (29) falls upon pillars and a curtain wall in a cathedral in a most effective print by S. G. Kimber. Mrs. Hester Perry has been highly successful in the rolling mists that come down a valley in "The Kingdom of Kerry" (31). The tone values, lighting, recession of planes, and general feeling are all excellent in this successful print. F. J. Mortimer, F.R.P.S., who is always on the look-out for new ideas, has done extremely well in his "Landscape in Holland" (32), where a low horizon, unbroken except by a distant elm, yet justifies an upright picture by an inclusion of two almost branchless tree trunks and of a fine big cumulus cloud. We think this is the success of Mr. Mortimer's year. An ox cart, which is being loaded by a man and a woman, both extremely well posed, is the subject of the "Hillside Harvest" (33), by Alex. Keighley. If only this picture had more force and more effect it would be a work of high order. Sydney J. Tayler sends a very good mountainous scene called "Above Wastwater" (35), where the clouds have their relative brightness correctly given. This is a bromide. Next it hangs a bromoil. The difference in process is obvious without reference to the catalogue, for in "The Church in the Vale" (36), by C. David Kay, we find the proper relative tones of things all gone to pieces in the printing control. In other respects this is a picture which has good pictorial parts. We fear Mr. Kay has a little to learn in portraiture also, since in his portrait of "Miss G." (38) he has not shown his sitter off to the best advantage by making a pictorial motive of her sterno-mastoid muscles, while her face is turned away in darkness, and has an irritating passage of light in the background against its dark contour. We have a fault to find with Dr. E. G. Boon for allowing his very pretty little photograph of girls "Arranging the Flowers" (37) to share the absolute stony quality of the steps upon which they sit and the balustrade beside them. Louis Fleckenstein's "Mother and Babe" (39) is very much a reminiscence of similar subjects of recent exhibition, particularly those of Dührkoop, and we do not think he gains anything by the "rottenness" in the texture of his print. A very successfully worked bromide print is "The Cathedral of St. Ouen" (40), by T. Arnold Bennett. It is highly picturesque in subject and the pavement is right in tone, a rare occurrence. "Summer" (41), by E. T. Holding, gives us a charming damsel with her hand upon the latch of a door as she enters a cottage. The dimly reflected light from the walls near her is beautifully rendered. So are the objects upon the table to the left, only we think these are redundant in the picture, and we should prefer the doorway and the piece of wall to stand, all sufficiently, by themselves, letting the window and the table loaded with objects go by the board.

South Wall, Right Panel.

"Water Lilies" (42), by A. B. Webb, is a quite legitimately decorative piece in the Japanese style. The dainty arrangement of the single blossom is highly effective. There is more strength than usual in J. M. Whitehead's "Moorland Mist"

(43). The white clothed figures of T. Lee Syms appear again in "Her Great Grandmama" (44) with good effect. We really prefer this picture to most of those that he has given us on previous occasions. It is a highly effective group of mother and daughter, the child making beautiful lines. As an example of what pictorial qualities may be gained from a snapshot, the "Pedlar Woman" (45), by R. S. Kauffman, is highly interesting. She is full of character, even to her left foot with its toe turned in in the physical effort of the ascent of a hill. The trees on the left come well. A. K. Dannatt's "Portrait Study" (46) depicts a lady at a spinet. The poise of the head and the artistic management of the hands are its chief charms. "Heimkehr" (47) is a group of fishing boats returning at evening. The relative tones of water, sky, and boats has been most jealously preserved, with the result that the simple little motive makes an excellent picture, the work of Rudolf Kölmen. "Peter" (48) is a little chap of about two years old sitting by himself on a stony bank. The little figure is beautifully lit, and we congratulate Miss G. Back upon his appearance in this collection. "Stephen" (49) is an older boy in a large hat. This is by G. W. Miller, and is a little more ordinary, though effective enough. A. B. Webb has struck a new idea in his delicately toned three-quarter figure of a lady in sunlight, which he calls "A Summer Fantasia" (50). He has secured an excellent effect in his background, which consists of a wall on which tree shadows are playing. In "A Flower" (51) Bertram Park has far surpassed his other efforts. We think the left hand is unfortunately posed, but the print as a whole has richness and quality.

West Wall, First Panel.

Sky and sea are too dull in W. L. Crossley's "A Corner of the Harbour" (52), which wants more effect. In contrast with this we may look ahead to Mr. Mortimer's shipping subject, "Look out for Squalls" (63). If Mr. Crossley will glance at this he will see that the whole pictorial success of the subject lies in the breadth of light obtained by a cumulus cloud, which relieves the rigging and figures. Another "effect" of a different nature can be seen in John Moffat's "Proclamation at the Mercat Cross" (67), where a shaft of light coming diagonally across the picture is the making of an otherwise very gloomy view, crowded with figures and full of incident and interest; but its dignified breadth is due entirely to the massing of simple light and shade. Going back to 53, "Old House, Dinant," we see that George Hilderley is also wanting in effect in company with Mr. Crossley. Old houses by themselves will not make a picture, even with the introduction of a figure, especially if this figure is a rather uninteresting back view devoid of detail. Mr. Hilderley's darks are all of equal density wherever they occur. In F. E. Huson's "Oatfield" (54) there is a much more artistic counterchange of dark and light objects, one against the other. A dark stack to the right and some light standing grain to the left have been of the utmost service in picture-making in this instance. "The Sower" (55), by A. W. Hill, recalls a class of subject made popular by Millet's great picture of that name, but it is a pity that Mr. Hill did not take more lessons from Millet's masterpiece. He would then have given more importance to the head of his figure and not lost the lower part against a field too dark in tone.

"The Trail of the Frost" (56) is still another of those intensely photographic subjects which are all foreground and no sky. Still, we cannot quarrel with a picture so delicate and silvery in its contrasted tones. The photographer is Walter A. Scott. "An Awakening" (57) is by Miss E. L. Willis. Why she entitles it thus we cannot conceive. It represents a very fuzzy woodland scene through which the sun rays slant. It calls for no special remark. There is almost too much material in W. C. S. Fergusson's "Morning Shadows" (58), and for a morning view we feel that his sky is much too

dark near the top of the picture. The head of a lady who is holding a circular mirror close to her face so as to reflect her profile, is called "The Moon Goddess" (59), by Miss Emily Pitchford. We fail to see how she can be identified with Diana, but it is a fine head well placed in the picture, and the circular mirror is a novelty, and that is a desideratum in photographic work in these days. Dr. A. R. F. Evershed has sent better things here than he has to the Salon. In "The Edge of the Wood" (62) he has secured a fine quality. Even better still is the quality of the print he calls "The White Hull" (76), which shows the prow of a vessel lying in still water and dark wharves beyond. A dress of the sixties is the subject of C. D. Kay's "Costume Portrait" (64); the head is rather hard in treatment. There are two little girl subject hanging side by side which are of interest. The first is "Miss Mischief" (65), by Mrs. K. Haenel. Here the little girl with bare legs sits upon a chair and appears to be suffering from maternal repression. In the next a little girl stands reading a book which supplies the title "A Fairy Tale" (66). In this Miss W. H. Prout has achieved a decorative effect by obliterating the background and providing a slight shade for the figure to stand upon. The few shadows that remain suggest the effect of bas-relief rather than that the child is standing in free air.

"Flowers for the House" (68) gives us again the steps and balustrade which Dr. Boon used with better effect in the picture we have already dealt with. In the present case there is but one girl upon the steps. This print has the same defect as the other—a want of differing textures. We do not care much for B. F. Eilers's "In Restless Water" (69). The subject is not subject enough in it for a picture, and the oil process has not in this case imparted any extra interest. A small nude figure is used with a good deal of success in a rocky view entitled "By the Waterfall" (71), by C. O. Freytag. It suffers a little from want of simplification. Anybody in ignorance of the meaning of the term "Strubley Head" (70) may perhaps get an explanation by studying W. D. Brodhun's head and shoulders of a child under this curious title. The treatment of the hair is highly successful, and the child's profile is sweet and engaging. "At the Stile" (73) is a village idyll, by C. Plenderleith, with an uninteresting foreground. O. E. Wilms sends a head and shoulders of a dark woman, which he calls "Minneha'ha" (74). We think the line of shoulder and arm that runs down to the right-hand corner is a little regrettable. A. H. Lisett has procured from somewhere a most curious head-dress for his figure entitled "The Pendant" (75). This alone is sufficient warrant for a safe entry into a photographic exhibition. He still further gains on the side of peculiarity making his sitter hold up two fingers from which are stretched the pendant and chain. The whole thing is as queer as it can be, but it is quite good from a technical point of view and unusually nice in quality.

West Wall, Second Panel.

Mrs. K. Haenel has two views of a pleasing model, which she calls respectively "In Granny's Time" (78) and "Roses" (80). We prefer the former, which is prettily posed. A very choice piece of still life comes from W. A. Stewart, comprising some roses in an antique glass, which are reflected in "The White Mirror" (79). The centre of this panel is occupied by what is called "A Japanese Landscape" (80). So far as we can see through the reflections of the velarium in the glass and the flat, faint, stencil forms of the print, it represents a bridge going in one direction and a branch in another. We believe the Japs have better ideas of composition than this, and we do not feel that the result is either decorative or pictorial in the proper sense of the words. The bugbear of decorative arrangement is carried to the utmost point in Dr. Boon's "Pot-pourri" (81). He has placed his figure in the middle

f a couch which faces us in horizontal lines. The lady's dress is fanned out in a purely symmetrical way. We are only surprised that the head has been allowed to turn out of the straightforward aspect.

West Wall, Third Panel.

"Homeward at Evening" (85), by T. B. Blow, stands out as a picture, in which the true sunlight effect has been allowed full play in a practically straight print. This light envelops the landscape and falls with excellent pictorial effect upon the figures of two native women, the left-hand one of which is perfectly classic in her grace of pose, her handsome face, and her picturesque clothing. We can only wish that a little of the print had been trimmed off on the left-hand side, as the figures, as they stand, are not quite pleasantly placed on the paper. There is a little stodginess in the dark tones of Mary Taylor's pretty subject, "The Gold Fish" (86). Those of our readers who have ever suffered at the hands of the critic, C. Tilney, may now indulge in recriminations, since he appears this year as a photographer, stepping into the arena with two costume subjects. The first is "His Eminence" (88), a figure with an eye to pierce plots, and the "Painter's Model" (89), who represents a man-at-arms in the time of Maximilian. The model has the brutal type proper to this class of man, and is furnished with fire tongs in lieu of a sword. Such an extemporised weapon would unfortunately be useless in the case of a photographer's model. "Helen" (89), by H. W. Finns, is a charming little print of a little girl, whose innocence and wistfulness are quite captivating. We now come to a pair of portraits by Furley Lewis, which we think surpass anything that he has in his own show in the professional room. That of "Childe Poccock, Esq." (90) has splendid animation and movement, whilst "Horace Mummery, Esq." (91) gives the man to the life with his somewhat troubled abstraction. Another pair a little further on are equally striking and realistic. They are "Mons. Wassili Safonoff" (102) and "Pirie Macdonald, Esq." (103).

"Young Holland" (92), near at hand, is a group of Dutch children at play, photographed by F. J. Mortimer, R.P.S. The action of the children is capital, but the print is too sodden for our taste. "In Amsterdam" (101) is, from the point of view of tones, a more satisfactory print, and in motive is very like the Bruges subject at the Salon. "Mother and Child" (93) and "Sussie" (99) are two splendid enlargements by G. A. Amy. "Sussie" is particularly happy, being a portrait of a little girl seated upon the floor and illuminated by reflected sunlight. The figure in D. A. Davis's "Contentment" (94) appears by her pose and action more apprehensive than content. We do not like the way she is placed in the middle of the floor in quite an unusual manner, and we think the print may be described as dirty, but we admit that it possesses that elusive charm, quality. The same background is used in the curious grandfather's clock subject which he calls "Forever-Never; Never-Forever!" (100), a title which we confess is beyond us. In this picture the figure is not free from stiffness. James A. Sinclair sends a view of "Antraigues" (105), a city on a hill in a mountainous district. We feel disposed to criticise the management of the distant mountains, which are distinctly edgy. Three platinum prints from Miss Schönberg do not interest us very much. We think the best is "A Study" (98). This is a head, larger in scale than the others, and shown in profile. "Sunshine," by W. H. House (105) is the portrait of the head and shoulders of a boy in a large brimmed hat. The boy's face is puckered up as a defence against the strong light. It is a piece of realism, but that is all one can say. We like better his "Joan" (107) which hangs next. In this pretty little girl's head there is less of realism. "Portrait of My Wife" (108), by H. Essenligh Corke, is a light-toned head and shoulders of sharp definition.

West Wall, Fourth Panel.

A fairly successful outdoor nude subject is treated in "Hesitation" (109), by Arthur Smith, who shows two boys stripped at the edge of a river. They are not happily placed for composition, and their bodies are a little porcelain-like. When we come to "A Sunlit Court" (110) we have reached what is, in our opinion, one of the choicest gems of the collection. This court is seen through a sort of covered way. A strong light falls on the floor, and the figures of an old woman and a little girl stand in the rays. The great beauty of this print lies in its general harmony and quality. With the exception of the sunlight on the ground, which is a thought chalky, all the tones are perfectly given; the distance is well thrown back, and the effect both realistic and pictorial. This very pleasing work is by T. Arnold Bennett. R. T. Dooner has missed any such qualities in his head and shoulders of a girl whom he calls "Ceres" (111), rather strainedly placed in a lunette-shape. We get more quality again in J. C. S. Mummery's "Barn Door" (113), which all have seen before, and which we need not describe further. E. T. Holding's large and imposing print, "The Magazine" (112) is, we feel, too harsh in its contrasts. Particularly, we think the lady's face need not have been so dark. The figure is happily posed, but on the whole we much prefer his smaller work "Summer" before referred to. Bertram Park's dramatic semi-nude, "The Watcher" (115), is not happy in its lines, but it is full of good qualities and promises better things in the future. The hardness and unsympathetic management of "Chateau Dieppe" (116), by H. Jacob, may be against it in some way, and its flatness of tone is no doubt a drawback. Nevertheless there is a grandeur about the simplicity of its effect and the romance of its solitary and forbidding aspect. The effect of light above and behind it is highly advantageous.

West Wall, Fifth Panel.

A beautiful sea piece comes from G. P. Jordan. He calls it "Ancient and Modern" (117). A sailing vessel is opposed to a not very modern steamboat, the smoke from which has been turned to fine account. Another eminently pleasing work is "The Summit of the Pass" (118), in which William Rawlings has given with great realism a gloomy and stormy effect upon snow-covered heights. Both these works are unusually good. "The Trespasser" (119), by W. C. S. Fergusson, is a cow or calf which has found its way into an orchard. We think this print suffers from unnecessary lowness of tone. "Last Year's Leaves" (120) is better, because here Ward Muir has given a proper contrast between the near tree trunks and the distant brightness of the wood. At a street corner, where a large ornamental lamp hangs at the entry of a passage, "A Gleam of Sunshine" (121) shoots down into the desolate and grimy locality with startling effect. This style of thing is not new, but it is always welcome when it is well done, as in this instance. A very pretty little child, engagingly posed, plays with "Buttercups and Daisies" (123) in H. W. Rennie's print, the quality of which is good enough to be that of a good oil print, which we believe it is. F. A. Lidbury has caught some of the modern spirit of German landscape in his picture "A Winter Landscape" (124). It is more quaint than beautiful, but one cannot deny its attractiveness. It is curious that three thin tree stems far apart on the snow-covered flat banks of a river should, by means of artistic treatment, afford such a pictorial subject. "When the Evening Lamp is Lighted" (129), "In Maiden Meditation" (122), and "Con Amore" (125) are three pictures by G. A. Davis. They are figure interiors which do not call for special remark. Tom Crabtree is a name not familiar to us, but we are glad to meet it since it subscribes such an excellent bromide enlargement as the view of St. Paul's seen through shipping. Its title is "In the Grey of Dawn" (126). The whole thing is excellently managed and

full of good feeling. A village street in a state of flood, and showing nothing but doorways and a few windows, with no distance to speak of and never a figure, has yet some pictorial claim on account of the surface of the swampy road, which is quite in the manner of Fritz Thaulau. This is by C. D. Kay, and is called "After Rain" (128). Arthur Smith contributes a landscape very large in style and quite according to tradition in the picture "A Yorkshire Valley" (130). Though quite a modest print, this is one of the good things of the Gallery. "The Haunted Room" (131) is another version of the two figures in the picture by Mr. Syms we have referred to before. "A Profile" (133) is likewise almost a replica of the print which Miss Warburg has at Pall Mall, but the present version strikes us as being preferable in roundness and realisation to the other. A quite impossible moon spoils A. B. Webb's "The Dawn of Night" (134). Another river and St. Paul's view comes from Arthur Norman under the title "Domine Dirige Nos" (135). This boasts a good effect. "Burgtor, Rothenburg" (136), is a highly successful view of the entrance to the old German castle by John H. Gear. Needless to say this is an oil print controlled with great skill.

North Wall, Left Panel.

"The Man with the Hoe" (137) comes from James A. Sinclair. A rapid exposure has seized the figure at a point when one foot is off the ground, resulting in a pose which is a little unusual. Mlle. Laguarde gives us a beautiful oil print, controlled with the utmost delicacy and clever management in "L'Été" (138). One of the finest pictures that Mr. Holding has recently done is the mother and child laughing together over what he calls "A Good Story" (141). The figures are placed close against the wall, and the shadows help to bind the composition together, and this shows much clever resource. The pattern is highly successful, and the quality of the print is all that can be desired. A winter view by Leonard Misonne, "Village de Campine" (142), is beautiful in composition, but we cannot quite account for the lighting of the ground and the distant gables. "A Street in Chartres" (143), by Mrs. M. E. A. Powles, lacks pictorial interest. R. T. Dooner's allegory "Dawn" (154) appears to be a little far-fetched, and, to our mind, unsuccessful. Much more interesting is the fine study of the young man in antique garb, called "The Cigarette" (145). Here we have animation of pose and a lively expression, to say nothing of the charm of the blacks and whites in the print.

North Wall, Centre Panel.

"Summer" (147) is a very charming woodland scene by P. Bale Rider of wild flowers under willow trees. A fine effect of light under arches is shown in the very lively "Market Place, Lucerne" (148), by W. A. I. Hensler. J. C. Warburg has sent a picture which we consider to be the finest we have ever seen from his hands. Having written somewhat disparagingly of his faint effort at the Salon, we are all the more pleased to be able to record our great admiration for the very stately landscape entitled "Cypress Shadows" (149). It has composition and dignity, and the light in the sky gives it a culminating glory. We are unable to tell in Mrs. R. Dunlop's "Winter" (150) whether the distance is backed by mountains or clouds. There is also a curious give-and-take of light all over the snow in the front, a mottled appearance which we never remember to have seen in nature. "The Night Cometh" (151) is an extremely effective view upon the Thames, with a cluster of four shafts belching smoke, while the sun is setting at their feet. It is by Frederick Humpherson, whose works we hope to meet again in this Gallery. We now come to a picture which has been the subject of some differing opinions. It is a colonial work by Nelson Stedman, and it depicts an old horse straining at the traces. We have referred to it before

in another exhibition, and it is only necessary now to repeat that we consider its black background does it more harm than good. A capital snow scene, beautifully rendered and very tender in effect, is presented by Thomas Wright under the title "In Winter's Cold Grip" (154). In "Bruges" (155) we have at last the much bephotographed town under a new aspect. As a matter of fact Bruges itself is non-evident, being crowded out by an ecclesiastical procession and the onlooking crowds. The picture is very lively. We feel the want of some accent of simplicity in W. R. Bland's charming woodland scene called "A Glen" (157). If some of its sparkle could be infused into James Gale's windmill scene, "Nature's Garden" (158), which is too flat and fuzzy, and some of the restfulness in this transferred to Mr. Bland's glen, the exchange would be advantageous. Peter Orr preserves with fixed determination the different planes of his scenic subject "Gilmorehill—Evening" (159), and a good pictorial effect has been achieved by Alex. Keighley in his "Eastern Gate" (160). This is a print of great charm, the gradation in the sky being particularly noteworthy. It looks like a book illustration of old times more than a modern photograph. Mrs. Barton, who, we are glad to find, has taken a fresh lease of artistic life, gives us a "Boy with Apple" (161), which is quite like an old master in its richness of strength of design. This and her portrait at the Salon show her to have overcome the slight falling off which we felt in her recent work. "Reverie" (162) and "Storm" (163) are two good subjects by James Cawwood, but they both suffer from over-darkness. Even the storm is more gloom than it need be.

North Wall, Right-hand Panel.

Rather a forced effect of light and shade, but pleasing in its play amongst architectural features characterises the motif of F. H. Cliffe's "Where Light and Shade Repose" (165). We like it as well as anything he shows this year. Sunlight in trees has rarely been better rendered than in W. G. Meredith's "The Bridesmaids" (167). The subject is a procession of little girls, presumably bridesmaids of the church. The sunlight glints upon their white dresses and casts shadows before them on the shining pavement. The air above is full of dusty light and the effect as a whole is highly pleasing. "The Quay, Boulogne" (168), is another effective oil print by J. A. Sinclair where we think he has perhaps gone too far in repressing the distance and accentuating the near figures. "Verschneit Waldweg" (169), by R. Kölmen, is one of the most beautiful snow scenes we have ever seen. The light upon the snow-covered ruts of the road is quite captivating, and the infinite delicacy and tracery of the trees have not resulted in the slightest loss of breadth. So true are the tones that one can almost imagine the complementary colours of the blue in the shadows and the warm tints in the lights. Next to it has another excellent view. This is "Marée Casse" (170), by Leonard Misonne. Here the effect is of wet sand, which lights in ripples and culminates in a bright spot underneath the stones. Several figures and a bathing-machine are silhouetted against the sky. It is to be noted that both these excellent things come from abroad. We think J. B. Johnston has lost much by a mixing up of near and distant planes in his otherwise picturesque view "On the Esk, Midlothian" (172). B. W. Thompson sends a photograph of a rainbow under the title "A Token of a Covenant" (173). We think this is one of his best works. There is a deal of truth in it, particularly in such rarely observed phenomena as the slightly brighter light in the sky within the arc compared with the sky outside it. It is a pity that the whole picture is so low in tone.

East Wall, Left-hand Division.

Of two pictures by Mrs. M. Ralli hanging together, "Shadows and Sunlight" (174) is not quite so good in effect as "S-

chine" (175), although the latter is only a little girl in a road, and the former is a much more ambitious subject of a market square, dark archway, and brilliant distance. "A Morning Walk" (176) is almost professional in its studious attention to details of costume and general presentment. It shows a lady prettily posed, holding a parasol, and walking away from us towards an avenue in the distance. It is low in tone and nice in general effect. In a magnificent and harmonious frame W. Crooke presents one of his inimitable mezzotint-like portraits. This is a likeness of the late Lord Robertson (177) in his legal robes, and is exactly in the spirit of the best work of this class of a past century. "Richard Langford Speaight and his Mother" (178) will be recognised as one of the chief attractions of Mr. R. N. Speaight's own show in Bond Street. We have dealt with it before in these columns, and need do no more now than recommend it again to our readers. Another picture by Mrs. Ralli of three peasants standing on a quay has far better qualities and effect than the two we have just mentioned. The title is "A Gossip" (179). Frederick Hollyer sends his well-known portrait of "George Meredith" (180). We suppose that in the minds of the poet's admirers this presentment of George Meredith will be most easily remembered. It lacks the feminacy which some other portraits have given to the subject, and is more full of character and strength. Ernest Carriage contributes a group of spectators "At The Bull Fight" (181), in which he has contrived, by the use of the seat backs, to weld unpromising material into an effective composition.

East Wall, Middle Division, First Panel.

"By the River's Brim" (182) recalls the steel engravings of old-time in its method and manner. It is by Henry Bond, and is pictorially quite successful. We wish we could say as much for Peter Orr's "Decorative Portrait" (183), a class of work with which we feel out of sympathy. It is much more healthy photographic art which produces "At the Horse Fair" (186), by Mr. Evershed. This is a good group on the turf, quite natural and of the times. We only regret that it is so needlessly dark. We might say almost the same of "The Smith" (184) by Harry R. Hill, where the chief defect, if there is one, is the hardness and "edginess" of the chief figure. Miss E. Pitchard's picture, "Mother and Child" (188) and A. J. Craston's "Simple Life" (191) are also quite unaccountably dark in tone. We wish we could see the advantage of this method of darkening prints so that they are neither decorative nor naturalistic. It is a pleasant relief to turn to Mlle. Laguarde's "Paysage" (189), which has something like a full gamut of tones, and is, in consequence, much more decorative than the would-be decorative somy prints. "In an Essex Creek" (190) is Mr. S. E. Wall's

only contribution, but it stands apart from many by observing the sound traditions of picture-making in the matters of scale, composition, arrangement, and tonal value. We think this delightful picture one of the best we have ever seen from his hand.

East Wall, Central Division, Centre Panel.

This section is almost entirely composed of prints in colour. They mark a distinct advance on the similar attempts of last year. One in particular must be regarded as a tour de force in oil printing. It certainly has never been approached for realism, and the full effect of a painted picture. It is called "Writing to Her Sweetheart" (199), and comes from Ramiro Lorenzale of Barcelona. We fear, however, that it is not entirely innocent of paint locally applied independently of the action of the gelatine. The same worker sends two colour gum prints, which show a great falling away from the high standard of the oil. They are quite arbitrary in the localisation of the various tints, which seem to wander about in defiance of the photographic forms. Miss Hildegard sends a print, mostly blue, but evidently in two printings, called "Einsamkeit" (192), a truly lonely-looking group of trees in a landscape of much feeling. It is a pity that Geo. Hilderley made such a sodden print of his fine group of "Women on the Beach, Cancale" (194). His two views of Volendam, "Evening" (198) and "Early Morning" (200), are in full colour; but we feel that, highly creditable as these results are, they fall between the realistic and decorative ideals. Dark tree trunks and a watery road make the subject of N. H. György's powerful "February" (195). The same clever worker is seen to even better advantage in "Village in Winter" (204). Here the houses in the village street are brilliantly lit by a pinkish sunlight. A fine effect of artificial lighting is given by Fred Judge in his "Embankment at Night" (196). Leonard Misonne's "Verdure" (201) is the one of his which has been chosen for illustration in the catalogue, though in our opinion it is by no means the most worthy of this distinction amongst his contributions.

East Wall, Central Division, Right Panel.

Upon this wall are a group of portraits that are, on the whole, below the level of the rest of the exhibition. The most ambitious is the large back view of a nude figure, of rather contorted pose, which Miss M. Schönberg sends under the title of "Dreaming" (210). Of the rest the best is a girl's head with a sweet expression. This is "Elona" (211), by Augustus Thibaudeau.

Here we leave an exhibition of which it must be said that a better has never been produced by the Royal Photographic Society.

PROCESSES AND PICTURES

AT THE NEW GALLERY.

In the pictorial section the catalogue states the process used in the case of 119 pictures out of 214. Of the remaining 95 are by a worker who is well known to always use platinum, while two other pictures are known to be oil prints. We have added these extra numbers to those gathered from the catalogue, and the results are as follows:—

Coloured oil prints and gum colour pictures are included in above figures. Eighty-nine prints are unaccounted for in the table, but even though the figures only represent a part of the total, nevertheless the two oil processes account for nearly 20 per cent. of the whole, which is a goodly proportion. The figures for carbon and gum would probably have been considerably increased if all exhibitors had responded to the invitation to state the process, while we may be certain that the figures for the bromide and platinum processes are much too low. The popularity of the oil methods is, however, very evident, and it will be seen that honours are about equally divided between the original oil and the bromoil processes. The total number of pictures is very much reduced compared with last year, when they amounted to 309, or 85 more than the present number. This reduction in numbers greatly improves the appearance of the walls, which were much overcrowded last year.

Oil process	19	} total oils	40
Bromoils	21		
Bromides	34		
Platinum	24		
Carbon, including Ozobrome	14		
Gum	10		
Other processes, Silver, Gaslight, etc.	3		

SCIENTIFIC AND TECHNICAL SECTIONS.

These sections show a marked advance over last year in point of both numbers and scientific value. As is usual, zoology is a very important feature of the exhibition, but though this section is even bigger than usual, yet less than half the frames are devoted to it.

"Fur and Feather."

Fifty of these frames are contributed by members of the Zoological Club, and are hung on the south wall of the gallery; the numbering of the frames, however, commences on the west wall with the general zoological exhibits. Among these W. Bickerton is prominent with frames 301, 302, and 303, the first representing the Stone Curlew and the others the Arctic Tern. Frame 302 should be specially noted for the sake of the beautiful wing plumage shown. O. G. Pike shows a fine enlargement representing the Raven (304), and also has some very interesting studies of the Buzzard (308-9), which are, unfortunately, toned to a very unpleasant colour. He also has a good photograph of a Sedge Warbler in 313. An exhibitor whose name is new to us is Kathe Hecht, who in frames 305-6, 335-6, shows some very clever and humorous animal and bird studies, some of which are very delicately tinted. A curiosity is 314, by Alf. E. Tonge, which illustrates the Marbled Green Moth asleep on a brick wall. Attention is directed in the catalogue to the protective resemblance of the moth, and this is so effective that we failed to discover the insect at all after a prolonged search. E. J. Bedford's Young Long-eared Owls (316) will no doubt attract notice on account of the quaint expressions of the sitters; his Young Common Sandpiper (319) is also interesting. No. 317 is a very lifelike photograph of a Fox, by F. Martin-Duncan, and George A. Booth's 325, 328, and 329 are of special interest, as they represent probably the first application of the oil process to zoological photography. These are very good indeed, and show very fine and careful pigmentation, though it is obvious that this would be a somewhat risky process for scientific record work in the hands of an inexperienced worker.

The next things to specially note in this part of the gallery are some frames containing series of photographs, the finest of which are perhaps Dr. Gray Duncanson's set (330) illustrating the metamorphosis of the Dragon-fly. Another good set is J. A. Lovegrove's (332-4) showing Sea Spiders, while Philip J. Barraud also has a very interesting frame (324) showing the Six-spotted Burnet Moth at six different stages of its emergence from the pupa.

We now turn to the exhibit of the members of the Zoological Photograph Club, Nos. 447 to 497. Some good, well-exposed, and rather humorous pictures of Guillemots are shown by C. J. King (447), and Mrs. L. J. Veley has some fine studies of Dogs in Nos. 451, 457, and 459. Her Swan (452) is an equally good specimen of photography. R. and V. G. L. van Someren show some good photographic work in 455, in which the White-throat at nest is shown in three enlargements, which leave nothing to be desired in the way of clearness.

We then come to some series of great scientific value. Dr. Francis Ward shows the life history of the Plaice in frame 466, while Alfred Taylor has two most interesting series showing the life of the Merlin (469) and that of the Cuckoo (470). The one fault of the second frame is that the Cuckoo has evidently been taken from the nest and set in somewhat unnatural surroundings. Wm. Farren also has some sets in frames, 471 to 474, which are quite up to the usual high standard of his work. Riley Fortune shows a good set of pictures of a Gull in frames 476 to 480, all of which are well worth close study. Miss E. L. Turner has a number of frames, all showing her usual excellent work. No. 481, entitled "Water-rail: A Hatching-out Day," is especially interesting, the unceremonious manner in

which the mother-bird breaks the shells and lugs out the youngsters being quite amusing. R. B. Lodge shows some fine photographs of a Golden Eagle (483-5), while Douglas English contributes some of his familiar studies of insects, which for delicacy of treatment can hardly be surpassed. Studies of British Lepidoptera, in frame 493, show some of the most beautiful examples of his work. He also has four frames of larger animal studies, of which the Fox Cub (497) is perhaps the best.

The zoological exhibits are completed by a set of thirteen large prints, collected for exhibition by R. Voigtländer, of Leipsic. These are all good, but special attention may be directed to 505, Red Deer, which is quite pictorial in its treatment, to 507, a Fox Cub, and to 511 and 517, which respectively show an Æsculapian Snake and a Green Lizard.

General Scientific Work.

These are very varied, and much good work is shown. A little print by J. Howden Wilkie (338) is worth notice, because it simply illustrates a distant rain-storm, a familiar phenomenon which many would pass by as too trivial to notice. Some fine snow studies by E. Igel (344, 5) should not be overlooked, while the balloon photographs of Oscar Halldin (351-6) are sure to compel attention. As a rule photographs of this class are foggy and disappointing productions, but these are as clear as could be wished, and show wonderful map-like views of the town and country underneath. No. 352 should be specially noticed, for it shows with remarkable clearness the wave-formations in the water below. We next come to a very interesting series of photographs by R. H. Yapp (357-362), showing mangroves and various other growths in damp tropical regions. Dr. Vaughan Cornish again illustrates his favourite subject, waves, but this year the particular waves dealt with are those produced by sledges when travelling over snow or loose gravel, and they represent the result of an investigation into the cause of the formation of these waves. Close by there are two frames (374, 5), containing very fine and very valuable sets of photographs, illustrating in one case, "A bit of good feeding turf analysed," and in the other "Clovers, and some of their Impurities." These are by D. Finlayson, F.L.S. Various frames of photo-micrographs are distributed among the other exhibits, and prominent among these is one (327) by Alf. E. Tonge, showing the egg of British butterflies and moths. These objects are themselves often very beautiful, and their representation here is as perfect as possible. Dr. Rodman has some photo-micrographs of diatoms (378) and F. Martin-Duncan a frame (379) showing Tripanosomes, all of which are worth careful study.

Dr. Charles Lester Leonard has several radiographs (380-388) illustrating subjects of medical interest, and we once more see some of Dr. Rodman's beautiful radiographs of Mollusc Shells (383), with one example of a similar subject in pseudorelief (384). Two frames here, by Professor P. Zeeman (388 a, b), illustrate the magnetic resolution of spectral lines, and should be studied in connection with his transparencies, which we refer later. A photograph of the extreme red end of the solar spectrum, by Dr. C. E. Kenneth Mees and E. Kenne Hunter, shows remarkable resolution and much detail, the space between the A and B lines being $8\frac{1}{2}$ inches. Other spectrum photographs are shown by A. Fowler and Prof. H. Kayser, and by C. H. Fabry and H. Buisson, the latter (392-4) giving interesting examples of interference spectra.

Dr. Max Wolf has a very fine series of astronomical photographs (399-410), in which many beautiful nebulae are shown in fine detail. The comet Morehouse is also included in the series, while it again appears in the set of frames (443-446) sent by the Astronomer Royal. This second set of frames also shows the satellites of Jupiter and Saturn. Frames 412 to 417 ill-

trate the results of an important investigation undertaken by Dr. C. E. K. Mees and E. Kenneth Hunter into the questions of resolution and irradiation in photographic plates. These can be understood by reference to the detailed description given in the catalogue. A frame of photo-micrographs (418), by J. H. Pledge, shows the various screen-plates at a common magnification of 150 diameters. These will be of interest to those who use the plates, who will probably be struck by the fineness of the units of the Autochrome screen as compared with the others. H. J. Channon has an interesting set of prints showing the intensifying or continuing action of yellow or red light on partially printed silver images. No. 420 is a "Photographic Slide Rule," by Mr. A. Lockett.

The technical section also includes a set of Japanese prints, lent by J. Orange, 3, Gray's Inn Square, W.C. These are interesting examples of Japanese photography, and worth attention. They are all by Japanese workers, and were exhibited at the exhibition of the Japan Photographic Society in 1903.

Colour Photography.

This year, while the transparencies are rather a strong feature, the colour prints are undoubtedly a weak one, none of them showing any particular merit or any advance. No three-colour carbons are exhibited at all.

Miss Acland has two prints, of which we like best 434, Study of Crimson Bougainvillea. Samuel Manners has seven, of which the simplest, 441, Roses, is, as a whole, perhaps the most satisfactory. In most of the others the colour details are remarkably well rendered, notably in 436, Grapes and Apricots, but too often the subject is spoilt by an unsuitable background. One print by the Sanger-Shepherd process (442) is contributed by Owen M. Bartlett, and the collection of colour prints is completed by a set of six pinatypes by Dr. E. König, of which set we like 500 and 501 best.

Autochromes

The Autochromes are exhibited in the same way as last year, that is, they are placed in sloping frames and viewed by reflection in mirrors placed underneath. This method works very well, and gets over in a convenient manner the difficulty of exhibiting a number of Autochromes at once, but it has the drawback that double reflections sometimes confuse the image. It is, however, difficult to get over this trouble, which is only apparent in some cases, not in all. Dr. Drake-Brockman has two good, large specimens in 637 and 638, the latter of which,

representing "A Casting of Pig-iron," is of special interest, as he applied John Sterry's bichromate method of treatment to avoid undue contrast, the result being very successful. The same exhibitor has some more good slides in Nos. 735-9, which are natural history subjects, and in 743-745, of which we like 744, a portrait, best. No. 641, "Sunshine," by Ellis Kelsey, has a very good sunny effect, and 646, "La Ménagère," by Jean Occhipinte, is a good specimen of a figure subject. Mr. Kelsey has many good Autochromes in the exhibition; 693, "Eastbourne Illuminations," repays close study, while 695, "Reaping," and 696, "Sunlight and Shadow," are both very pleasing little pictures. The same worker again scores a success in 740, "The London Express," which is an excellent example, though the exposure was only 1.25 second at $f/2.5$ with a Grün lens. J. C. Warburg has several good things; 654, "Notre Dame de Vie," being a striking example. "The Land's End," 655, is also a very pleasing picture, even though the sea is, perhaps, too blue. He has also secured a beautiful grey effect in 657, "Across the River Bed, Hayle." Nos. 709, 710, and 711 are also Mr. Warburg's work, "Jack and Jill" and "The Butcher's Shop" being notable examples. Some technically fine results are shown by W. J. Russell and O. F. Bloch in Nos. 660-662, and D. H. Illingworth and Thomas B. Blow show some excellent pictures in Nos. 663 and 664. A fine representation of a stained glass window is shown by Dr. G. Lindsay Johnson in No. 671, while a similar subject is treated with equal success by H. W. Fincham in Nos. 746, 747. H. C. Knowles has also very successfully used the Autochrome plate upon wild animals in captivity (678-9), which work must have involved fairly short exposures. Walter V. Westlake shows two good specimens of Thames plate transparencies in Nos. 683-4, and the same plate has been used by Colin N. Bennett with not quite so much success in No. 699. Urwick Jones, who was very successful last year, again contributes four excellent pictures in Nos. 689-692, of which 692 is quite a charming water scene. T. D. Ralli has two very pleasing figure studies in Nos. 705, 706, while H. C. Knowles has a good portrait in No. 707. No. 708 is a fine study of a Rose, by Sydney A. Pitcher, there being very few flower studies in the exhibition. E. J. Bedford again shows a number of transparencies of natural history subjects, which well illustrate the great advantages of the plate for such work. Another series by Dr. C. E. K. Mees and J. H. Pledge show the effect of superimposing various screen plates so as to obtain a moiré effect, and No. 717 is really quite striking. It is interesting to note that Dr. Mees also appears as a pictorialist in "A Meadow under the Hill," No. 712.

PROCESS AT THE R.P.S. EXHIBITION.

By far the most important exhibit so far as process work is concerned is the frame sent by Arthur Payne, showing the stages of the Paynetype process (North Gallery). This method of producing blocks direct in the camera (that is, photographing a sensitized metal plate instead of first on to an intermediate glass negative) has already been described at length in these pages. It is, however, of the highest interest to see the actual stages of the manipulation of the new material up to the point of the etching, which is then exactly the same as in the ordinary process of blockmaking. A line block is also shown by Mr. Payne, in which the acid resist has been formed of deposited copper, and also a print from a half-tone portrait made direct from life, the first ever done. We presume it will not be long now before the sensitized metal for this valuable process can be purchased and used by any photo-engraver.

Adjoining this exhibit are a couple of frames sent by the L.C.C. School of Photo-engraving, showing comparative photo-micrographs of sections of plates etched by the various etching machines and in hand-rocked etching baths; also showing photo-micrographs of original etching and stereotype made from

the same plate. The series demonstrates the very unsatisfactory results that may be produced from good etchings if the stereotyping is not efficiently performed.

Messrs. Wratten and Wainwright have collected in the North Room a large number of three- and four-colour prints from various block-making firms who have used their plates to make the negatives. The most striking of these are, perhaps, the reproductions of marble. One (by Marshall and Co.) is shown framed up together with the original marble, and the accuracy of the reproduction is simply astonishing. This firm also show a reproduction of a piece of coloured embroidery, in which the effect of relief is excellent. Some of the other reproductions are of a large size, and all are extremely good. Walter Bourke, in his show of reproductions (South Room), includes four three-colour prints of pictures in Hampton Court Palace, which are very attractive in contrast to the monochrome reproductions all round.

Generally in the Technical section there is a good deal to be learnt by the observant process-worker. The enlargement of a point-image due to increasing exposures will convince him

of the enormous differences in truth of reproduction which exposure must make, also the exhibits showing the resolving power of plates and the effect of irradiation will explain phenomena

PROFESSIONAL PHOTOGRAPHY

The Professional section in the North Room is, in many respects, a great improvement on the last two or three years. It embraces a considerable variety of styles, so that any of our professional friends who visit it will find matter of interest. The room is comfortably filled, yet on the whole not overcrowded, and the walls have been so arranged that one class of work does not clash with another.

A very notable departure may be observed in the exhibition of oil prints by F. C. Tilney. Here, for the first time, so far as we are aware, in the history of professional photography, a photographer has produced the negatives, and the printing in this particularly responsive medium, the oil process, has been done by a man who is a trained artist and has devoted his life to the pursuit of art. We have carefully examined these oil prints, particularly those in colour, and they are *oil prints*, and not oil paintings on the photographic basis. By this we mean that the picture is in every case the result of pigmentation in the recognised way, the drawing being that of the lens, the colour and depth of it being determined by the pigmenter. It is, perhaps, fairly easy for an artist accustomed to brush handling to take a weak oil print and immensely improve it by *painting* on it. Mr. Tilney has not done this, but has been true to his medium, and his results lose nothing in quality or effect, and gain everything in purity of technique.

The prints demonstrate in a very convincing way the facility which stands at the disposal of the pigmenter in the way of imparting a particular kind of character to his work. The two oval prints on either side of the panel have the quality of a stipple engraving, whilst the portraits in the lowermost row approach nearly to the effect of the mezzotint. In every case, however, we think it will be admitted that the pigmenter has retained the photographic virtue of his material, particularly the likeness and expression of the sitters, and that we submit is a point which is of no little importance in the professional use which it would seem may be made of the oil process. Of the monochrome portraits, we admire extremely those of the Dowager Lady Gifford (5) and Sir Henry Parkes (7), from negatives by Gabell and H. Walter Barnett respectively.

Of the four in colour we prefer No. 11, a dainty and very attractive portrait of Mlle. Adela Atucha, the same lady who appears in the very charming monochrome portrait, No. 13. No. 10, Mlle. Josephine Atucha, is almost equally good. No. 3 is also a most attractive portrait, but possibly it would be improved by a little stronger colouring in the shoulder wrap. The face and head is perfect, but the picture seems a little weak in the lower part. Mr. Tilney is to be congratulated on his very successful essays in oil printing, and his set of pictures should be valuable to photographers as examples of the way in which a trained artist considers their materials should be employed.

Immediately on the left on entering the room we have the characteristic work of Furley Lewis. We think some of these prints would have gained had they been on a toned instead of a white mount. Several of them show the Furley Lewis mannerism—one might almost say they have been done according to the recognised Lewis formula—but we are glad to see that the portrait of A. H. Blake, M.A., is not one of these.

LANTERN SLIDES AND TRANSPARENCIES.

The greater number of these exhibits will be found in the base of the lantern stand in the North Room, but a set of fifty stereoscopic slides by A. E. Smith in a table stereoscope are in the gallery, and these may be dealt with first. They are all photomicrographs, and form a set of great scientific value, but many of

with which all process workers are familiar. These last are the work of Dr. C. E. Kenneth Mees and E. Kenneth Hunter.

It strikes a somewhat new note as to treatment, and is an eminently happy likeness, giving the characteristic impulsiveness and geniality of the sitter. Another work we specially like is the group portrait of Humphrey and Miles Tomalin. In "Patrick," an otherwise fine study, we dislike the reflected light in the right eye, and we think the portrait of Mrs. Parkinson rather heavy. We must not omit to mention the fine portrait of Dr. C. E. Kenneth Mees, fine as a characterisation of Dr. Mees, and fine as a typical Lewis portrait. The sitter looks a trifle self-conscious, but then

Of the Mattype work we can say little, except that it is not up to last year's in quality, and that the colouring is distinctly feeble in one or two instances.

Harold Moore's work is good, but possibly a little too conventional in pose and lighting. A very rich effect is obtained by the use of the carbon transparency backed up with various kinds of paper, and a portrait of a lady, in which the transparency, backed with silk, is quite dainty.

The series of reproductions of work in His Majesty's collections at Windsor and in the Bridgewater collection by Walter Bourke are interesting, technically very sound, and sympathetically produced. We particularly like the colour reproduction of the portrait of the Countess of Grammont.

One wall is entirely occupied with the magnificent platinotype enlargements of William Crooke. Commencing from the left-hand side the fifth and sixth—in each case a portrait of a lady—appeal to us as being works lacking nothing in strength of treatment and full richness of quality, yet essentially feminine and graceful in character. The masterly composition of the Irving portrait compels attention and admiration—no better or sounder piece of work is to be seen either at the Salon or in the pictorial section of the R.P.S., and the contrast between this and some of the puerilities shown at the former show, to which we referred in our notice last week, is very marked. It is in such works as this portrait of the great actor that photography comes into its own.

The display by F. A. Swaine, of New Bond Street, is one which will interest the professional worker, for every type of studio pose and lighting is to be seen. Some of these portraits have been done in the studio, and others are home portraits. Quite a number have a topical interest, as, for instance, those of the Rt. Hon. Herbert Samuel, M.P., and Mrs. Samuel. Some clever colour work is shown, among the best being Baby Adler, Mrs. Walsh, and portraits of Miss F. M. Craig and Miss N. Craig. The sketch portraits are interesting, being platinotype prints from negatives taken with a light background, a suggestion of landscape or interior being worked in afterwards on the print with lead pencil.

Fredk. Hollyer shows a group of reproductions of Holbein's work, of which we need only say that it is quite equal to the Hollyer reproduction work we have seen in previous years.

The sincere portrait worker will find much to interest and instruct in this room—a few, a very few, things which will show him what to avoid—and the exhibits, as a whole, should be distinctly stimulating.

them are also objects that will be of interest to the non-scientific visitor, who will doubtless be struck by the beautiful forms revealed by the aid of microscope and stereoscope in conjunction. The first four (numbered 586 to 589 in the catalogue, and 1 to 4 in the slides) show the eggs of various insects, and many will doubt

less be surprised at the beautiful structures revealed in many of them. Nos. 595 and 599 (10 and 14) are similarly attractive, while 620 (35), the Brittle Starfish, 625 (40), showing sponge spicules, and 629 (44), crystalline sand, are all objects of great interest.

Under the lantern stand in the North Room we find eleven more stereo slides by members of the United Stereoscopic Society. These are all well selected subjects of an ordinary kind, landscapes, portraiture, architecture, etc. All are good, but 583, by S. W. Shore, may be specially mentioned on account of the novelty of the subject, which consists of two profile portraits, one behind the other. In the same stand we find the rest of the transparencies, the first being a valuable set (518-522) by Professor Zeeman, illustrating the magnetic resolution of various spectral lines. With these we should study the enlargements of the same subjects (388A and 388B) in the gallery upstairs. Richard Hancock shows a fine series of lantern slides illustrating spiders and fungi, while natural history is also represented in slides contributed by Arthur Frost and Mewburn and Jackson. Perhaps the most valuable series of slides

is one by Walter Plomer Young, F.R.M.S., illustrating Old London doorways. The series (563-574) is well arranged, and selected to illustrate the various periods and developments, but technically the slides are of somewhat unequal merit. Some are, however, very fine, notably the one showing the elaborate doorway at No. 26, Queen Anne's Gate, Westminster. We are obliged to say that the transparency section is a very disappointing one. It seems to dwindle down each year, and this year there are very few exhibitors. Lantern slides are too small to show to advantage, and their proper place is in the lantern. Good transparencies of half- or whole-plate size are very delightful things to study, but there are none of them to be seen outside the trade stalls, so it hardly seems worth while to have a transparency section at all. Stereoscopic transparencies are, of course, very desirable exhibits, and we should like to see a much larger number, but their proper place is in a stereoscope. We feel inclined to suggest that another year a stereoscopic section for both transparencies and prints might well take the place of the present general transparency section, and we think such a section would be well supported.

THE TRADE EXHIBITS.

Wellington and Ward.

The familiar and tasteful kiosk of the Elstree firm occupies the accustomed place on the left of the entrance to the Fountain Court, where, as in previous years, Messrs. Wellington show prints and enlargements on their bromide, gaslight, and print-out papers. The

LIGHT VALUES.

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
JAN	3	4	5	6	7	8	9	10	11	12	13	14
FEB	2	3	4	5	6	7	8	9	10	11	12	13
MAR	1	2	3	4	5	6	7	8	9	10	11	12
APR	1	2	3	4	5	6	7	8	9	10	11	12
MAY	1	2	3	4	5	6	7	8	9	10	11	12
JUN	1	2	3	4	5	6	7	8	9	10	11	12
JUL	1	2	3	4	5	6	7	8	9	10	11	12
AUG	1	2	3	4	5	6	7	8	9	10	11	12
SEP	1	2	3	4	5	6	7	8	9	10	11	12
OCT	2	3	4	5	6	7	8	9	10	11	12	13
NOV	3	4	5	6	7	8	9	10	11	12	13	14
DEC	4	5	6	7	8	9	10	11	12	13	14	15

GET FROM THE ABOVE TABLE THE LIGHT VALUE according to the MONTH, TIME OF DAY, TIME OF YEAR, and OTHER SIDES HAVE 2" SMALL CIRCLE TILL THE LINE FOR WEATHER CONDITIONS IS OPPOSITE TO THE LIGHT VALUE. THEN TURN ON SECOND LARGE CIRCLE TILL SUBJECT LINE IS OPPOSITE TO THE SPEED NUMBER OF THE PLATE BEING USED. THE STOP USED WILL THEN POINT TO CORRECT EXPOSURE.

Wellington EXPOSURE DISC

exhibit contains a great deal of bromide photography of the highest order, and quite adequately represents the perfection of the Wellington products. The transparencies show the results obtainable on the Wellington "Speedy," "Press," and "Ortho" plates, whilst Messrs. Wellington this year make a small exhibit of the light-filter which



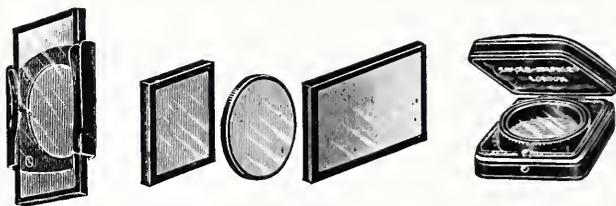
is now issued for use with their plates, and also of the very convenient exposure-disc which is prepared by them as a ready means of giving correct exposure to their own series of plates.

Sanger-Shepherd and Co.

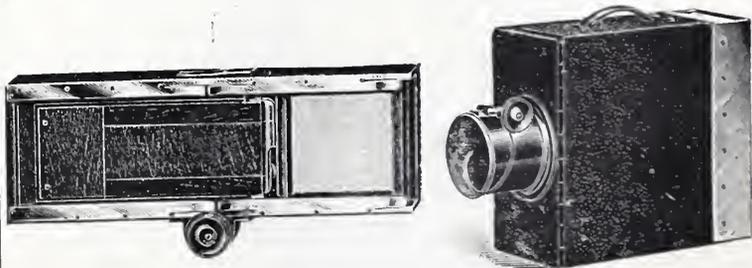
Technical advances in the making of photographic apparatus for expert work and in colour photography may usually be recorded in the case of Messrs. Sanger-Shepherd's exhibits. At this year's stall there is one print which very clearly emphasises the merits of the firm's graduated light-filter. It is from a negative by H. G. Ponting, representing a party in the Alps. A paired set of graduated light-filters has been used in order to secure both full exposure of the climbers and rocks which are close to the camera, and at the same time to render properly the sunlight and shade in the thunderstorm in the distance. Other examples testify to the very great advantage which can be taken of the graduated filter by the wide-awake landscape photographer. Messrs. Sanger-Shepherd now make a "snapshot" series, in which the part of the filter covering the foreground

of the picture is clear glass, and thus no increase in the exposure is called for.

A new piece of apparatus is a stereoscopic camera, specially designed on account of its great compactness and portability for the use of motorists, yachtsmen, and others. It carries a magazine taking twelve thin plates about 5in. by 2½in., the front of the camera being fitted with a pair of Zeiss "Tessar" lenses in focussing mounts. By a single momentary pressure one of the lenses may be brought



into the centre of the plate in order to make a wide-angle picture, the stereoscopic partition being at the same time withdrawn by an ingenious movement. In colour photography apparatus Messrs. Sanger-Shepherd show their new light model repeating-back, beautifully finished in black morocco leather, with a new rapid series of filters and an improved device for quickly changing the dark slide. With this form of back three seconds may be usually taken as the time for the three exposures, whilst from the resulting negative the photographer is able to produce a very brilliant and transparent Sanger-Shepherd lantern slide. There is also shown a new one-exposure camera of very small size and weight, also finished in black morocco, and calling for no more attention in use than an ordinary hand camera, the development of the negatives and the making of the colour transparencies being undertaken by Messrs. Sanger-Shepherd's staff.



Examples of photographs are also shown, transmitted over ordinary telephone and telegraph wires by means of various phototelegraphic instruments manufactured by Messrs. Sanger-Shepherd during the last three years. It is interesting to compare the early examples obtained in the "toy stage" of photography by wire, with those now secured with the greatest regularity and certainty, under all conditions of line, by the present machine. These results are largely due to the encouragement, in the face of much difficulty,

afforded by the proprietors of the "Daily Mirror," and to the untiring persistency of the head of the department, Mr. T. Thorne Baker.

J. H. Dallmeyer, Ltd.

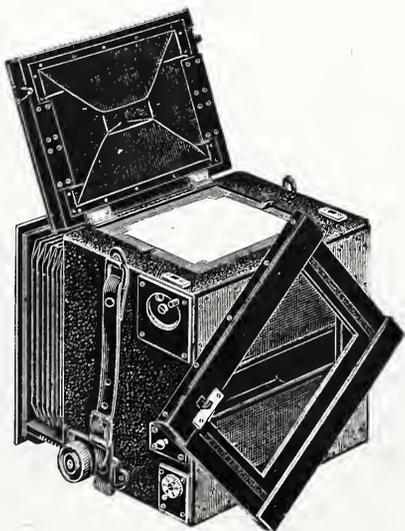
A new form of the "Adon" lens is the item of novelty at Messrs. Dallmeyer's stall. The loose black lengthening tube behind the front lens has been dispensed with, and a sliding tube substituted. This makes the lens more portable, and in other ways more convenient in working. The power of the negative lens has been



slightly increased, and the definition at full aperture has been improved. The new "Adon" will not be on sale until the New Year. This old-established firm of opticians and camera makers shows models of cameras, such as the "Correspondent" and "Naturalist," which have proved their value in past years; whilst they also exhibit specimens of the patent portrait lens in the mount now adopted, which allows of soft or sharp definition being obtained at will. The convenient pocket telephoto calculator, recently noticed in our columns, will also be found at Messrs. Dallmeyer's stall.

O. Sichel and Co.

The Morgan method of dry-mounting, plate-marking, and die-stamping at a single operation occupies the lion's share of Messrs. Sichel's exhibit. The installation, as those who visited it during the few days at the house of the BRITISH JOURNAL will know, introduces a simplified and more rapid method of mounting to the photographer, whilst, at the same time, the process particularly lends itself to the individual selection of mounts and provides the means of turning out photographs on boards, even of uncommon size and shape, with considerable economy in both time and material. It is pointed out that while the special Morgan



Sichel "Press" Reflex.

mounting press can, if desired, be employed with commercial tissue, it is primarily intended for use with sensitive photographic papers bearing the special adhesive. Particulars as to the varieties of this obtainable may be ascertained at the exhibition.

Messrs. Sichel also show a new model of the "Sickle" reflex camera—namely, one designed specially for Press photography. As

will be seen from the illustrations, the apparatus is provided with long extension reversing back and instantly accessible ground glass. The camera is made in the half-plate size at a price, including three slides but no lens, of £12 10s.

C. P. Goerz Optical Works, Ltd.

Goerz lenses and cameras occupy their accustomed place immediately facing the entrance to the Court. Here, as in previous years, the firm shows the anastigmat lenses of their manufacture, such as "Pantar," the Goerz "Celor," of $f/4.5$ to $f/5.5$ aperture, the Goerz double anastigmat or "Dagor," of $f/6.8$ rapidity, and the later and cheaper "Syntor," also of $f/6.8$ aperture. The excellent definition and covering power given by these lenses is well shown in the series of enlargements which cover the stall, whilst there are also shown the well-known models of Goerz-Anschütz cameras, the Goerz pocket "Tenax" and vest-pocket "Tenax," and, lastly, the Goerz folding reflex.

Burroughs, Wellcome and Co.

"Tabloid" chemicals and the results obtained with them make up a very attractive exhibit at Messrs. Burroughs, Wellcome's stall. The result of development, intensification, toning, etc., are shown by a series of transparencies, among which will be noticed the pleasing, warm tones obtained on an ordinary slow lantern plate by an increase



of exposure and the use of "Rytol" developer. A useful card, giving time for the development of plates and films at various temperatures when employing "tabloid" developers, is obtainable free on request. Messrs. Burroughs, Wellcome also show the striking results obtainable with their "Soloid" dyes applied to prints and transparencies

Wratten and Wainwright, Ltd.

As in previous years, Messrs. Wratten and Wainwright, in the show-case standing in the Fountain Court, treat their visitors to a species of scientific legerdemain, providing at the same time a spectacle to which one can only apply the phrase beloved of reviewers of Alhambra ballets, "a veritable feast of colour." By means of a very ingeniously contrived apparatus, they allow of spectrum being viewed through light-filters of various colours,

that the observer sees the relation which exists between a given colour and its absorption of the spectrum. Thus a green colour is seen to correspond with an absorption of the red and blue of the spectrum, whilst the other colours with which experiments can be made at Messrs. Wratten's exhibit illustrate the application of light absorption to three-colour photography and photo block-making. Some simple results obtained in portraiture and in photographing furniture with panchromatic plates are also shown, and



we were interested to see the astounding improvement obtained by using a screened panchromatic plate for photographing a scratched dark slide. Messrs. Wratten show the original to those interested. Another almost equally astonishing example of panchromatism is the pair of reproductions of an advertisement by Messrs. Lever Bros.

Naturally, the great range of results obtained on the new Wratten lantern plates are prominently shown, and the lantern-slide worker will have the opportunity of seeing for himself the very fine blue and warm tones obtainable on these new plates. Some few light-



filters of the 77 which Messrs. Wratten now manufacture are exhibited, as are also some of the special filters, including one for eliminating lines from the spectrum of mercury vapour, thus obtaining a powerful source of monochromatic (green) light. Adjoining their stand, Messrs. Wratten also show in the North Room a large collection of three-colour prints made on their Panchromatic and Process-panchromatic plates, or with their three-colour filters. These include a fine selection of work by André and Sleigh, Ltd., Anglé-Engraving Co., Ltd., Carl Hentschel, Ltd., Marshall Engrav-

ing Co., Press Etching Co., Ltd., Ruysdale and Co., and John Swain and Co., Ltd.

Johnson and Sons, Ltd.

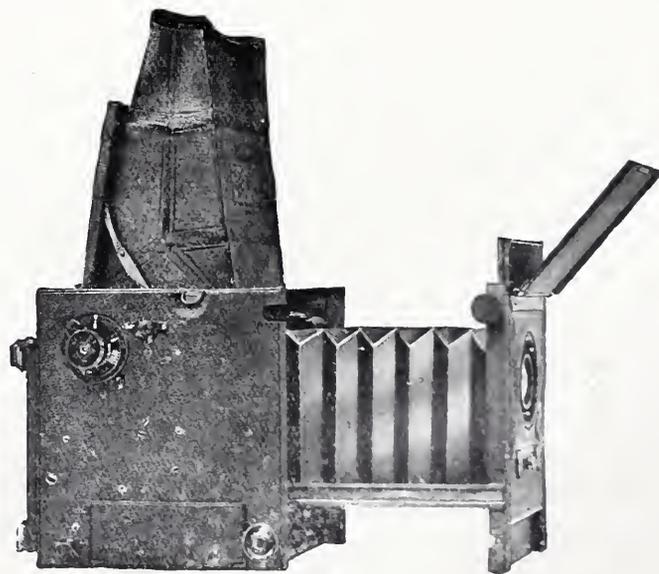
The display of gold chloride, silver nitrate, and potassium chloroplatinite at the stall of Messrs. Johnson and Sons to the total value of £1,100 is a reminder of the output of this old-established and well-known firm in the way of chemicals and chemical preparations for photographers. Apart, however, from salts of the precious metals, Messrs. Johnson have long specialised in developing chemicals, and their "Scaloid" series of photographic tablets and cartridges are appropriately given a prominent place in the exhibit. The single-solution "Azol" developer and the indispensable "Crushmeter," or combined pestle and mortar and graduate, are shown, whilst the latest introduction of the firm, a set of photo-



tints, is included. These consist of a series of concentrated solutions of nine different tints, the set being conveniently packed in such a way that the tints may be used without taking the bottles from the box. This new introduction should help further to popularise the hand-colouring of lantern slides and bromide and gaslight prints.

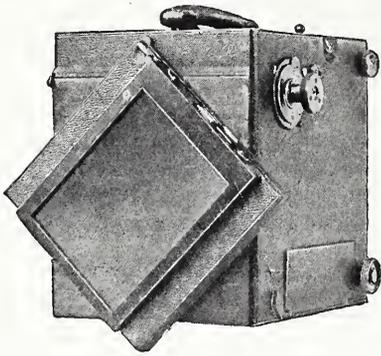
Adams and Co.

An opportunity which offers a special inducement to visit the New Gallery is the exhibition of the new Adams reflex camera, the "Minex," an instrument which we cannot adequately describe in the space now at our disposal. Sufficient to say that in the new design of instrument the maker has achieved a triumph of porta-



bility and range of movements which would seem to be the final word in this type of camera. The focal-plane shutter is of the self-capping type, and the act of re-setting the shutter automatically places the mirror in the position for re-focussing. In this matter, as in other features of the camera, the gain is all to the user in the way of rapidity of action, as also in the ability of the camera to serve its purpose in the case of the greatest variety of different

subjects. In addition to the new reflex—the details of which we hope to review in an early issue—the new models of the highly compact “Vesta” camera and of the “Idento” hand camera are



also shown, in addition to the variety of stand cameras, changing boxes, finders, and enlarging lanterns, as manufacturers of which Messrs. Adams and Co. have long enjoyed an enviable reputation.

The Platinotype Company.

Professional photographers will be interested in examining the method of illumination from both back and front which the Platinotype Company adopt at their stall in the way already described in our columns when it was shown at the Photographic Convention. The prints are placed in frames which are backed up with plain glass instead of a backing-board, an aperture of suitable shape being cut in the back of the stall behind each frame. The use of the light behind the picture gives a certain luminosity to the print when used in conjunction with a front illumination, whilst, when illumined solely from behind, the effect of the prints seen as transparencies is very pleasing. For the rest it may be said that in their exhibited portraits on Platinotype and Platinotype-Japine papers, the Company sustain their reputation for making only the best, and for placing in the hands of photographers a product which for nearly thirty years they have manufactured to an extremely high standard. Demonstrations of the process are given every afternoon and on each evening on which the Gallery is open.

Kodak, Limited.

The stall of the Kodak Company on the right of the entrance contains the latest models of the firm in the way of cameras and apparatus for the development of roll film, plates, and film-packs exposures. These include a new Kodak, the No. 4A “Speed” for pictures $6\frac{1}{2}$ in. x $4\frac{1}{4}$ in. on either films or plates. This is a focal-plane camera, allowing of exposures from 1-5th to 1-1,000 of a second, as well as time. In addition to the ordinary finder there is a direct-vision finder for vertical and horizontal pictures, as well as other movements which a high-class focal-plane camera should possess.

In the North Room the Kodak Company have a further and very tasteful exhibit of results upon papers of their manufacture, chief among which is to be noticed the exquisite black and white results on “Velox” paper, together with a few sepia prints by the sulphide method on “Velox,” which are sufficient to show the suitability of this gaslight paper for sulphide toning. The variety of the results and the technical perfection of all of them admirably bears out the motto on the panel, “There is a Velox for every Negative.” Examples of the “Velvet” surface of paper, which is issued by the Kodak Company with the Solio P.O.P., bromide, and Dekko emulsions, occupy another panel, whilst two others are filled with results on the Kodak bromide papers, including some particularly choice enlargements done, on white and cream “Royal” bromide paper, with, in one or two instances, the assistance of bolting-silk. The whole design and scheme of tones and colours in this display of the Kodak Company deserve special commendation.

Ilford, Limited.

The central space in the Fountain Court is occupied by Messrs. Ilford, Limited. The panels forming the base of the stall contain a series of most excellent enlargements on the various brands of Ilford bromide paper—namely, the “P.M.S.,” “Rough Rapid,” “Carbon Surface,” “Glossy,” “Very Rough,” and “Cream Bromona.” The series well demonstrates the extremely beautiful results obtained with these Ilford products. On the table will be

found a set of five stereoscopes, each containing fifty stereoscopic transparencies on “Alpha” plates of the recent aviation manoeuvres at Rheims. These are from negatives taken in the Richard “Verascope” camera, and lent by the firm of M. Jules Richard. The Ilford X-ray plates (a new booklet relating to which may be obtained at the stall) are represented by a very fine series of radiographs, both negatives and prints. The Ilford plate in astronomical work is represented by a positive transparency (made on an Ilford “Special” lantern plate) of one of the negatives (No. 168) made by Mr. J. Franklin-Adams for a chart of the heavens. These negatives are on Ilford “Monarch” plates. Transparencies in the Ilford “Alpha,” “Special” and “Gaslight” lantern plates are further shown, and among the numerous specimen prints from negatives on Ilford plates we may call special attention to the beautiful example of instantaneous photography, consisting of a boy doing the high jump, which is taken in 1-900 of a second on an Ilford “Special Rapid” plate, and is a capital example of full exposure and gradation.

In the way of apparatus a new introduction is shown by the Ilford Company in their light-filters for Ilford plates, ingeniously designed for attachment either over or inside a lens-hood or barrel. This form of construction gives a margin of a quarter of an inch or more in using a filter on several lenses.

Paget Prize Plate Company, Limited.

The Paget Company confine themselves solely to specimens of printing on their newly introduced phosphate paper, of which they show a large number of prints of portrait and landscape subjects, chiefly in demonstration of the excellent tones resembling those of P.O.P. obtainable on the paper. Many of these illustrate the good warm tones of which the phosphate paper is capable.

Ozobrome, Limited.

Enlargements and prints by the ozobrome method form part of the exhibit of Mr. Thomas Manly’s firm, in regard to which incidental mention may be made of the pleasing colours of some of the tissues exhibited, such as the warm black, blue-black, and Italian green. There are also shown examples of ozobrome transferred to wood, and also of oil and bromoil prints, produced by the newly recommended methods of the Ozobrome Company recently given in our pages.

Leto Photo Materials Company, Ltd.

As in previous years, the whole of the end wall of the North Room is occupied by the large and effective exhibit of the Leto Company, who here show the fine technical qualities of “Seltona” paper—antique, cream and matte—and also of the pleasing effects obtained on “Seltona” and other “Boardoid,” or extra stout papers, by means of plate-marking and shaded border printing. “Seltona” having been one of the earliest of the self-toning papers to come upon the market, it is satisfactory to see that it continues to maintain its supremacy as one of the most admirable varieties of this type of material. Further prints are shown on other Leto papers, such as “Platino,” “Tintona,” and “Gaslight,” whilst this year the Leto exhibit is reinforced by results on the Edwards’ plates, among which those on the isochromatic negative plates and on the “Kristal” lantern plates are specially worthy of notice. As on previous occasions, the Leto Company make a special feature of exhibits of interest to the professional photographer, and their representative is specially deputed to discuss matters of professional interest with visitors to the exhibition.

The Autotype Co.

In the large space which it occupies in the North Room, the Autotype Co. exhibits a great variety of its special manufactures in the way of permanent photographic prints. Naturally, the carbon process claims the chief share of the space. The specimens shown illustrate, in a very striking way, the refinement in colour of tissue and transfer paper which is now available. In this respect we think the carbon process as worked in England shows up to the best possible advantage. The garish tissues which are largely favoured by Continental workers always look to us as too full of colour and far inferior in effect to the cooler and more neutral shades of which the Autotype Co. manufacture a very considerable variety. In the matter of technical quality, one of the most striking prints is a telephotograph of “Rock Peak” (No. 5), by Dr. W. Hunter Workman and Mrs. Bullock Workman. The great contrasts of Alpin subjects obtain a perfection of rendering in a carbon print which is perhaps theirs by no other method, and a subject such as “

Race for the Summit of Mont Blanc" (No. 28), by Edward Whymper, is a most effective example of superb technical photography produced by carbon printing. Portraiture figures to a considerable extent in the Autotype exhibit, and attention will centre on the groups of Royal children by Richard N. Speaight; No. 21 represents T.R.H. the Princess Wilhelm and Ferdinand of Prussia, taken at the Marmor Palace, Potsdam. It is a pleasure to see photographic portraits of such quality as these carbon prints, and one may hope that professional photographers visiting the exhibition will make a mental note of the technical, and we might add commercial, qualities of carbons.

Some excellent coloured miniatures on ivory are also shown by the Autotype Co., as also the copper enamels which are supplied by them to the photographic profession. There are also displayed one or two specimens of the "stained drawings"—a form of picture which should command a good price among a suitable clientèle and represents a very skilful combination of photography and hand drawing.

EVENING LECTURES.

The following are the lectures to be delivered during the next fortnight:—

Saturday, September 25.—"Among the Cornish Fisher Folk," by Walter Thomas.

Monday, September 27.—"A Visit to a Marine Biological Station," by Francis Ward, M.D.

Thursday, September 30.—"The Romance and Humour of Invention," by A. H. Dunning, F.R.G.S.

SOME LECTURES WHICH WILL NOT BE DELIVERED AT THE NEW GALLERY DURING THE PRESENT EXHIBITION.

THE FUTILITARIANISM OF ART.

BY H. A. MOLMONDERY.

LADIES AND GENTLEMEN,—What I am going to say to you to-night you have all heard before many times. Still, you will be no worse off for hearing it again. What I say is always worth hearing—you have heard *that* before. You will hear it again, no doubt.

The things hung around these walls are very beautiful, but one feels that there are too many of them and too many people to see them. It would be nice to have one room with nothing and nobody in it at all, where one might kiss a sandwich. Art is a great thing, but Appetite is a greater. It is better to satisfy the latter than to hunger for the former, for, as Horace says, "Vacuus belli cantabit ervus, hunc metum et jam in corpore magnum bonum est."

Yes, Art is long and Nature stands in its way. When we walk broad in search of the picturesque we forget art and are overwhelmed by nature—unless we are photographers, in which case we probably shall have forgotten the lens and become overwhelmed with *human* nature. After all, it is at such moments that we reach the highest point of our art careers. We make the best pictures when we are without the wherewithal to spoil them. Seated in the dayside hostelry communing with oneself—having failed with the serving maid—the visions and pictures that have possessed one's ringing heart during the day pass before the mind in their fullest beauty. They are our own. Why should we ruin them by trying to paint or gum or oil them? They are better as they are—spiritual, not corporeal. They give pleasure to *one* person at least, which is better than their being reviled by many. A one-man show on these lines pays, because it costs nothing beyond the refreshments supplied to the critic.

My friends, let us not paint or photograph. Let us burn our easels and paints and oils and brushes, whether the latter be flat round, straight-cut, or pied de biche. Let us burn them all, even Cortez burnt his ships. There will then be no going back, except to the hostelry, where alone is peace without effort. I shall say all this again in my next lecture.

A TOUCH AND GO AT TURKEY.

BY W. L. F. WASSAIL.

LADIES AND GENTLEMEN,—Amongst the many commodities for which Turkey is famous I must mention, first and foremost, its "delight." That is paramount. I know, because I've had some. In fact, it is the keen desire in my innocent breast to experience the joys of that led me to undertake this Oriental pilgrimage. But there are other things also which are not to be sneezed at or into. The

Lastly, we must not omit to draw attention to the examples of oil prints made on the Autotype oil papers. No. 30, a cottage subject by C. H. Hewitt, is a striking example of the fine surface texture obtainable on the Autotype oil tissue, though No. 32 is perhaps the best example of Mr. Hewitt's work. No. 31, a portrait from a negative by Messrs. Lafayette, owes a great deal of its quality to its pigmenting by F. C. Tilney, and is a most excellent example of the apparently incoming application of oil in professional portraiture. The finely formed head has been treated in a most delicate manner, and the effect is very striking and attractive.

The Sciopticon Company.

Emerging from the North Room on the left the visitor will see a frame of lantern slides, by the Woodbury process, made and shown by the Sciopticon Company, and well representing the fine technical quality of slides produced by this most perfect of photo-mechanical methods.

Saturday, October 2.—"Modern Ideas About the Sun," by T. F. Connolly, B.Sc.

Monday, October 4.—"San Marino, the Pigmy Republic," by the Rev. T. T. Norgate, F.R.G.S.

Thursday, October 7.—"Saints, Benedictines, Goths and Vandals," by E. W. Harvey Piper.

Saturday, October 9.—"The Photography of Sport," by Adolph Abrahams, B.A.

baths, for instance, where you stew in your own juice, and will feel all the horror and shame of a dirty life if you do not first have a common or garden sixpenny "men's private" at the local urban council's shop. This suggests another of the special gifts of Turkey to civilisation—namely, sponges for outward application, not to mention rhubarb for inner. You see on the screen all the two-penny bundles of the latter waiting for shipment to England. In textiles Turkey sends us the indispensable "twill," which we use for impossible ruby lamps and the blinds of country pubs. There are also its tobacco, its cigarettes, and its carpets; and we must not forget its sultanas, its sultans (ladies first), its harems, and its "unrest," which is a thing the papers talk of, though I cannot describe it. Finally there is the magnificent bird to which the country gives its name—the terror of childhood—a succulent biped, which we fatten all the year that it may fatten us at Yuletide.

The Turks themselves are a gentle and amiable people, who are terrible only when they are annoyed. According to tradition and to pictures, the men wear skirts and the women trousers. Out of doors the ladies wear cloths over their faces, with little eyeholes, through which they ogle you. But beware how you answer back, for if you are detected passing the time of day with a Turkess you are hauled by the hair into some secret place, where your head is laboriously hacked off with a scimitar. The next ninety-seven slides are pictures of Turkish ladies. I may say that I escaped the butchery alluded to merely by threatening my assailants with the camera. The turban as a head-dress has given way in modern times before the fez, which is in reality an inverted flower-pot, with a tassel to stop up the hole. Perhaps a flower-pot is, after all, no worse than our own chimney-pot, several examples of which filled me with home-sickness in the bazaars of Constantinople. Now, ladies and gentlemen, having touched at Turkey, we will "go," and this, our last picture, is the P. and O. boat which is to bring us back from the dreams of the East to Western nightmares of hard hats and no "delight."

WALKS IN LONDON.

BY AUGUSTUS HARE BLAKE.

How few of us, ladies and gentlemen, know our London as we should. We know the stopping-places of the omnibuses, the houses of refreshment which are still the centres of so much of the life of the town, but how many of us who pass the Redcliffe or the Horse-shoe, if ever we do pass them, recall the days when Oliver Goldsmith used to stroll from his poor rooms in the Temple across Lincoln's Inn Fields, which really were fields then, and out at the

Little Turnstile into the road called Hole-Born, which you will perhaps remember got its name from that poor lad who came to London at the end of the sixteenth century wearing a suit of clothes so old and ragged that when he tried for work he was jeered at even by the ragamuffins of those days, those little gamins whom Hogarth has caricatured in the idle and industrious apprentices, one of whom, after a sad career of idleness and dissipation, we here see on his way to Tyburn Tree standing by the Tye-Burne, Bourne, or Borne (hence the phrase tith-barn, a corruption of the same word), not far from the present store of Selfridge, which very likely by this time you are tired of looking at, but I put it first on the screen because it is such a perfect example of the Early North-German-Lloyd period of decorative architecture. . . . I suppose few of us ever turn away from St. Paul's and pass again towards the West End of London without pausing for a while before this noble church and thinking of the days which poor Sir Thomas Moore spent here in the humble rectory, of how his devoted daughter led him by the hand along the streets and through all his troubles and persecutions in those disturbed days, until at last his cruel execution put an end to their life of mutual devotion, and her father's head was left for forty days outside Newgate Prison, until by bribing one of the officials it was given a decent burial—a sad story of disappointment and ill-requited service for this country which so moves me even now when I relate it that I have forgotten to tell you what the name of the church is, but never mind, it is just as likely as not you will see it some day for yourselves, or "The Amateur Photographer" may reproduce it in illustration of an article on how to photograph a fountain, or the Earl's Court Exhibition, or something of that kind.

OUR DISAPPEARING DICKIES.

BY ALLONER BYKE.

LADIES AND GENTLEMEN,—I must ask your kind indulgence for anything that may be uninteresting in my lecture to-night. I know that many people do not find much pleasure in hearing about birds, but if you will give me your kind attention to-night I hope that some words or some of the pictures may enlist your sympathies on behalf of the poor winged, harmless creatures that are so often wantonly killed in thoughtlessness or in sport. Many noble birds that used to adorn our woods and fields are now almost extinct, and one has to travel far and endure many hardships in order to secure them for the table or the show-case. Take, for instance, the case of the great lesser spotted double-breasted night-cap warbler. It is doubtful if one exists to-day. I show you a picture of one. This specimen was photographed on the wing on a string. Then there is the spotted paper fly-catcher, which is now rarely seen; his haunts have been over-run by the Mather fly paper catcher, which is more merciful to the flies that form its prey. The note of the "paper fly-catcher" used to be quite common a few years ago in the hot summer days, but I am sorry to say that the familiar cry that sounded so much like "Catch 'em alive O" is now heard very rarely, if at all. The Mather goes about its work silently. Here are pictures of the two birds. Note the spots on the head of the "spotted paper fly-catcher," from which it derives its name. The Mather is one of the waders, and is powerless if taken from the water.

I shall now show you a series of remarkable birds which are found exclusively in St. James's Park. These are mostly of the duck tribe, and are jealously guarded. I have a friend who, though only a poultier by trade, is very much interested in these birds, and though I have often tried to procure him some specimens of them, I have never succeeded, for their haunts are most carefully watched, and those in authority put the most difficult obstacles in the way of acquiring these birds or even their eggs. If we journey as far as the Embankment at Blackfriars, however, we can more easily get at another class of bird, which poetry and the sea has endeared to all Englishmen. I allude to the bird now upon the screen. This is known by the name of "Mother Seagull's Sickups." They can be induced to come quite near by the sight of a penny bag of sprats, which are sold on the adjacent kerbstone. If a sprat be thrown into the air, the gull will very cleverly dart at it, miss it, and then pounce upon it as it lies side uppermost upon the surface of the water. Here is a picture of one of the sprats lying on the water after the bird has missed it and then lost sight of it.

Now to vary the entertainment I will show you, if you will allow me, a series of pictures in a lighter vein. I call this the story of the curate's egg. In the first picture you see the curate tapping at the egg. In the second a little hole is made and a little beak appears. Note the curate's action. In the third the curate has upset the egg and the egg-cup and has risen from the table, while the chick, now fully emerged, dances upon the edge of the plate. I have written the following lines to accompany these little pictures:—

Sing a song of sick-wince,
A shockin' awful smell!
Poor and pretty dick-bird
Boiled in a shell.
When the egg was opened
The bird began to hum.
Wasn't that a dainty dish
To knock the curate dumb?

And now, ladies and gentlemen, I thank you for your kind attention, and hope my efforts have not been altogether unprofitable.

VELARIUM.

By A. LONG, F.R.P.S.

The shades of night were falling fast
As round the show the artist passed;
Or so he thought, till 'mid the gloom
A whisper struggled round the room,
"Velarium!"

Not knowing what this word implied,
He struck a match and vainly tried,
By means of its poor, feeble rays,
To find something to fit the phrase
"Velarium."

"Look up on high," the whisper said.
He looked, and just above his head
He saw a cheap and flimsy tent,
But never thought that that was meant.
"Velarium!?"

"This is a most artistic show,"
The whisper said. "And Art, you know,
Cannot endure the vulgar light.
We therefore shut it out from sight."
"Velarium!!!"

His brow grew sad; his eye beneath
Flashed like a falchion from its sheath.
The outraged artist softly swore,
Then jumped and ripped, and clutched and tore
Velarium.

He seized that ghastly ceiling cloth,
And with it fled the coming wrath.
And now he's stocked with dusters fine,
Each duster with the strange design,
"Velarium."

In consequence of the space devoted to the notices of the Exhibition of the Royal Photographic Society, a large number of "Answers to Correspondents," "Reviews of New Apparatus," etc. are held over.

GRIFFIN'S "SATIN" BROMIDE.—As announced elsewhere in the issue, Messrs. Griffin are now making a special offer to professional photographers in the shape of a free sample of this bromide paper two prints—one in black and white, and the other showing the excellent sepia tone obtained by acting on Messrs. Griffin's instructions which latter are also specially placed in the hands of applicants. The print before us is certainly an altogether admirable example of the toning process, and we think many of our professional readers will be glad to avail themselves of the information as to the process, which, we learn from Messrs. Griffin, has been engaging their attention for some considerable time past.

Photo-Mechanical Notes.

Classes at the Bolt Court School.

The forthcoming session of the London County Council School of Photo-Engraving and Lithography, 6, Bolt Court, Fleet Street, E.C., opened on September 20, and the prospectus can now be obtained by intending students. The school, which is under the direction of Mr. A. J. Newton, is open only to those who are engaged in business in some branch of the photo-mechanical, photographic, designing, lithographic, engraving, printing; and illustration crafts, no provision whatever being made for amateurs. The school is well equipped with the necessary appliances for study and practical work. It contains a photographic studio, with four cameras and powerful electric light installation of modern pattern, including a large electric searchlight and mercury-vapour lamps, dark-rooms, sensitising-room, glass-cleaning and intensifying-rooms, tri-colour dark-rooms, extensive etching and printing-rooms—complete with electric light and modern appliances, including two types of power-driven etching machines—machine-room containing the latest power machinery for mounting, cutter, beveller, saw, etc., block proving-room, with electric motor-driven platen machine, colliotype preparation and printing-rooms, with presses and necessary equipment, a photogravure-room, a reading-room, and museum of specimens and examples. There are also two large rooms for lithographic drawing and a press-room, as well as separate studios for design, antique, and life and costume drawing. The school thus provides every advantage and facility for those who wish to improve their knowledge of their business and their dexterity as workmen, and the art section should be of special service to those artists engaged upon work for reproduction, as students in these classes will have the privilege of having selected work reproduced, and every opportunity will be afforded them to obtain a knowledge of the various processes and their limitations.

Both day and evening classes are provided at the Bolt Court School, the fees (payable in advance) being £9 per session for the day classes, and certain courses of instruction may be taken at a fee of £1 1s. for twelve lessons of one hour each for students not desiring to enter the whole curriculum. In the evening classes persons are admitted to all or any of the classes which they are eligible to join on payment of fees at the following rates:—If earning over 30s. a week, 1s. the session; if earning 30s. or less a week, 4s. 6d. the session, which begins on September 20, 1909, and ends on June 30, 1910.

Among the various courses of lecture demonstrations and practical workmanship instruction, mention should be made of those in the making of line and continuous-tone negatives, three-colour block-printing in the various printing processes, for half-tone and zinc work by the albumen and enamel processes, and other processes of half-tone reproduction, all of which are in the hands of special instructors.

There appears to be a strenuous endeavour to attract students to the theoretical side of the work, and to this end numerous lectures have been arranged, those on the "Chemistry and Physics of Photo-engraving" being divided into a number of short courses, complete in themselves, dealing with the different branches of the work. There are also courses of lectures on "Technical Photography" (by Mr. H. W. Bennett), on "Further Developments in Theory of Photographic Processes" (by Dr. S. E. Sheppard), also on "Paper-making and Stationery Manufacture," besides the usual Thursday evening lectures by individual experts of eminence. We imagine that something can be learned from the school even by those who consider themselves most proficient. We have heard that many journeymen refrain from attending because they think the work is elementary. We believe this to be quite a mistake, and, although the instruction must be elementary for those who are beginners, it can be picked up at any stage, and advanced work, or even research, undertaken. The energetic principal seems resolved to keep the school as thoroughly efficient and up-to-date as possible. We understand he has to this end spent his summer vacation in making an extended tour throughout Europe to visit some of the principal establishments in Holland, Germany, and Austria. We feel sure that there is none engaged in the craft that cannot reap advantage from attendance in some department or other at Bolt Court. We have not space to enumerate all the activities of the school, but a copy of the prospectus, with time-table and full particulars, may be obtained free on application to 6, Bolt Court, Fleet Street, E.C.

Answers to Correspondents.

- * All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- ** Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- ** Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.
- ** For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

- S. B. Reynolds, 8, Victoria Road, Brentwood, Essex. Photograph of Wax Bats in Shop Window after a Fire; Title: "As I looked at Wilson's Fire I did feel Waxey; I never had such a close Shave."
 J. W. Powell, 13, Rutland Street, Swansea. Photograph of Two Persons and a Donkey in Act of Telephoning, &c., on Porthcawl Beach, entitled "Old Friends at Play. On the Telephone at Porthcawl."
 M. Lutenberg, 56, Waterloo Road, Widnes. Photograph of a Bird's-eye View of Widnes.

DRAWING REGISTERED:—

- Edith Trantom, 31, Islington, Liverpool. Drawing (pastel) entitled, "A Simple Child that lightly Draws its Breath."

ARTHUR ADDINGTON.—It seems to us that the copyright belongs to you unless the other man employed you to take the pictures. But what use is the copyright to you now that the negatives are no longer yours to print from? If you give the firm the sole right it will be of no use to them unless you assign the copyright in each picture separately.

PHOTOGRAPH OF SHIP ON FIRE.—Where could I get a photograph or picture of a ship on fire, with history to same? What I really want to get is a photograph or picture of a ship that sank at sea while burning.—E. W.

We are unable to tell you. Perhaps one of our readers who has such a photograph may be able to supply you, in which case we will forward any letter.

ARTIFICIAL LIGHT.—Will you kindly let me know, through your valuable paper, the best book to purchase for the electric artificial and daylight lighting (illustrated), and from whom we can obtain same?—A. R.

There is no such book published.

LENS COMPARISONS.—(1) What is the loss of light from a lens with ten air-spaces compared to an R.R. with only four? I have read that there is a 5 per cent. loss from each air surface, but this means 50 per cent. with the above, and surely cannot be correct, as an $f/6$ lens would be no quicker actually than $f/8$. (2) Is an air-space lens slower than the F. No., or is the loss only due to milkiness? (3) What loss is there with an anastigmat composed of cemented components (say, three or four to each cell)? (4) Does a lens composed of thin cemented components show much difference to one composed of thicker cemented components?—E. C. FLETCHER.

None of your questions admit of very definite answers. The loss does not depend on air-spaces alone; there is also a loss due to absorption by the glass itself, and, assuming the lens with the greater number of air-spaces to have more transparent glasses than the other, the total loss in the two may be about equal. One cannot estimate the loss by a formula such as the one you quote, but in a ten air-space lens the loss would probably not be much under 50 per cent. We believe it has been found that the average loss in doublets is about 50 per cent., while in single thin cemented lenses, such as landscape lenses, it is less.

SPOILT FILMS.—Would you be good enough to enlighten me on the following? I took six films to a firm to be developed, with results as enclosed specimen. (1) Can you account for the state they are in? (2) If fault of firm, can I claim cost of films as well as developing charge? (3) Can it be remedied in any way?—G. B.

(1) The image appears to be reversed, but we cannot explain the reason of its being so, as reversal can be effected in many ways.

(2) You must first prove that it is the fault of the firm. Gross over-exposure of the film may have contributed to the effect, in which case they can hardly be blamed. You should apply to them for an explanation, and see what they have to say about it. In any case, it is not worth while making a great fuss over the loss of only six quarter-plate films. (3) We can only suggest bleaching and redevelopment. Try the chromium intensifier formula C given on p. 784 of the "Almanac." If this fails we fear the case is hopeless.

T. L. FULLER.—Photographs of Moscow have been taken by Beckett and Sons, The Grove, Hackney, N.E.; Photochrom Co., Hosier Lane, E.C.; W. H. Rau, 1,324, Chestnut Street, Philadelphia, U.S.A.; Lewis Medland, Kimberley, North Finchley, London, N.; and Soule Photographic, 338, Washington Street, Boston, Mass., U.S.A. We advise you to apply to one or other of the above, who may be able to grant you rights to reproduce as postcards.

H. WRIGHT.—We do not know the composition of the stop-out medium. Obviously one which is used in an air-brush has to be extremely fine, and the makers naturally keep its composition a secret.

CURRENT.—1. It is not so largely used as arc light, which on the whole is, we think, preferable. 2. Continuous only. 3. You will find a variety of arc lamps announced in our advertisement pages.

G. BONNAND.—We think the firm you refer to is the Taber Relief Co., 115, Newgate Street, E.C.

REDUCING PLATINUM PRINTS.—I should be glad if you can inform me of any good method of reducing platinotype prints (black and sepia) that have been printed too dark.—PLATINUM.

The best means, but not a very certain one, is to use a weak solution of chlorine water (from a large firm of chemists). An extract of bleaching powder made acid with hydrochloric acid will serve the same purpose. See the "Almanac," p. 816, under "Restoring Yellowed Prints." The addition of more acid, giving a stronger-smelling liquid, will reduce the prints somewhat, but the process is not to be recommended for general use.

ARMY PHOTOGRAPHS.—Can you give me any information in your next issue of "B.J." who most likely would buy some negatives of the present Army manœuvres, as I have some for sale?—H. E. W. UPSHER.

Apart from the illustrated papers, try Gale and Polden, Aldershot.

ACID FIXING BATHS.—As old subscribers of your Journal, we would esteem it a favour if you will kindly let us know if it is practical to use alum, hypo, and acid in one fixing bath for the keeping of prints, or would same turn yellow in a short time, as we are informed by a young man in the trade that this would be the case.—M. KELLY.

Such a fixing bath (see formulæ in "Almanac") is very commonly used for bromide and gaslight prints, but its advisability in the case of P.O.P. is doubtful. For the latter an alkaline fixing bath is generally advised. See our note on page 682, "B. J.," September 3, with reference to use of acid fixers with bromide prints.

MOUNTANT.—We do not know the recipe, which, we may further tell you, is protected by patent.

INTERIOR WORK.—I should esteem it a great favour if you could inform me of a good method of developing negatives of interior work showing great contrasts of light and shade. I have of necessity to over-expose the lighter parts to get sufficient detail in the darker shades. Is it possible to equalise matters in the developing so that I could retain full detail in the lighter parts and prevent flatness, while still having good density and detail in the shadow portions of good printing value? Any hints, most suitable developer, etc., which would help me to overcome my difficulty, would be greatly appreciated. I have taken the usual precaution of using backed plates.—A. R. GRAY.

More depends on the exposure than on the development in work of this kind. Regulate your exposure for the darkest parts of the subject, and disregard the lighter ones. They will not readily show any signs of over-exposure, because the scale of light intensities is really much shorter than in ordinary outdoor work. From your letter we should say that you are under-exposing; it is a difficult matter to over-expose on an average interior. Given enough exposure you will find no difficulty in developing with almost any developer. Aim at a soft result. Use only just enough

bromide to prevent fog, and do not use a highly concentrated developer. Any developer is equally suitable, with the possible exception of plain hydroquinone.

GASLIGHT PRINTING.—Will you please tell me: 1. The best way of vignetting in gaslight work? 2. Also the best way of introducing clouds in the same process? 3. Is the fixing bath given on page 582 of current "Almanac" suitable for prints as well as for negatives? If not, perhaps you will kindly give me a simple formula for prints that will harden and fix together. It is intended for use with Velox papers.—CHROMO.

1 and 2. You can use precisely the same methods as with P.O.P. There is no special difficulty with gaslight paper that we are aware of. Use a diffusing screen of muslin over the vignetting mask. 3. There is no objection to a bath of this composition, but it is rather strong for print work, and we should double the quantity of water.

COPYRIGHT.—I have in my possession a set of twelve photographs which I have taken of the germination of the broad bean. As I wish to copyright them, would it be necessary to copyright each one separately, or is it possible to copyright them as a set, and would the fee be as one photograph? 2. I have already an application from a journal for a set for publication. If I charge, say 10s. 6d. for a set, with right to reproduce, could they claim the right to publish them in more than one issue?—A. Z.

1. We think it will be necessary to register each print separately if there is a really appreciable difference between them. Legally each exposure should be separately registered. 2. Certainly the fee should be for reproduction in one issue only. You should make this clear in your letter to the editor and in signing any receipt for the money.

ULTRA-VIOLET LIGHT-FILTER.—1. Where can I obtain nitrosocyanide methylaniline? 2. How is it used to make a light-filter to pass ultra-violet only?—ULTRA.

1. From E. Merck, 16, Jewry Street, E.C. 2. We believe it can be dissolved in gelatine solution and coated in the usual way. A screen is supplied ready made by Messrs. Wratten.

COPYRIGHT QUERY.—Kindly inform me in "B.J." re copyright photographs given away by me prior to registration. Are they unprotected also as well as being sold? I have sold none. All does change of address make any difference to the registration afterwards?—J. W. P.

Until the copyright in the pictures has been registered they are unprotected. After that they are protected, but no action can be taken for anything that was done prior to the registration. Change of address makes no difference.

PROCESS.—The directions and materials for the process are supplied by A. W. Penrose and Co., 109, Farringdon Road, London, E.C. We think you will be unwise to attempt to work the process yourself with a view to rapid production, that is, in considerable quantities. Far better arrange for getting blocks made quickly and have prints done from them.

E. D.—The phrase is not in common use. We should take it to refer to finishing prints; certainly not to backgrounds, unless they are specially mentioned.

ALEX. COUTTS.—Apply to Wolf and Co., 245, Tottenham Court Road, London, W. But you will not get actual colour photographs unless you want to pay a guinea or so each for prints about 8in. by 6in.

**** NOTICE TO ADVERTISERS.**—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

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PRICE TWOPENCE.

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SUMMARY.

The "B.J." Almanac. Our publishers would remind intending advertisers that only fifteen days more remain before the pages of the 1910 Almanac must be closed for the press.

In an editorial article on page 758 attention is directed to the conditions under which commerce is likely to be carried on in the far future within the region of the Persian Gulf.

Mr. A. Lockett describes the construction and use of a photographic slide-rule now being shown in the Royal Photographic Society's Exhibition. (P. 759.)

The awards in the Dresden Exhibition have been made. We give the list of English-speaking persons and firms who have received diplomas. (P. 760.)

"Rapid proofing and drying of negatives," "Removing prints from mounts," "A curious case of fading colours," appear with other technical and trade topics under "Correspondence." (P. 769.)

Holders for plates which are being backed, daylight development apparatus, etc., figure under "Patent News." (P. 762.)

Under "Photo-Mechanical Notes" (page 761) is given the text of a recent patent of Dr. Albert for a cold-enamel process for photo-graved plates.

Formulæ for obtaining high relief in gelatine are given in reply to a correspondent on page 761.

"COLOUR PHOTOGRAPHY" SUPPLEMENT.

Dr. H. G. Drake-Brockman, in an article on page 73, describes the process which he has made of the Sterry method of obtaining reduced contrasts in making Autochromes of subjects of exceptional difficulty. Drake-Brockman's results are included in the present R.P.S. Exhibition.

Baron von Hübl, in a lengthy article which appears in a German contemporary, has described the *modus operandi* involved in testing dichromatic filters by means of colour test charts. The luminosities of the colour patches used in making the test charts are first measured with the Abney sector-disc apparatus and each colour patch then mounted on a neutral grey paper of equal luminosity. (P. 74.)

The translation of a recent article in "La Photographie des Couleurs" in which some suggestions are made as to the reproduction of screen-plate transparencies on paper appears on page 78.

The official formulæ for use with the various filter dyes made by Messrs. Lucius and Brüning are given on page 79.

The causes of the complete disappearance of colour from an Autochrome are the subject of several letters from correspondents on page 80.

EX CATHEDRA.

The "B.J. Almanac," 1910.

On behalf of our publishers we would draw special attention to the fact that the "make-up" of the forthcoming "British Journal Almanac" is almost complete for the press. Almost the whole of the anticipated advertisements are arranged, and therefore those who have not yet decided as to their advertising in the 1910 issue are requested to note that *only fifteen days more* remain before the pages must be finally closed—on Friday, October 15. The large size (over 1,000 pages) and edition (25,000 copies) of the "Almanac" coupled with the making of the "Index to Goods Advertised" inserted in the volume as a guide to its contents, leave the publishers no option as to the date of going to press. The text also must be closed at practically the same time, and we would therefore ask any secretary who has not yet acceded to our requests for information to do so without further delay.

* * *

Oil and Bromoil in Portraiture.

In our notice of the Professional Section of the R.P.S. Exhibition, we referred very fully to the portraits in the oil pigment process which have been made from photographers' negatives by Mr. F. C. Tilney, the well-known critic and Royal Academy exhibitor. It is, we believe, no secret that Mr. Tilney is open to accept commissions for making oil prints, and many of our readers who see the admirable results in the Exhibition may realise the desirability of moving with the times and having, at all events, one or two examples of this class of work at hand to show to clients who would be likely to appreciate it. The Autotype Company, who manufacture some excellent papers for the oil process, are also prepared to produce oil prints from photographers' own negatives. Those photographers, however, who wish to become *au fait* with the process will be interested to note that classes are being arranged at the Regent Street Polytechnic on Thursday evenings in both oil and bromoil. The classes are conducted by Mr. C. H. Hewitt, whose work in these processes is well known, and as we see from an advance prospectus the fees are little more than nominal, we advise our readers who are interested and within reach of the Polytechnic to apply to the Director of Education for a prospectus of the evening instruction.

* * *

The Preservation of Scenery.

Every photographer is surely in sympathy with any body which seeks to curtail the disfigurement of rural scenery and of specially picturesque spots in this country by unsightly advertisements, but probably few photographers are aware of the very valuable work to this end accomplished by the "Society for Checking the Abuses of Public Advertising." The "occasional journal" of this organisation is entitled "The Beautiful World," and the current

issue bearing the date September, 1909, is a volume of 230 closely written pages dealing with the many abuses of public advertising and pointing to the practical measures by which this plague of disfigurement can be stayed. The subscription to the society is only half-a-crown per annum, and we feel sure that the honorary secretary, Mr. Richardson Evans, The Keir, Wimbledon Common, will be glad to enrol new members as well as grateful for any contributions, for future issues of the journal, assisting the very excellent cause which the society has espoused.

* * *

Electric Lighting for Portraiture.

We usually call attention at this time of the year to the fact that in another month the quality of the daylight will be only moderate, and that the quantity will be very limited. The proportion of really bright days in November and December is small, and no degree of certainty exists that the appointments booked will be satisfactorily dealt with. This is, of course, a strong argument for the photographer's placing himself beyond the mercy of the weather, yet time and again we hear of workers who neglect even the consideration of an electric light installation until they find that they are losing money through the failure to take sitters, and through the inferior quality of their work which is done in a poor light. This is not the place for a recommendation of any particular system of lighting, and many are advertised in our columns set apart for the purpose. We are always glad to answer specific inquiries and to take into consideration the special requirements in the direction of prime cost and space available. We would suggest to inquirers that they send us one or two photographs of their studio, with measurements to eaves and ridge, the width and length of the room, and so on. Such particulars enable us to suggest the most suitable type of lamp, for what will work well in one studio may be quite unsuitable in another. At all events, we would urge once more the importance of prompt attention to the matter, for the Christmas rush is now not far off.

* * *

Exposure in Pictorial Work.

A writer in "Camera Craft" discusses the matters of so-called "correct" exposure and pictorial effect, and claims that correct exposure is destructive of all feeling and necessarily produces a mere record. He assumes the case of a woodland scene on a bright summer morning, and points out that an exposure that is somewhat shorter than the correct one will prevent shadow detail and give detail in the high-lights and so give a bright effect, while over-exposure will give the shadow detail, soften the high-lights, and give a sombre effect. We fear that too many pictorial workers do actually rely on under-exposure for their effects, but surely it is a wrong idea to suppose that detailless shadows have any pictorial merit. Want of detail in the shadows is perhaps one of the most prominent pictorial faults in photographic exhibitions. In nature such shadows never exist, and when they appear in pictures their unnaturalness is very evident. There is no reason that we know of why brightness cannot be rendered evident without destroying shadow details, and it is a pity to suggest that such an obvious fault can by any possibility be considered a picture. On the other hand, we fear that full exposure is not always the method adopted for introducing sombreness. Very often such efforts present the appearance of under-exposed negatives badly over-printed, for in them again want of shadow detail is generally apparent. We believe that the best pictorialists appreciate the necessity of correct exposure in their work just as fully as do the mere "record" makers, and that the majority of them effect such variations or produce such emphasis as they want during the printing process.

TRADE IN THE PERSIAN GULF.

For some years German business men have been concentrating their attention on the Orient and the Near East, and as a result of their increasing activities, they have succeeded in building up a very considerable trade in that part of the world. There are numerous reasons why Germany is so persistently challenging British prestige in that quarter. With the phenomenal growth of German commerce and industry within the last decade or so, has arisen the evil of over-production. Encouraged by their success, manufacturers went on producing until now they are suffering seriously from the effects of this policy, for they are finding that their markets have not kept increasing in anything like the same proportion to their products. Hence they are confronted with the problem, where they may turn to find new outlets for these goods. They have exploited Europe, America, and all the Western countries so thoroughly, that now there is little prospect of further conquests for them; at least, not in anything like the proportion of their past accomplishments. Necessity has driven them to change their methods, and to turn eastward, in which direction their future path lies. They are now following closely on the heels of British traders, and, as we have said, are challenging those markets in which the British have been the undisputed masters for many generations.

What makes the situation still more critical is the fact that Americans are beginning to direct their attention to these districts, and, as one of their representatives said to us, they intend "to make things hum." As a result of all this competition business methods and customs in the Near East must necessarily undergo some very important changes in the near future. What these changes are likely to be is patent to all who are interested in the subject, and it behoves the British manufacturer to keep a sharp eye on his business out there if he is to retain his prestige under the new conditions. It is for this reason and with the object of helping the latter all we can, that we constantly report in these columns the various activities of foreign manufacturers, and the conditions of the markets as new phases become apparent in it.

Since Germany financed the building of the Bagdad Railway, she has made great efforts to increase her sphere of influence within the Persian Gulf, both politically and commercially. Much German money has been invested in the districts surrounding the Gulf of late, a fact which may be taken as an earnest of their confidence in the future prospects in these districts. Consequently it is only natural that they should stir themselves to gain from their investments the most satisfactory returns possible. The share which photographers may expect to have of the spoils is shown in a lengthy article recently published in a German contemporary, which urges German manufacturers of photographic materials, and professional photographers, and those engaged in the manufacture of picture postcards, to take much more advantage of the opportunities afforded them in these regions than they have been in the habit of doing in the past. The author calls attention to the fact that as soon as the Bagdad Railway is finally completed, the trading monopoly which England has held in the Persian Gulf, and those districts lying within reach of it, will be entirely a thing of the past. Though Bagdad will still retain its position as the chief commercial centre, it is practically certain that at least one-third of the goods imported into it for re-distribution throughout the surrounding country will find its way through the western part of Persia, along the route of the new railway. This means a great economic change, for, besides causing a great reduction in the price

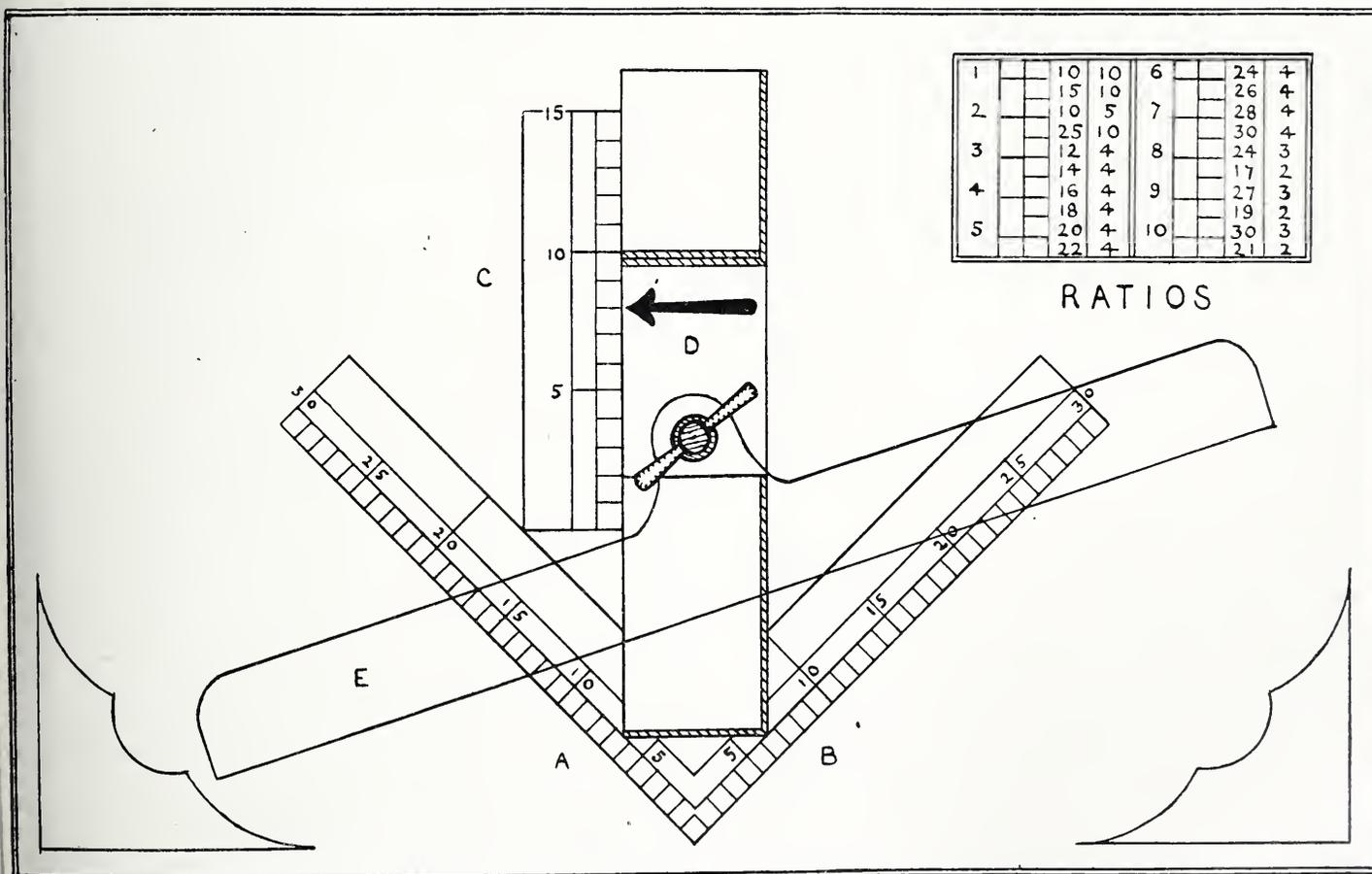
f. carriage, it will also shorten very considerably the time occupied in transit. As a consequence of this, other nations, principally Germany, will have cheaper and more ready access to the markets, and will therefore be able to compete more favourably with England. At the same time, the writer warns German manufacturers of the dangers of delay. They are not to wait in idleness until the railway is completed, but to canvass the markets at once, and have everything in thorough working order, so that the advent of the railway may find them on the ground.

The turnover in cameras, plates, and films, and photographic goods of all kinds, shows a very considerable yearly increase. The greater freedom enjoyed by the Turks, and the influence which Western ideas is having upon them, are both helping to broaden their interests and encouraging them to spend their money in many ways hitherto undreamt of. Even Turkish ladies may now be seen diligently snapshotting in their gardens, and the enthusiasm for amateur photography is fast becoming as keen as it was with us a few years ago.

A PHOTOGRAPHIC SLIDE RULE.

THE photographic slide rule, a cardboard model of which is shown in the Scientific and Technical Section of the Royal Photographic Society's Exhibition, is intended to facilitate optical and other calculations, enabling results to be arrived at automatically. It consists, as will be seen by the accompanying illustration, of two diagonal scales A and B, joining at a right

arrow pointer on the slide D, the lower edge of the ruler E is set against 10 on both the diagonal scales. In this position of the ruler the arrow should be pointing to 5 on the vertical scale. A mark is therefore made against 5 on the slide and the arrow drawn and inked in, after which it will register accurately for any position of the ruler.



...le, and a vertical scale C against which a slide D carrying an arrow pointer moves freely in a slot. To the side D is pivoted a movable ruler E by means of a winged nut. The ruler E may be of any material, but transparent bone or celluloid is preferable, as the whole of the graduations are then readily seen during adjustment. The two diagonal scales are graduated in tenths of an inch, the zero point of each coinciding at the angle. Fifty divisions, as shown, are sufficient for most ordinary purposes, but there is no necessary limit. The divisions on the vertical scale are each equal to the diagonal of a square whose side measure one-tenth of an inch, and in number may be half those on the diagonal scales, in the present case fifteen. The slot in which the slide D moves must bisect the right angle formed by the two diagonal scales, and is arranged so as not to cut off any of the graduations, the shape of the ruler being designed with this object in view. To insert correctly the

Such problems as ascertaining the focal length of a lens, finding the focal length that results from combining two lenses, ascertaining the necessary length for a studio with a given lens, estimating the distance required for a lantern screen under any specified conditions, obtaining original measurements from photographs, and so on, are quickly and accurately solved by this appliance. In addition, it is useful for the solution of many other optical, arithmetical, and mathematical problems, of both a photographic and a non-photographic nature.

A few typical examples of its use may be given, these being chosen for their practical character and their application to everyday work, although many of a more complex and experimental kind might be quoted.

Finding Focal Length of Combined Lenses.

What will be the focal length obtained by placing a supple-

mentary positive lens of 12in. focus in contact with a photographic objective of 24in. focus?

The illustration shows the solution of this problem. Set the ruler against 12 and 24 respectively on the diagonal scales. The arrow will then indicate the resulting focal length on the vertical scale—*i.e.*, 8in.

Finding Distance for Lantern Screen.

What distance must the screen be from the lantern to obtain a picture 6ft. in diameter, the objective being of 7in. focus?

Set the ruler against 3 (the lantern slide opening being 3in. square) and 7 respectively on the diagonal scales, and clamp the winged nut. Then shift the ruler from 3 to 6, and at its other end will be read the required distance in feet—*i.e.*, 14ft.

Finding Necessary Focus for Lantern Objective.

What focus lantern objective must be used to obtain a picture 15ft. in diameter, with the lantern 30ft. from the screen?

Set the ruler against 15 and 30 respectively and clamp the winged nut. Then shift it from 15 to 3 (the lantern slide opening being 3in. square), and at the other end will be read the required focus of the objective—*i.e.*, 6in.

Finding Distances for Enlarging or Reduction.

It is desired to enlarge from quarter-plate to whole-plate with a 7in. focus lens. What must be the distances between easel and lens and negative and lens?

This is an enlargement of two diameters. Against 2 in the table of ratios will be found the numbers 10 and 5. Set the ruler against 10 and 5 respectively on the diagonal scales, and clamp the winged nut. Then shift the ruler until the arrow on the slide comes against 7 (the focus of the lens) on the vertical scale. The required distances will then be indicated by the ruler on the diagonal scales—*i.e.*, 21in. and 10½in. Exactly the same procedure is used for reduction, only the distances are reversed, the shorter one being between the lens and sensitive paper, or plate. The table of ratios provides the necessary figures for any degree of enlargement or reduction up to 10½ diameters; other ratios may be obtained by selecting two numbers in the required proportions.

Finding Length of Studio.

What length of studio is necessary for a full-length cabinet portrait with a 12in. focus lens, assuming the sitter's height to be 6ft. and the desired height of the image in the photograph to be 4½in.?

Set the ruler against 4½ and 12 respectively on the diagonal scales and clamp the winged nut. Then move the ruler from 4½ to 6, and at the other end will be read the distance from lens to sitter in feet—*i.e.*, 16ft. To this must be added a reasonable allowance of space for the camera, operator, and background—say another 6ft.—making a minimum length of 22ft. for the studio.

Ascertaining Measurements from Photographs.

A statue in a photograph is 3in. high; the distance from the lens is known to have been 15ft., and the focal length of the lens 9in. What was the real height of the statue?

Set the ruler against 3 and 9 respectively on the diagonal scales and clamp the winged nut. Then shift it from 9 to 15, and at the other end will be read the required height in feet—*i.e.*, 5ft.

Finding Principal Focus of Lens.

Set up the camera and focus sharply on any near object at full aperture. When the object is in focus (the size of the image being immaterial) measure the distances from object to lens centre and from lens centre to focussing screen. It is sufficiently accurate, with a doublet lens, to measure from the diaphragm. Set the ruler at these distances on the diagonal scales, and the arrow will then indicate the principal focus length of

the lens on the vertical scale. Example: A cabinet photograph is focussed, and the two distances (conjugate foci) are found to be 30in. and 7½in. respectively. On setting the ruler to 30 and 7½ on the diagonal scales the arrow will point to 6 on the vertical scale. The lens, therefore, is of 6in. focus.

Possibly enough has been said to show the many possible applications of the photographic slide rule. Besides its use for simplifying calculations it is obviously of value for checking the accuracy of the same when the usual arithmetical methods are preferred.

In conclusion, it may not have been noticed that the appliance forms a universal multiplication table, since if the ruler is set against the multiplicand and 1 respectively, and clamped, it will indicate the product when shifted from 1 to the multiplier, whatever the numbers may be. Division is also possible, in an inverse manner, by setting the ruler on the dividend and divisor respectively, clamping it, and shifting it to 1, when the other end will indicate the quotient.

A. LOCKETT.

THE DRESDEN EXHIBITION.

The following awards have been made by an international committee of judges at the Dresden exhibition. We are unable to give the full list of persons and firms to whom awards have been made, but the following list includes English-speaking exhibitors, together with some other firms known through the sale of their goods in this country.

SCIENTIFIC PHOTOGRAPHY.—The following have received honourable mention in this section:—Harvard College Observatory, Cambridge; P. Lowell, Flagstaff, U.S.A.; Solar Physics Observatory, London; R. W. Wood, Baltimore; Mr. Mattingley, Melbourne; Professor Hartley, Dublin; Professor A. M. Worthington, London.

PHOTOGRAPHIC LITERATURE.—Plaques have been awarded to Henry Greenwood and Co., London; A. W. Penrose and Co., Ltd., London; The Inland Printer Co., Chicago.

PROFESSIONAL PHOTOGRAPHY.—A "Stadt" medal has been awarded to Frank Eugène Smith, Munich, and diplomas for gold medals to F. A. Bradley, New York; Frank Scott Clark, Detroit; E. B. Core, New York; Pirie MacDonald, New York; E. E. Doty, Belding; Elias Goldensky, Philadelphia; Eugène Hutchinson, Chicago; Mrs. Käsebier, New York; J. C. Strauss, St. Louis. Diplomas for silver medals in this class have been awarded to A. L. Bowersox, Dayton, Ohio; R. T. Dooner, Philadelphia; George Edmondson, Cleveland; J. Mitchell Elliot, Germantown; William Ellis, Shewell, Philadelphia; J. H. Caro, Boston; Dudley Hoyt, New York; Meredith Janvier, Baltimore; J. E. Mock, Rochester; Henry Havelock Pierce, Boston; Ryland W. Philipps, Philadelphia; A. T. Proctor, Huntington; Hermann Schervée, Worcester; Simon Stein, Milwaukee.

AMATEUR PHOTOGRAPHY.—In this section plaques have been awarded to Alex. Keighley, Steeton; Walter Benington, London; Archibald Cochrane, Glasgow; E. O. Hoppé, London; J. Dudley Johnston, Liverpool; A. H. Blake, London; Dr. E. G. Boon, Alassio; Will Cadby, Borough Green; Reginald Craigie, London; Frederick H. Evans, London; Cavendish Morton, London; Miss Agnes H. Warburg, London; Charles Job, Hove; J. C. S. Mummery, London; J. Cruwys Richards, Bournville; H. J. Simmons, Camberley; J. Warburg, London; F. J. Mortimer, London; Henry Berger, jun., Portland; J. N. Field, Berlin, U.S.A.; Edwin E. Keller, Buffalo; F. Lindburg, Buffalo; Gertrude A. Man, Minneapolis; W. H. Poetsch, Buffalo; Edward B. Sides, Buffalo; R. L. Sleeth, jun., Wilkirk; Augustus Thibandau, Buffalo.

PROCESS WORK.—The following awards were made in this section: Hon. mention: N. S. Amstutz, Valparaiso. Diploma for gold medal: Bemrose and Sons, Derby and London; Carl Hentschel and Co., Ltd., London; A. W. Elson, Boston. Diploma for silver medal: Republican Publishing Co., Hamilton; Taylor Bros., Leeds; Vaus and Crompton, London; Western Morning News Co., Plymouth; Deane and Co., Ltd., London; Press Etching Co., London; Binner Weir Co., Chicago; Eclipse Electro and Engraving Co., Cleveland.

PHOTOGRAPHIC TRADE SECTION.—Hon. mention: A. Lumière et Fils, Lyons; Heinrich Ernemann A.-G., Dresden; C. P. Goerz A.-G., Berlin-Friedenau; Voigtländer and Sohn A.-G., Brunswick; Meisner

Lucius and Brüning, Hoechst a/M.; General Paper Co., Brussels; Felix Schoeller, jun., Gretsche bei Osnabrück. "Staats" medal: Emil Busch A.-G., Rathenow; R. Guilleminot Boespflug and Co., Paris; Emil Wünsche A.-G., Reick bei Dresden; Dr. C. Schleussner A.-G., Frankfurt. "Stadt" medal: Chemische Fabrik auf Aktien vorm. E. Schering, Charlottenburg; R. Lechner (Wilh. Müller), Vienna; Gustav Heyde, Dresden; Trapp and Münch, G.m.b.H., Friedberg i. Hessen. Diploma for gold medal: J. H. Dallmeyer, Ltd., London; Ford Limited, London; Autotype Co., London; Neue Photographische Gesellschaft A.-G., Berlin; Regina Bogenlampenfabrik, G.m.b.H., Cologne-Sülz; Friedrich Schroeder, Brandenburg.

EXHIBITORS "NOT FOR COMPETITION."—International Union of Art Photographers; Gevaert, Ltd., Berlin-Vienna; Kodak, G.m.b.H., Berlin; Carl Zeiss, Jena; English School for Technical and Scientific Photography, London.

Photo-Mechanical Notes.

Cold Enamel for Photo-Etched Zinc Plates.

According to a recent patent specification (No. 25,934, 1908) of Mr. Eugen Albert, 55, Schwabingerland, Gasse, Munich, the plate to be photo-engraved is first covered with an etching ground of a resinous substance and then coated with a bichromate film. The plate, after photographic treatment, is then subjected to the action of a solvent of the resinous etching ground of considerable consistency or viscosity and readily miscible with water. In such a process as this, which is designed to avoid the burning-in process, it is first of all necessary to prevent the solvent from soaking through the bichromate film, which is of course very thin, as otherwise the etching ground would also be dissolved at places where it should be protected from the solvent by the bichromate coating. This condition can only be fulfilled by a solvent of considerable consistency or viscosity, so that it will not penetrate the bichromate film before the etching ground has been dissolved in the exposed places; ethereal oils will not give this result, as they are of low consistency. On the other hand, the capacity of a mixture of turpentine oil and olive oil to act as a solvent is so small that the dissolving process must be assisted by rubbing with cotton-wool, which manual operation requires personal skill and entails sources of error, like the bichromate-albumen process, the avoidance of which is the very object of the process.

It is also necessary that when the etching ground has been dissolved on the places not protected by the bichromate film, it should be possible to wash the dissolving liquid or mixture from the plate speedily and thoroughly, as of course, in spite of the consistency of the solvent, in the course of a considerable period of time the solvent would penetrate the bichromate film.

The conditions essential for attaining a successful result can only be obtained when bodies are selected for the etching ground which dissolve readily in liquids of considerable consistency, and which are readily miscible with water. Owing to their resistance to acids, resins are most suitable bodies, as they readily dissolve in alcoholic liquids. In general these liquids mix readily with water in all proportions, and, for reasons of economy, water alone is also used for removing the solvent from the plate as speedily as possible. Alcoholic liquids can also be very readily thickened with bodies which are soluble both in alcohol and in water, and which, such as tannic acid, for example, even tend to harden the bichromate skin. Alcohol also mixes in all proportions with glycerine, which is a liquid of considerable consistency and which, again, is soluble in water in all proportions; if ethereal oils be selected all these favourable factors are excluded completely.

Broadly, the invention consists in using alcoholic solutions of high consistency and high solvent power, so that the etching ground readily dissolves if they are merely poured over the plate, and if it be immersed therein, before the solvent has filtered through the bichromate skin, and in quickly interrupting the dissolving process by bringing the plate at the proper moment beneath a water pipe, preferably provided with a distributing rose. The particular steps of the process and the materials preferred are as follows:—

First the plate is covered with resin to form an etching ground, next a bichromate film is deposited over the whole of the plate, and the copy formed by exposing the plate to light and dissolving the soluble bichromate in water; the plate is then immersed in a liquid consisting of alcohol which has been thickened by the addition of tannic acid or glycerine, or both, to strengthen its dissolving power. This readily dissolves the resin from the exposed parts of the plate, the other parts being protected by the bichromate film, and as soon as that is accomplished the dissolving process is instantaneously stopped and the plate cleansed by bringing it at the proper moment beneath a water-pipe, provided with a distributing spray, the plate being then ready for the etching bath.

By this means it is possible to make an impression from the plate after the preliminary etching, to free the plate from the residue of ink adhering to it by means of benzine or turpentine and drying it with sawdust, and then for the retouching process to be carried out and the final etching undergone without rolling in fresh ink, dusting with resin powder, and subjecting to heat as has been necessary in processes employed hitherto, which frequently gave rise to error and loss of time.

Besides economising time, the results are more certain, since the positive printing elements are still covered with the original etching film when the plate is operated on by the retoucher, who is therefore certain that the desired effects will be obtained in the final etching.

If plates instead of being etched are gummed, they can be used as lithographic plates.

An important advantage obtained by using resinous substances for the etching ground is found in the fact that there are a number of alcoholic resins to choose from which do not dissolve in ethereal oils. For instance, sandarac is insoluble in benzine or turpentine.

A plate on cheap metal can be obtained by this process, giving results equal in quality to those of a copper plate.

That this process is granted a patent in England will perhaps surprise a good many people, because the method appears to have been well known for some time and frequently used, although Albert's original date of application abroad for patent protection would appear to precede any actual publication of the method here. Early last year we had the Enamo Copying Process Company, of Monument Station Buildings, selling just such a method as this, as a secret process, whereupon one man in a firm to whom it was offered stated he had worked a similar method for the past ten years. Messrs. Penrose also announce in their "Process Work," of April-May, 1908, a new cold enamel process, which described exactly the method. Subsequently we had Mr. Arthur Payne's process for photographing direct on metal, which also uses the same means for obtaining the acid resist. Herr Van Beek described a similar process in the "Photo-engravers' Monthly" for May, 1909, using bitumen as a resist. Finally, we have the American "Inland Printer" of the present month recommending this method for rapidly obtaining prints in bitumen.

Gelatine Reliefs.

A correspondent writes:—On October 30, 1908 (page 828), you issued a short article on the gelatine relief process, which I have been attempting. The utmost relief I have got up to the present is not more than 1-32in., using letters cut out of black paper stuck down on clean glass, and then exposing the sensitised gelatine to daylight, first week in September, three hours, six hours, and twelve hours in three experiments. The purpose I desire to utilise this process for is to get letters in as deep a relief as ever possible. The letters usually are about ½in. high, and I had hoped to get about ¼in. or even ⅓in. relief. I should be glad if you will tell me what is the utmost I can possibly get by this process, when I will so arrange matters that the light will only be exposed to the sensitised gelatine through *clean glass*, all parts not exposed being black ink on paper; these latter portions, of course, will be the ones to swell. Is the published formula the best for the purpose, do you think? Or is there another process that will give this result? Also, is there any text-book on the subject? Your answer to these questions would be much valued.

In reply to your inquiry, we are not sure that you will get a very

much higher relief than you have already obtained, and we doubt if $\frac{1}{4}$ in. is possible.

Here are three formulæ that are recommended by former users of swelled gelatine process:—

1. Soak $2\frac{1}{2}$ ozs. Nelson's amber gelatine in 10 ozs. water; dissolve and add 150 grs. bichromate of potassium; coat glass at the rate of 6 ozs. to 12 by 10 plate.

2. Nelson's No. 2 gelatine	2 ounces.
Nelson's No. 1 gelatine	$\frac{1}{2}$ ounce.
Water	30 ounces.
Sat. solution of chrome alum	10 minims.
Potassium bichromate	150 grains.
3. Nelson's sheet gelatine	4 ounces.
Sugar	$\frac{1}{4}$ ounce.
Glycerine	100 grains.
Phenol	2 minims.
Potassium bichromate	200 grains.
Water	14 ounces.

You might try if either of these formulæ give you a higher relief.

FORTHCOMING EXHIBITIONS.

1909.

- September 10 to October 23.—The Photographic Salon. Sec., Reginald Craigie, 5A, Pall Mall East, London, S.W.
- September 23 to October 30.—Royal Photographic Society. Sec., J. McIntosh, 35, Russell Square, London, W.C.
- October 6 to 13.—Portsmouth Camera Club. Sec., James C. Thompson, 23, Elm Grove, Southsea.
- October 21 to 23.—Rotherham Photographic Society. Entries close October 11. Secs., H. C. Hemingway, Tooker Road, Rotherham, and F. Sargeant, 17, Aldred Street, Rotherham.
- October 27 to 28.—Watford Camera Club. Entries close October 21. Sec., W. J. Edmonds, 3, The Parade, Watford.
- November 10 to 13.—Hackney Photographic Society. Entries close October 12. Sec., Walter Selfe, 24, Pembury Road, Clapton, London, N.E.
- November 23 to 26.—Southampton Camera Club. Sec., S. G. Kimber, Oakdene, Highfield, Southampton.
- December 31, 1909, to January 8, 1910.—Wishaw Photographic Association. Entries close December 18. Sec., R. Telfer, 138 Glasgow Road, Wishaw, N.B.

1910.

- April 5 to 9.—Sheffield Photographic Society. Secs., J. A. George and J. R. Wigfull, 14, Parade Chambers, Sheffield.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

Applications for the following patents have been received from September 6 to 18:—

- COLOUR SCREENS.—No. 20,513. Improvements in the mechanical production of colour screens for cinematography in natural colours. William Norman Lascelles Davidson, "Ranmore," Cross Roads, Southwick, Sussex.
- PRINTS.—No. 20,585. Improved method of making photographic prints and devices for same. Giuseppe Silvestre Barberis, 31, Bedford Street, Strand, London.
- CLIPS.—No. 20,769. Improved clips for use in printing photographs. Giuseppe Silvestro Barberis, 31, Bedford Street, Strand, London.
- FILMS.—No. 20,770. Improvements relating to films for animated photography. Edmund Seal Donisthorpe, 189, Hammersmith Road, London.
- RAIN ALARM.—No. 20,772. Apparatus for warning photographic printers of commencement of rain in order to enable them to cover or remove printing frames. Albert Day, Strand Photographic Studio, Southchurch.
- OPTICAL INSTRUMENTS.—No. 20,888. Improvements in and relating to periscopes, poleoscopes, and like optical instruments. Job

Thomas Niblett and Thomas Bolas, 11, Victoria Street, Westminster, London.

PAPER.—No. 20,891. Improvements in the preparation of paper for photographic purposes. Thomas Whitehair Vigers, 24, Grove Road, Denmark Hill, London.

RECORDING APPARATUS.—No. 20,922. Improvements in photographic-recording apparatus for galvanometers, oscillographs, and the like. Philip Middleton Justice, 55, Chancery Lane, London, for Kunesch and Jaeger, G.m.b.H., Germany.

FILMS.—No. 21,099. Apparatus for the continuous drying of perforated cinematographic films. Reginald William James, 1, Queen Victoria Street, London, for Compagnie Générale de Phonographes, Cinematographes, et Appareils de Precision, France.

PRINTING IN COLOURS.—No. 21,281. Photographic printing in colours with the bichromate-gelatine process. Joseph Sury and Edmond Bastyns, 27, Chancery Lane, London.

STORAGE BOX.—No. 21,347. Improved storage box for the transmission of photographic plates, lantern slides, and the like. John Wilkinson and Alfred Wilkinson, 4, St. Ann's Square, Manchester.

CAMERAS.—No. 21,389. Improvements in cameras. Otto Halbach, 53, Chancery Lane, London.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

CINEMATOGRAPH-PHONOGRAPH.—No. 10,396, 1908 (May 18, 1907). The invention consists of arrangement for synchronising the movement of a cinematograph and one or more talking machines actuated by separate source of energy, and in such a manner that the talking machine always tends to rotate more rapidly than the cinematograph. The synchronous working is then obtained by means of an automatically and continuously acting electro-magnetic brake, consisting of a rotary part fitted to the shaft of the talking machine and of a fixed ring fed with electrical current from an independent source through at least three separate windings connected up the corresponding sections of a distributor, mounted on or positively geared to the obturating shaft of the cinematograph, the brake serving to check the acceleration of the movement of the talking machine on that of the cinematograph. Dr. Pietro Pieri, 224, Via Cavour, Rome, Italy.

HOLDERS FOR PLATES DURING BACKING.—No. 26,803, 1908 (December 10, 1908). The device consists of a frame having a bottom piece and a raised rim extending completely around the bottom provided at each corner just outside the inner corner of the rim with small rectangular raised corner pieces which receive the plate to be backed. To facilitate the removal and handling of the backed plate there is first placed on the frame a carrier, consisting of a piece of or other dark paper, having projections or lugs extending beyond the ends of the plate. The plate is held by the raised corner pieces in position and is supported on the frame only at the extreme edges with the film side down. When in position the adhesive backing material is applied rapidly by a brush to the back of the plate. After removal both plate and carrier are placed at one side of the frame required, leaving the frame ready for the second plate, the operation being rapidly repeated until all the plates required are backed. Albert Thornley, 35, Mountain View, Cokermonth.

DAYLIGHT DEVELOPMENT.—No. 19,218, 1908 (September 12, 1908). The invention relates to developing photographic plates, the object being to provide an apparatus, wherein the plate, contained in the usual plate-holder, is inserted into a suitable sheath, preferably at the top of the apparatus. After withdrawing the slice of the plate-holder inserted into the sheath, the plate will be disengaged from the plate-holder, preferably by the action of a finger arranged inside the apparatus and adapted to be actuated from outside. The plate, disengaged from its plate-holder, is held by gravity upon two grippers, adapted to engage and hold the edges of the plate and to impart rectilinear and rotating movements to it within a dark chamber, containing the usual developing and washing liquids.

The grippers are preferably carried by a shaft, adapted to be

moved longitudinally on a suitable support and rotated on the same from outside. The dark chamber is preferably provided with an opening, equipped with a lens and shutter, and arranged in front of a window, provided in the opposite wall of the dark chamber, so that the operator is enabled to follow the development of the plate. The plate being developed and washed within the latter, the grippers are moved longitudinally above a chute, and at the same time release the plate by the action of a suitable cam, so that the plate is allowed to drop vertically into a suitable rack, arranged within a fixing bath contained in a compartment below the dark chamber. The fixing bath is arranged on a suitable carriage, adapted to be moved and adjusted from outside the apparatus.

The latter has furthermore an independent folding dark chamber, made of cloth with sleeves, and normally contained in a second compartment below the first-mentioned development chamber. This folding chamber is used for inserting fresh sensitised plates in the plate-holder for taking further photographs. Xavier de le Croix, 88, Avenue de la Bretagne, Canteleu, near Lille, France.

The following complete specifications, etc., are open to public inspection, before acceptance, under the Patents Act, 1901.

ARTIFICIAL LIGHTING.—No. 19,838. Means for artificially lighting halls or other places in which cinematographic or magic-lantern pictures are exhibited, or photographic operations and the like are carried on. Grenier.

PRINTING.—No. 20,585. Method of making photographic prints and devices for same. Barberis.

New Trade Names.

ALLEGRAVURE.—No. 315,546. Pictures, prints, and engravings. Allen and Co. (London), Ltd., 107, Clifton Street, Finsbury, London, E.C., photo-engravers and printers. August 12, 1909.

RADIUM.—No. 315,725. Photographic paper. Isidore Bernard Davidson, Marlborough House, Basterfield Street, Golden Lane, London, E.C., fine art publisher. August 20, 1909.

ANISOL.—No. 314,176. Photographic chemicals. White Band Manufacturing Company, Ltd., Progress Works, Selsdon Road, South Croydon, Surrey, manufacturing chemists. June 22, 1909.

RED BALL BRAND.—No. 315,441. Chemical substances used in manufactures, photography, or philosophical research, and anti-corrosives, but not including white lead and not including any goods of a like kind to white lead. Stevenson and Howell, Ltd., Standard Works, 95A, Southwark Street, London, manufacturing chemists. August 9, 1909.

Analecta.

Extracts from our weekly and monthly contemporaries.

A Suggestion for Next Year's R.P.S. Exhibition.

In "Photography and Focus" for September 28 "R. C. B." suggests an improvement which might be made in the technical section of the catalogue of future R.P.S. exhibitions. He says:

At present it has evidently been left to each exhibitor to say much or little about his own exhibit, just as he felt inclined. The result is that some of the prints which hardly need it are described almost minutely, and others have nothing more than mere names. There are experts in the society who would no doubt be very willing to remedy this, if their co-operation were secured.

"The catalogue could then contain a brief sketch of the points of interest in the zoological, or botanical, or spectroscopic exhibits in due proportion, pointing out why each print is exhibited and the nature of the evidence which it yields. It would not increase the bulk of the catalogue much, if it did at all, and would vastly enhance the interest of these sections.

"We do not suggest that the secretary should do it, but that each piece should be dealt with by one expert. If we go further and say that the exhibits which none of the experts considered were of

sufficient interest to show in his own section should be excluded altogether, we should get rid of a good many prints which at present dilute the scientific section without any justification whatever."

"Working-up" Bromide Enlargements in Oils.

Writing on this subject in "The Amateur Photographer and Photographic News" for September 28, Mr. M. Lewin gives the following hints: "When using platino-matt paper, either rough or smooth, oil-colour diluted with turpentine allows of any degree of 'working-up.' Gelatine is not soluble in turps. and, in consequence, does not swell when a wash of the latter is applied to it, so that the colour thus diluted may be brushed with the greatest possible evenness over any part of the print we wish to darken. Not only this, but it may be used of any required intensity from pure black to the lightest tinge of grey, and when it has dried not the slightest difference of surface or texture will be found between those parts that have been treated and those which have not. For spotting and toning down small areas it is best to use the brush nearly dry, but for larger spaces the equivalent of 'sunning-down' in a P.O.P. print—the mixture may be washed on.

"It should be understood that in no case must the colour be used as a painter in 'oils' would use it, but always diluted with turps till it can be employed as water-colours are. If, in consequence of this, the brush is too wet, it can be partly dried on a spare piece of paper before being used. The right condition for use is easily ascertained by experiment.

"Finally, if the work done is not satisfactory, the whole may be washed off, without danger to the print, by means of pure turpentine. The colour sets with just sufficient tenacity not to rub off with ordinary usage, but not so firmly that it cannot be softened in tone by means of rubbing, preferably with a pad of cotton-wool; and if it is desired to remove the colour in any particular place, ordinary indiarubber will do so effectively, giving us thus the means of 'picking-out' a high light if we want to.

"Blue-black and lamp-black, either alone or mixed with one another, will be found the most suitable shades for an untuned bromide, according to the developer that has been used, while black mixed with Vandyke-brown or Venetian-red will match sulphide or copper tones."

New Books.

"The Photographer's Note-Book on Lenses." By Conrad Beck. London: R. and J. Beck, Limited.

In this little book of nearly 100 pages Mr. Conrad Beck has provided a most useful account of those properties of lenses which are of importance in practical work. It is not a dry-as-dust treatise, there is scarcely a formula to be found from first to last, but nevertheless—or perhaps we should say by reason of this fact—the photographer will find the many points which puzzle him in lens matters very clearly set forth. Mr. Beck, who writes in a way which is delightfully lucid, keeps to such matters as aperture, wide and narrow angle, covering power, distortion, etc., and shows what these mean, and when and with what purpose one may at times be sacrificed for another. We particularly recommend to our readers Chapter VI., on the selection of a lens for a hand-camera in which the very various requirements imposed by the reflex, hand, or hand-stand type of camera are very clearly gone into. The book also contains a useful epitome of optical rules and tables, among which are those giving the lengths of studios for full-length figures, with various lenses.

The author frankly declares his interest in the "Isostigmat" and other lenses of his firm. Writing (on page 49) of the Isostigmat anastigmat, he adds: "There are of course other good anastigmat lenses, and the description applies more or less to these other optical instruments. Naturally the writer thinks it a mistake to buy anything but the Isostigmat, but quite recognises that his competitors may perhaps not share his opinion." But quite apart from all partiality for Beck manufactures, the volume contains so much information on the photographic lens expressed in few words that our advice is emphatically to embrace Messrs. Beck's offer to send the "Note-Book" free on application.

CARBON ENLARGEMENTS.—M. E. Trutat has written a short manual on the making of carbon enlargements under the title "Les Agrandissements sur Papiers à Couches Pigmentaires." In this volume, which is intended for the amateur worker, the methods of preparing the enlarged paper negative for the orthodox process of making large carbon prints are described. The so-called "Carbograph" is also the subject of several pages of notes, but there is no mention of the Ozobrome process of preparing a carbon enlargement direct. The little book is published by M. Charles Mendel at 60 cents.

"T. Q.," No. 7.—The "Telephoto Quarterly," just published, continues to pursue the admirable course of making itself indispensable to photographers desirous of help in telephoto work, or of seeing in the excellent reproductions what a telephoto lens can do. We are not surprised to hear that Captain Owen Wheeler's publishers, Messrs. Gale and Polden, of 2, Amen Corner, London, E.C., continue to receive numerous "two-shillingers," each the price of "T.Q." for one year. We read in the current number of facilities to be offered, *via* the enterprising Messrs. Raines, for obtaining first-rate photographic enlargements or prints of telephoto subjects. The contents also includes "The Telephoto Lens as a Help to Getting Pictures of Stone Carvings," by Miss F. J. Erskine; "Orthochromatic Telephotography," by E. A. Biermann; "The Editor's Holiday"; and reviews of new apparatus for telephoto work.

"TRAVEL AND EXPLORATION."—The October number of "Travel and Exploration" (the first under new editorship) covers a fairly wide field, ranging from the Far North to the Far East. Especially noteworthy are the narratives of two of the greatest explorers of the day in their respective fields—Dr. M. Aurel Stein and Knud Rasmussen. Dr. Stein describes a remarkable journey through the arid wastes of Chinese Turkestan, across the "Sea of Sand" (the picturesque native sobriquet for the Taklamakan Desert). Knud Rasmussen, the greatest living authority on the Esquimes, writes a brilliant little impressionist sketch describing a long journey on ski with a Lapp caravan. Readable accounts of travel and experiences in Palestine and Cyprus are furnished by Mr. F. G. Affalo and Mr. Justice Bertram. The latter is apparently as enamoured of the Island of Venus Anadyomene as the author of "An Enchanted Island." Finally, Mr. Elliot Stock describes a dangerous climb of the Great Gable "chimney" in the English Alps region—an article which will appeal to mountaineers in general and rock-climbers in particular.

New Materials, &c.

Christmas and Calendar Mounts. Made by Marion and Co., Ltd., 22 and 23, Soho Square, London, W.

Messrs. Marion's 16-page list of the great variety of photographic mounts bearing Christmas greetings contains, as in previous years, a very full specification of each style of mount. The price in each instance is quoted at per thousand, per hundred, and per dozen, and the photographer or dealer ordering from the list will appreciate such full particulars as regards colour, inscription, and the suitability of the mount for upright or landscape photographs. This is done throughout, even in respect to midget and carte-de-visite mounts, but the list also includes quarter-plate, postcard, cabinet, and half-plate mounts, both paste-on and slip-in, as well as a considerable variety of mounts for circle and oval prints, also paste-on and slip-in. While it would be impossible to make particular mention of the many varieties of these souvenir mounts we may perhaps single out one or two which impress us as particularly nice in design. R. 14 is a card in white board throughout with cover in wood-grain, bearing a heavily embossed circle centre, with the inscription "Best Wishes." Inside is a double folder of card, with very neat embossed reeded border for the print. The inner and cover folder are tied together with a tasselled cord. The price is 2s. 6d. per dozen, 15s. 8d. per hundred, and 141s. per thousand, the mount taking a print 3in. x 1½in., upright only. Another very tasteful card, also in white, with a gilt inscription "With Best Wishes" on the cover of it is R. 11, which also takes a print (upright only) 3in. x 1½in., and is sold at 1s. 10d. per dozen and 11s. 4d. per hundred. In R. 112 the print is inserted in a slip-in mount, with opening 3½in. x 2½in. The cover is a very fine chequer design, with deckelled edge and gold blocked, with the inscription "A Happy Christmas and a Bright New Year." This

folder mount is sold at 2s. per dozen, 12s. per hundred, and 108s. per thousand.

Messrs. Marion are also introducing a series of postcard calendar mounts, made with wood-veneer surface, in two colours, and allowing of the photograph being slipped in between the two. The price, complete with calendar and cord, is 5s. per dozen, or 30s. per hundred, and the calendars are obtainable in three patterns—namely, upright rectangle, oval, and horizontal rectangle. They are also sold in size for carte-de-visite—both square and oval—at a price of 4s. 4d. per dozen and 26s. 4d. per hundred.

We should also refer to the stickyback adhesive mottoes for attaching to any photographic mount with the object of converting it into one particularly suitable for a Christmas greeting. Messrs. Marion issue these mottoes in various styles and wordings, one very neat design being R. 142, a centre red lettering on a black ground, and bearing the words "Christmas Wishes."

The "Holdinslide" Mount. Made by J. Wright and Co., 4, Station Parade, Kew Gardens, London, S.W.

A novel type of slip-in mount is just introduced under this name, its chief feature being that the print can be very easily inserted at either end of the opening and as easily removed; also the fact that the edges of the opening are not cut in making the mount, but are turned over, and gives a pleasing bevelled surround to the print without a disturbing line of another colour, which is frequently unavoidable in making a cut-out mount of the ordinary pattern. Apart from these differences, the mounts are made in two styles—the "Singleton," for holding one print only, and the "Compactum," providing space for about a dozen prints. The mounts are made in a number of standard sizes and in a variety of tints, the retail prices, for example, of a mount of outside dimensions, 6½in. x 4½in., to accommodate quarter-plate prints, being 1s. per dozen in the "Singleton" pattern or 2s. 6d. in the "Compactum." The mounts are made in sizes up to 20in. x 17in., taking 15in. x 12in. prints, and from the samples which we have seen will certainly please those who esteem the convenience of the slip-in pattern of mount, but desire something more tasteful and harmonious in appearance.

"Academy" Greeting Calendars and Christmas Mounts. Sold by Bartons', 36, Cornwall Street, Birmingham.

The most unobtrusive and pleasing colours and designs of this series of greeting cards will appeal to those who aim at the utmost simplicity, not only in the get-up of the greeting which they may send to their friends, but also in the wording on it. The folders in which the mounts proper are enclosed bear the words "To Greet You," surrounded by a design of holly and ribbon. The colours are mostly delicate grey, cool brown, greens, and creams, all of linen surface mounting paper. In some cases the print is mounted on to the centre-piece of the triple folder, but in most a loose mount or calendar mount is provided. The calendars are corded for hanging and bear a set of monthly tear-offs. We have seen nothing more artistically produced for the forthcoming Christmas season than these mounts of Messrs. Bartons', which are made for C.D.V. and cabinet, as well as for midget prints of oval or circle shape, and are issued at prices which range from 2s. 6d. per dozen, 16s. per hundred to 5s. 6d. and 32s. 6d. respectively. On receipt of a postal order for 1s. the firm sends a very nice selection of the mounts, and allow for the cost of this sample packet on receipt of an order to the value of 10s. and upwards. Customers who so wish it may have their own designs placed on the mounts, or can obtain mounts of colour and texture other than those listed.

Gevaert P.O.P. Made by Gevaert, Ltd., 26 and 27, Farringdon Street, London, E.C.

Of the various descriptions of printing paper which Messrs. Gevaert are introducing upon the English market the first to reach us for mention is the gelatine printing-out paper or Gevaert P.O.P. the very decorative violet and grey label of which should ere long have attracted the eye in dealers' windows. P.O.P. as a photographic product cannot be expected to inspire comments as to novelty or necessity: we have discharged our duty to the maker and to our readers when we report our experience in making trial of the new brand of this familiar type of printing paper. Let it be said therefore that the Gevaert P.O.P. is one which we found to give exceedingly bright prints. It is evidently manufactured with

regard to the fact that the majority of the negatives which nowadays fall to be printed in P.O.P. do not by any means err in the direction of excess of pluck or brilliancy; that, on the other hand, they are many of them deplorably deficient in this characteristic of a good negative, and therefore the maker of a printing paper must do what he can to remedy matters. This, we find, has been done in the case of the Gevaert paper by providing an emulsion which gives a very good print from a negative which is none too plucky, but at the same time does not produce prints of excessive contrast from a really vigorous negative.

In speed of printing the paper is excellent. In the sulphocyanide-gold bath it tones quickly to a very rich purplish tone—quite the P.O.P. tone—whilst it gives a very good slightly warmer tone in the combined bath.

For really warm tones the following bath is recommended by the makers, and gives in our experience a very effective carmine tone.

Printing is done only slightly deeper than the finished print is required to be. The prints are given three five-minute soaks in water and toned in:—

Ammonium sulphocyanide	45 grs.	5 gms.
Potass. iodide	10 grs.	1 gm.
Gold chloride solution		
(15 grs. in 2 ozs.)	2½ drms.	15 c.c.
Water	20 ozs.	1,000 c.c.

In this bath toning must be continued until the deepest shadows, on holding the prints up to the light and looking through them, show the carmine tone; this will take about half an hour. Until the toning has begun the prints should be kept constantly on the move, but they can then be left to themselves, except for the movement they get as each is picked out for examination at intervals. The toning bath should be used only once, and it should be noted that the prints gain a little in drying.

The paper is issued in three surfaces—glossy, matt, and semi-glossy or “carbon” surface. The glossy is made in mauve, white, and pink; the matt and semi-glossy in white only. All three varieties are obtainable in thick and thin qualities, the former serving very conveniently for photographs which are printed with a border and are not to be mounted. While the surface of the glossy brand calls for no special remark, we would say in regard to the two other varieties that they are nicely adjusted to a matt and half-matt of a kind very acceptable for portrait work. In this as in other respects, the Gevaert P.O.P. shows itself to be a material of the highest degree of manufacture.

“CHALLENGE” CHRISTMAS POSTCARDS.—The Christmas greeting postcards, issued by the Challenge Photographic Works, Macclesfield, are supplied with the P.O.P., self-toning, gaslight, and bromide emulsions of this firm, the designs being appropriate emblematical drawings expressing seasonable greetings. The Challenge Works offer to provide imprint of name free in the case of orders of sufficient quantity.

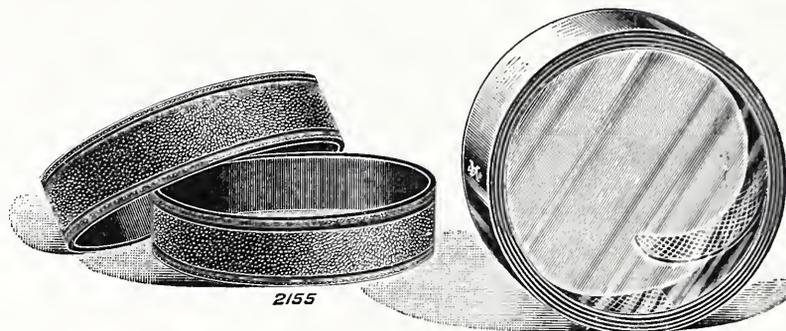
CRITERION CHRISTMAS POSTCARDS.—Postcards bearing the well-known emulsions of the Birmingham Photographic Company, Stechford, near Birmingham, are being issued as usual this year with designs suitable for the Christmas season, occupying one-half of the front side. The drawings are a new series, specially drawn for the Birmingham Photographic Company, and are certainly among the most tasteful and pleasing embellishments of the Christmas postcard which we have seen. The cards are sold at the usual prices, either P.O.P., bromide, or gaslight.

“DILOS” FRAMES.—Under this name Messrs. J. Epstein and Co., Rupert Street, Bristol, have placed on the market a series of frames to take pictures measuring 20in. by 16in., and specially designed to meet the requirements of the professional photographer, and which, from our own inspection of them, we should pronounce to be very good value for money. The frames are of handsome appearance, made of oak, and are obtainable in various patterns, either plain or ornamented, the mouldings ranging in width from 2in. to 5in., at prices from 15s. 6d. to 48s. per dozen. Messrs. Epstein are also offering a special line of these frames 2in. wide in a special design for the exceedingly low price of 12s. 6d. per dozen. All frames are complete with glass and backboard. Messrs. Epstein offer to send their illustrated price list of these and the numerous other lines for which the firm is noted, post free on receipt of six penny stamps.

New Apparatus, &c.

The Ensign C Isochromatic Screen. Sold by Houghtons Ltd., 88-89, High Holborn, W.C.

The series of Ensign isochromatic screens is now supplemented by a “C” screen, made in two grades, one requiring four times and one eight times the exposure necessary without a screen. The screens are made of specially worked glasses, between which is cemented stained gelatine, the whole being mounted in a neat brass cell fitted with spring to clip the lens. The leather case in which the screens are sent out is made to fit so closely that it will serve as a lens-cap when the screen is in use. We find that these C screens are designed to fulfil all the requirements of a perfect filter screen according to



the most modern theories—that is to say, they cut down the violet and blue-violet rays without interfering with the rest of the spectrum. The spectroscope shows that the absorption of the screen stops in the blue-green, and that the green, yellow, and blue pass unaffected; as a result good correction can be obtained without an inconvenient prolongation of exposure. The screens are made in three sizes, to fit lens hoods from lin. to 2½in. diameter, and the respective prices are 3s., 3s. 6d., and 5s. The good quality of the screens and their low price should render this series very popular.

The 4A “Speed” (Focal-Plane) Kodak. Made by Kodak, Limited, 57 to 61, Clerkenwell Road, London, E.C.

Despite the great variety of Kodak cameras, which owe their ingenuity and workmanlike qualities to the mechanics of the Rochester factories, there has not been placed upon the market hitherto a Kodak provided with a focal-plane shutter—that is to say, if we except the “Premo” and “Graflex” reflex cameras, which, though Eastman productions, are not properly Kodaks. This is no

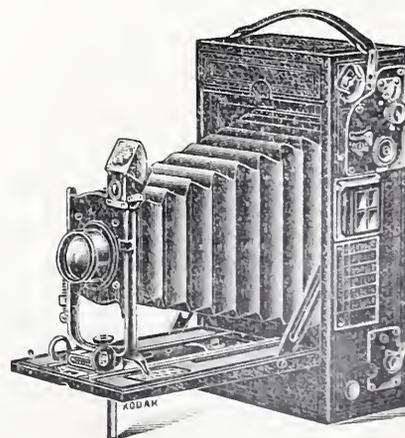


Fig. 1.

doubt accounted for by the fact that in all their cameras the Kodak Co. have set before themselves the ideal of great simplicity and portability, a conjunction of properties which certainly militates against the adoption of a focal-plane shutter. However, the development of the Kodak as an instrument for the most serious type of photographer has doubtless been responsible for the introduction of an instrument of the focal-plane type, the first pattern of which

has now been placed on the market as the No. 4A "Speed" Kodak. The instrument produces a picture 6½ in. by 4¼ in.—that is to say, it takes the 4¼ in. Kodak daylight-loading spool of six or four exposures. To sum up in a word the result which has been achieved as regards portability, it may be said that the total outside bulk of the camera encloses both the roll-holder and the focal-plane shutter, but is very little bigger than would be either of these articles separate. Folded for carrying the camera measures under 12 by 7 by 3½ in. Extended it allows of the lens panel being placed about 11½ in. from the sensitive film. It will thus be seen that much success has attended the endeavour of the makers to provide a camera suitable for the most rapid exposures within comparatively small bulk.

As regards the shutter itself it is naturally of the self-capping type—any other would be useless for a film camera—with a single slit, the width of which is very readily altered. An adjustable scale is provided with a pointer on the side of the camera. The pointer has only to be moved from one graduation into the next—it snaps at each point—to give a series of slit widths of $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{2}$, 1, 1½, and 3 in., in addition to a much longer aperture the full height of the picture, or 6½ in., which is available only for time exposures. While the alteration in the width of slit is best made before the shutter is set, the other factor in obtaining the full range of speeds, *i.e.*, the spring tension of the shutter, may be altered whilst the instrument is held ready for exposure with the shutter set. A complete turn of the winding-key in the second illustration increases the tension one number, whilst two pressures on the lower lever relax the tension to the same amount. The latter movement

is an especially neat and convenient method of releasing the tension, far superior to that in the generality of shutters where one has to press the release with one finger and let down the tension-key with the thumb and finger of the other hand. The clutch release in the "Speed" Kodak allows of all this being conveniently done with one finger. The milled key provides a rapid wind of the shutter, whilst release is made by raising the plate fitted with a small milled knob, which is provided with a spring so that it must be intentionally raised to release the shutter. The adjustment for both time and instantaneous exposures are thus most conveniently made, whilst the conjunction of spring tension and slit width allows of a series being given from 1-5 to 1-1,000 sec., whilst with one single slit width—say, 1½ in.—a series of exposures from 1-10 to 1-70 may be given by altering only the tension. One point which we think is worthy of special mention is the closeness with

which the blind of the shutter works to the plate or film. The distance in the case of the roll-film must be less than ¼ in., a point which deserves to be emphasised since it is not unusual to find the efficiency of focal-plane shutters depreciated owing to their being mounted at some quite considerable distance from the true focal-plane.

In the way of other movements the camera is very well provided. It is fitted with direct-vision finder for pictures landscape way, the sighting point and lens of the finder both folding back by one movement flat with its metal carrier. The lens front also carries a reversible brilliant finder, and is itself provided with screw rise-of-front movement. The front of the camera is brought forward and fixed in any point by the clamps seen in the first illustration, a fine focussing movement then serving for the adjustment of the pointer on the scale. Mention should also be made of the light-tight air-vent provided in the front of the bellows, by means of which drawing in of the blind of the shutter or of the bellows is entirely obviated. Externally free from projections, except the one or two very solidly made keys on the left-hand side, the camera is eminently fitted for the tourist, whilst its workmanship throughout is of a high mechanical quality worthy of the Kodak reputation. The price of the No. 4a "Speed," without lens, is £10 10s. To it

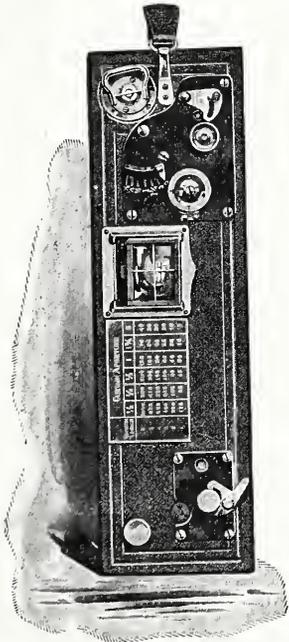


Fig. 2.

can be fitted any one of a number of high-class anastigmats of focus about 200 mm. (about 8 in.). These include the Zeiss "Tessar," the Beck "Isostigmat," the Goerz Series III. and Goerz "Celor," *f*/4.8. The camera can also be fitted with a plate adapter, focussing screen, and one double plate-holder at a cost of £1 10s.

The "Busch" Reflex Camera. Made by the Emil Busch Optical Company, 35, Charles Street, Hatton Garden, London, E.C.

To the large series of hand cameras included among the manufactures of the Emil Busch Optical Company must now be added an instrument of the reflex type, which we have had an opportunity of closely examining during the past few days. In its general construction the "Busch" reflex resembles the type of instrument which has been evolved during the last year or two—namely, one to which most of the cameras on the market more or less closely conform. It has, however, one or two special features. In the first place, the panel carrying the lens is of unusual size—namely, 3½ inches square—and therefore able to carry lenses of the largest aperture, or even a lens of the portrait type. The panel is made so that it may be reversed in its setting, and the front of the camera has considerable rise and fall movement, a total range of over an inch in the 3½ by 2½ size, which is distributed partly as rise and partly as fall. It is evident that the carrying of a large lens is particularly kept in view by the makers, since the extension struts of the camera are four in number, very rigidly made, and hold the lens front very firmly. The focussing pinion is placed on the left-hand side of the camera, whilst on the right a clamping head is provided, so that, if necessary, the camera may be fixed at a focus for any given distance.



The hood is built square, and gives a perfectly unobstructed view of the corners of the plate. The frame to which it is fixed is hinged on the front side, and is instantly turned back, giving access to the ground glass, which latter can also be turned up to allow of the mirror being dusted. The mirror itself is depressed by pressure on the lever seen in the top right-hand corner of the camera in the drawing, but is protected by a guard (not shown in the illustration), serving to prevent accidental release. The shutter release is actuated by a similar lever on the right-hand side of the camera, the release of the mirror and shutter being extremely free from vibration. The focal-plane shutter has separate adjustments for width of slit and spring tension, the latter being made whilst the shutter remains set, and providing for a considerable range of movements. The width of the slit, which must be altered whilst the blind is in view, is very rapidly done, simply by winding the slit to the top of the plate, depressing a small knob on the left-hand side of the camera, and then turning a milled head on the right to either open or contract the blind aperture. A novel feature in connection with the shutter is a brake serving for slowing down the speed and thus allowing some what longer time than the minimum which would otherwise be attainable. When we have finally said that the camera is provided with a rotating back clamped in either position it will be seen that it possesses practically all the attributes of a high-class reflex instrument. In workmanship it is altogether excellent, being finished

throughout in black ebonised wood, covered in black leather, and having all the metal parts also of black finish. The camera is made in three sizes only—namely, $3\frac{1}{2}$ by $2\frac{1}{2}$, $4\frac{1}{4}$ by $3\frac{1}{4}$, and $5\frac{1}{2}$ by $3\frac{1}{2}$ (postcard). In the quarter-plate size the price, complete with three plate-holders and Busch "Aplanat," $f/6.5$, is £13 10s.; or with Busch "Omnar," $f/4.5$, £17 8s. In the $3\frac{1}{2}$ by $2\frac{1}{2}$ size these prices are £12 and £15, whilst in postcard the price, with $f/4.5$ "Omnar," is £21 10s. The cameras allow of extensions of 8, $10\frac{3}{4}$, and $12\frac{3}{4}$ inches, respectively, in the three sizes, and therefore, while allowing of quite a narrow angle of picture, such as that given by the single combination of the lens, are eminently suited for use with the well-known "Bis Telar" telephoto lens. The instruments are also applicable for use with the "Premo" film-packs.

CATALOGUES AND TRADE NOTICES

THE HOUGHTON PROFESSIONAL LIST.—A new list, solely for the professional photographer, has just been issued by Messrs. Houghtons Limited, 88 and 89, High Holborn, London, W.C., at which establishment, as our readers know, the requirements of professional photographers have for a year or two past been the special care of an actively conducted department. The new list contains only the items of service in professional and commercial photography: the many oddments apparently found of service to the amateur worker find no place in this well-arranged book. Cameras, tripods, and lenses occupy the first portion of the volume, after which we come to an admirable large series of reproductions of backgrounds and studio accessories. The photographer at a distance will appreciate these actual photographic reproductions of his proposed purchases. Mounts and mounting boards are subjected to a similar treatment, and Messrs. Houghtons do all that is humanly possible—short of actual inspection—in conveying an idea of the appearance and design of their wares. There are many other apparatus and materials for the professional photographer here listed, and the pages describing dry-mounting accessories, trimmers, frames, enlargers and artificial light for the studio show that Messrs. Houghtons in their professional department are thoroughly abreast of current requirements. The list, we would add, is sent free to bonâ-fide readers of the "B.J." on application.

WRATTEN LIGHT-FILTERS.—Messrs. Wratten and Wainwright have just issued a new list of the photographic light-filters manufactured by them, to the number of no less than seventy different varieties. That the mere preparation of these filters for the market within the past year or two has by no means sapped the renewed vitality of the Wratten firm is evident from the trouble which has been taken to provide the photographer with full information as to the filters. Spectro-photographs are given of the absorption, and data are appended as to the stability of each filter towards light or heat. Thus by "Quite Stable" Messrs. Wratten mean that the filter will show no change if exposed to daylight and sunlight for twelve months, whilst the other designations, "Stable," "Moderately Stable," and "Somewhat Unstable," gave an indication of the time which may be expected to elapse before any alteration can be discerned in a filter when thus constantly exposed. These data must not, of course, be taken as the life of a filter, which is kept, as it should be, protected from light and heat. The list, which runs to over thirty-six pages, most of which are taken up by the spectrum diagrams, is sent by Messrs. Wratten on receipt of 6d.

ENLARGING WITHOUT CONDENSERS.—The very convenient reflector illuminating chambers sold by Messrs. J. Lancaster and Sons, Ltd., under the name of "Ellipsoid," are the subject of a new four-page circular just published. For converting an ordinary camera into an enlarger, and for amateur enlarging and reducing work, one or other of the four models of the "Ellipsoid" supply a most inexpensive outfit. The list is sent free on application to Camera Buildings, Broad Street, Birmingham.

OPAQUE-PROJECTION LANTERNS.—The current issue of the "Prism," issued by the Bausch and Lomb Optical Co., contains an account of the new types of projection lantern just introduced by the company under the name "Balopticon." The "Prism" is sent free on application to 19, Thavies Inn, London, E.C.

SULPHIDE TONING OF P.O.P.—Messrs. Edmund and Co., Ezra Street, London, E., have just issued a leaflet of instructions for the

use of the (patented) thiomolybdate prepared by them for the toning of P.O.P. The circular gives very explicit directions for this inexpensive and reliable toning process, and is sent free on application.

MAWSON LANTERN PLATES.—An eight-page booklet, "How to Make Lantern Slides Easily and Successfully," reaches us from Messrs. Mawson and Swan, Mosley Street, Newcastle-on-Tyne. It gives in the fewest words the essential points in the making of lantern transparencies, together with the formulæ for the development and toning of the "Mawson" lantern plate, the good qualities of which we have had cause to appreciate during many years' regular use of them.

THE "PRIMUS" LANTERN POCKET-BOOK.—The 1909-10 issue of this useful pocket-book and diary for the use of lanternists has just been issued by W. Butcher and Sons, Camera House, Farringdon Avenue, London, E.C. Under the editorship of Mr. W. F. Butcher, F.C.S., it contains a variety of useful tables, electrical data, directory of dealers, etc. It is sent free on application.

SPIDERS AND THEIR HABITS.—A set of 270 lantern slides from the negatives of Mr. R. Hancock, illustrating the characteristic forms and habits of spiders, has just been issued by Messrs. Sanders and Co., 71, Shaftesbury Avenue, London, W. A list of the subjects has just been published.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, OCTOBER 1.

Ashton-under-Lyne Photographic Society. "Autotype Carbon." Demonstration.

SATURDAY, OCTOBER 2.

Kinning Park Co-operative Camera Club (Govan). Outing to Langbank.
South London Photographic Society. Outing to Eltham.

SUNDAY, OCTOBER 3.

Borough Polytechnic Photographic Society. Outing to Cookham.

MONDAY, OCTOBER 4.

Southampton Camera Club. Print Competitions.
South London Photographic Society. "Thunderstorms and a Camera." Howden Wilkie, F.R.P.S.

Kinning Park Co-operative Camera Club (Govan). Committee Meeting.

TUESDAY, OCTOBER 5.

Glasgow Southern Photographic Association. "Our Hobby and Critique of Prints by well-known Men." H. Marshall.
Hackney Photographic Society. Members' Lantern Slides.
Burnley Co-operative Camera Club. "Autotype Carbon." Demonstration.

WEDNESDAY, OCTOBER 6.

Worthing Camera Club. Outing to Littlehampton and Ford.
Ipswich Scientific Society. "Autotype Carbon." Demonstration.

THURSDAY, OCTOBER 7.

Southend-on-Sea Photographic Society. Indoor Meeting.
Walkley Camera and Optical Lantern Society. "Autotype Carbon." Demonstration.
Watford Camera Club. "An Hour with the Birds." W. Bickerton, F.Z.S.
Liverpool Amateur Photographic Association. "Control." T. Lee Syms, F.R.P.S.

NOTTINGHAM CAMERA SOCIETY.—Mr. T. Wright presided at the annual meeting of the Nottingham Camera Club, which was held in one of the rooms of the Mechanics' Institution last week. The annual report and statement of accounts, which showed a balance in hand of £6 12s. 5d., were unanimously adopted, and the election of officers resulted as follows:—President, Mr. T. Wright; vice-presidents, Messrs. A. Black, W. S. Ellis, W. H. Kirkland, W. Mosley, H. Roberts, Arthur Marshall, and the Revs. G. H. Heynes and G. Meek; hon. secretary, Mr. E. A. Pollard; hon. assistant secretary, Mr. S. D. Middleton; hon. treasurer, Mr. H. Roberts; hon. auditors, Mr. W. Mosley; curator of survey, Mr. J. T. Radford; delegates to the Royal Photographic Society, Messrs. A. Marshall and T. Wright; delegates to Midland Photographic Federation, Messrs. W. H. Kirkland, T. Wright, and E. A. Pollard.

A HOSPITAL FOR NEGATIVES.—The Vanguard Manufacturing Co., Maidenhead, announces a development of its activities in the way of actual work on negatives, prints, etc., which are defective. The fact that the arrangements are in the hands of Mr. W. Ethelbert Henry is ample guarantee that the staff of the "Hospital" will make good their offer to do what is possible in cases of spoilt negatives or prints. A circular just issued by the Vanguard Co. gives the conditions under which these facilities may be obtained.

Commercial & Legal Intelligence

ROTHERHAM PHOTOGRAPHER'S FAILURE.—Last week Mr. Registrar Binney made a receiving order and an order of adjudication on the debtor's own petition against John Scott, residing and carrying on business at 50, Hollowgate, Rotherham, as "E. Holt," photographer and postcard publisher. Mr. H. Fretwell, of College Square, Rotherham, is the solicitor in the matter.

DISSOLUTION OF PARTNERSHIP.—The partnership between Frank Wilkins and Samuel George Holyoake, carrying on business as photographers at 2, Sydenham Road, Sydenham, under the style of "Wilkins and Holyoake," has been dissolved by mutual consent. Mr. Holyoake will receive and pay all debts due to or owing by the late firm.

LEGAL NOTICES.—Mr. Josef Valter (described in the receiving order as John Walter), photographic art gallery proprietor, 41, Southampton Row, W.C., is to apply on October 19 for his discharge in bankruptcy.

NEW COMPANIES

ENGINEER'S SENSITISING COMPANY, LTD.—Capital, £2,500, in £1 shares. Objects: To carry on the business of manufacturers of sensitised papers, linen, and other materials used for the duplication of plans by photographic and other means, etc., and to acquire the business carried on at 1 and 2, Castle Lane, Buckingham Gate, S.W., by Norton and Gregory, Ltd. Private company. The first directors (to number not more than six) are: H. N. Hickman, G. G. Hickman, E. H. Hickman, and H. G. Carpmal. Registered office, 1 and 2, Castle Lane, Buckingham Gate, S.W.

U.S.A. STUDIOS, LTD.—Capital, £100, in £1 shares. Objects: To carry on the business of photographers, colour process and half-tone engravers, printers, etc. Private company. Table A mainly applies. Registered office, 24, John Street, Bedford Row, W.C.

News and Notes.

EASTMAN DEMONSTRATIONS AT WINNIPEG, CANADA.—The Eastman School met in Winnipeg on September 8 for a three days' demonstration. This was held under the auspices of Duffin and Co., Ltd., stock dealers, Winnipeg. The demonstrations for the first day, ably carried out by Messrs. Scott, Waide, Hazlett, and Campbell, were on lighting and posing with the Aristo lamp, tank development, Nepera, carbon sepia, and Ozobrome, followed at 8 p.m. by an organisation meeting of North-West photographers, a note of which is appended. The second day tank development was explained, demonstrations given on Seed plates, Aristo papers, Angelo platinum, fancy border tinting, and Nepera and bromide enlarging. The final day was spent in proofing negatives made at the school, obtaining sepia tones by re-development, printing-room dodges, devices, and ideas. After the strenuous work of the three days a little recreation was provided by a tally-ho ride to the Winnipeg City Park, winding up in the evening by a banquet. Messrs. Duffin and Co. and the Manitoba Photographers' Association are to be complimented on their move in getting the school to Winnipeg.

ORGANISATION (MEETING OF PHOTOGRAPHERS OF WESTERN CANADA.—This meeting was held on September 8, in the Steele Studio, and was attended by the most prominent photographers west of the Great Lakes, all of whom upheld the advantages of such an Association in a very enthusiastic manner. The officers elected were: President, W. W. Robson, Winnipeg; vice-presidents, J. B. Banks, Kenora; E. Burke, Edmonton; S. E. Prest, Morden; F. Ramsdale, Moosomin. Secretary-Treasurer: A. L. Lee, Winnipeg. Executive Committee: A. E. Gentzel, Winnipeg; R. T. McFadden, Winnipeg; G. W. Sparling, Portage la Prairie; P. W. Rowe, Yorkton, Sask.; F. Gowan, Brandon. Auditors: J. G. Jenkins, Deloraine; and W. K. Ranton, Treherne. There were about fifty present, and practically everyone joined the association. A convention will be held next year, in which there will be an art exhibit, consisting of high-class photography. This Association will undoubtedly be the means of bringing photography to a higher standard.

SEND-OFF TO A ROTARY EMPLOYEE.—Mr. W. H. Armour, who has from the beginning been on the letterpress staff at the Rotary Works, for some years as head of the department, closed his connection with it on Saturday, September 4, having secured an appointment as assistant superintendent of the Lawrence Asylum Press, Madras, India. As a mark of their esteem and a memento of his association with them, the staff subscribed for and presented him with a solid silver inkstand and a pipe in case. The lid of the inkstand was inscribed with Mr. Armour's initials, "W. H. A.," and the stand itself was inscribed, "From the employees of the R.P.C. Letterpress Department, West Drayton, Middlesex. September, 1909."

THORNTON-PICKARD COMPETITION.—The annual competition, in which prizes to the value of £100 are offered for photographs taken with the various makes of Thornton-Pickard cameras and shutters, closes on October 1, and intending competitors who have not yet obtained entry forms should apply without further delay for these and full particulars to the Thornton-Pickard Manufacturing Company, Ltd., Altrincham, Cheshire.

CLASSES IN PHOTOGRAPHY.—Evening classes for photographic instruction are being held during the winter by Mr. E. Senior at the Woolwich Polytechnic, on Wednesdays at 7, commencing September 29, and at the Battersea Polytechnic on Tuesdays and Thursdays at 7.30, commencing September 27. At the latter institute there are separate classes for elementary and advanced workers, with reduced fees to students in the trade; there is also a special class for enlarging. Full particulars as to classes, fees, etc., may be obtained on application at the respective institutions.

WINDOW DRESSING.—A London optician (writes "Advertising") has hit upon a good idea to draw attention to a special line of cameras. The camera is placed in the centre of his window, and coloured tapes are stretched from each important part of the camera to a little label on the window, the label stating precisely the merits of each particular fitting.

CINEMATOGRAPHY IN COLOURS.—A new booklet of the Smith-Urban process of animated photography in natural colours has just been issued by the National Colour Kinematograph Co., Ltd. Urbanora House, 89-91, Wardour Street, London, W. It contains an entertaining popular description of the "Kinemacolor" projections, in regard to which it is interesting to note that this latest triumph of cinematograph and colour-camera in conjunction is regular feature in the programme of three of the premier houses of variety in Europe—the Palace Theatre, in London; the Folie Bergères, in Paris; and the Winter Garden, in Berlin.

"COUNTRY AND TOWN" is a new monthly magazine for architects, builders, etc., in which there will appear, side by side with reproductions of our forefathers' skill, a series of true architectural triumphs by modern architects. It is further intended to demonstrate that the beauties of a modern home need not end with the exterior, and that it is possible to introduce carved doors, overmantels, chimney corners, staircases, and other decorations in keeping with the style of the house. "Country and Town" is issued by the Abbey Press, 13 and 14, Tothill Street, Westminster, London S.W. The first issue gives excellent promise of the manner in which the publishers propose conducting it.

VIVE CAMERA Co.—In reference to the recent query by a correspondent, several readers write to mention that the last address of the Vive Camera Co. was Regent House, Regent Street, W., but no information of the present existence of the firm is forthcoming.

R.P.S. LECTURES.—The following lectures will be delivered at the New Gallery, at 8 p.m. :—

Saturday, October 2.—"Modern Ideas about the Sun," by T. Connolly, B.Sc.

Monday, October 4.—"San Marino, the Pigmy Republic," by T. Rev. T. T. Norgate, F.R.G.S.

Thursday, October 7.—"Saints, Benedictines, Goths, and Vikings," by E. W. Harvey Piper.

Saturday, October 9.—"The Photography of Sport," by Adolph Abrahams, B.A.

WATFORD CAMERA CLUB.—The seventh annual exhibition of the Watford Camera Club will be held in Buck's Rooms, Watford, on October 27 and 28. Of the seven open classes one will be set ap

or colour photography, one for those who have never previously obtained an award in any exhibition, and one (the champion class) for pictures previously medalled. The awards will take the form of gift and bronze medals, and a number of these will be placed at the disposal of the judge, Rev. F. C. Lambert, M.A., for award. Entries close October 21, on or before which date all entry forms, accompanied by the necessary fees, should reach the hon. sec., Mr. W. J. Edmonds, 3, The Parade, Watford, from whom also the forms and further particulars may be obtained.

"PALL MALL" COMPETITION.—A photographic competition has been organised in connection with the "Pall Mall Gazette" and the "Pall Mall Magazine" in which the prizes of one guinea are offered for the best photograph submitted in each of the following classes: (a) Pictorial subjects and figure studies; (b) general interest and topical subjects, and (c) high-speed work, including sporting subjects. Photographs must be sent addressed "The Photographic Editor, the 'Pall Mall' Press, Newton Street, London, W.C.," postage paid, not later than October 25, accompanied by the back cover of a copy of the Magazine, and the winning prints, together with any others which may be deemed of special merit, will be reproduced in the December issue of the "Pall Mall Magazine."

A NEW SOCIETY has been formed under the title of the Illuminating Engineering Society. It has for its object the study of the science and art of illumination. We understand that Prof. S. P. Thompson, B.Sc., F.R.S., has kindly consented to become the first president of the society, and that influential support has been received from many distinguished authorities on matters of illumination in this country, on the Continent, and in America. In addition, a very representative Council has been formed. The society will, therefore, enter its opening session next November under excellent auspices, and as every reason to hope for a long and prosperous existence.

PHOTOGRAPHS ON APPLES.—According to the "Edinburgh Evening Dispatch," the photo-printed portraits, etc., on the skins of apples being introduced as a novelty by Messrs. Andrew S. Clark and Co., Market Street, Edinburgh. As was described in the Press some year or so ago, each of the apples when in an unripe state, and of a light green colour, has a paper shape affixed to it. As the apple gradually ripens, and the skin turns red, the paper acts as a mask does in photography, and keeps the covered portion quite green. Among the subjects seen on the apples were jockeys, stags, the King's head, and one or two other subjects. Each of the apples weighed about $\frac{3}{4}$ lb.

CITY OF LONDON AND CRIPPLEGATE PHOTOGRAPHIC SOCIETY.—A preliminary syllabus of lectures and demonstrations for the new session, which commences on Monday, October 11, reaches us, and we are pleased to note the number of interesting evenings which have been arranged. Mr. F. J. Mortimer opens the ball with a lantern lecture, entitled "A Week in Holland with a Pocket Camera." Among other interesting items are: "A Few Hints on the Gumatinum Process," by Mr. Malcolm Arbuthnot; "Bromoil," by Mr. C. H. Hewitt; and a lantern lecture, "London through the eyes of Gossip Pepys," by Mr. A. H. Blake. Beginners will have every opportunity of improving their photography, arrangements having been made with several of the advanced workers of the society to give monthly demonstrations on technical subjects, such as development, bromide enlarging, intensification and reduction, control in printing, etc., in the spacious dark-room which the members have at their disposal. Further particulars and full details as to membership may be obtained from the Hon. Sec., Mr. H. S. Cuming, 4, North End Road, West Kensington, W., or at the headquarters of the society at Cripplegate Institute, Golden Lane, E.C.

ENSIGN FILM COMPETITION.—Mr. H. C. Leat, 2, Richmond Street, Cliftondown, Bristol, is the winner of the "Ensign" Roll Film Competition for September. Four consolation prizes were also awarded, as the entries were very numerous. Houghtons, Ltd., offer a three-guinea camera every month for the best negative on "Ensign" film. Entrance is free, and a competition form is enclosed with every spool of "Ensign" film.

OLIVER GOLDSMITH SCHOOL, PECKHAM ROAD, S.E.—A course of instruction in photography at the above school on Tuesdays and Thursdays, from 7.30 to 10 p.m., commenced on September 28. The fee for the whole course is 2s. 6d. A complete syllabus may be

obtained from the secretary at the above address. Each meeting is devoted to a lecture, followed by practical work in the laboratory. Special attention is given to those students who desire to sit for the photographic examinations. A student of this school at the 1909 examination of the City Guilds obtained the silver medal in the Honours Grade. Any further information may be obtained from the lecturer, Mr. F. W. Bannister, or from the Principal at the school.

PHOTOGRAPHIC CONVENTION OF THE UNITED KINGDOM.—A special meeting of the Committee of the Scarborough Photographic Society was held in the Library of the Museum on Friday the 24th ult., to meet Messrs. Godfrey Bingley (President Elect), Walter F. Potter, F. B. Cattley, and F. A. Bridge (Hon. Sec., P.C.U.K.), who had journeyed North for the purpose of discussing the proposed arrangements for the 25th. Annual Convention to be held in Scarborough in July next. The members of the Society are very enthusiastic about the meeting, and, judging by the keen interest taken in the details, and the promises of cordial assistance by several influential gentlemen residing in the district, the Convention of 1910 should be a record gathering in every way.

Correspondence.

- * * * *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*
- * * * *We do not undertake responsibility for the opinions expressed by our correspondents.*

A CURIOUS CASE OF COLOURS FADING.

To the Editors.

Gentlemen,—I have noticed in some pictures which I am showing in my reception room—platinotype prints in which the face is very slightly tinted with water colour—that the colouring remains practically unaltered, whereas in some bromide prints (untinted plain platino-matt prints) the colouring rapidly fades away—only the colouring the print does not change at all. I have been wondering if there is any special reason for this—chemical action, for instance—to account for the fading. The colours used are Rowney's—rose madder, with perhaps the merest trace of scarlet, vermilion or raw sienna, and only a faint wash of colour is put on the face. Would some of the aniline dye liquid paints be more suitable for this work?—TINTING.

[We cannot account for the fading. Clearly it is not the fault of the water colours, as they do not change on the platinotypes. It may be possible that some trace of hypo in the silver prints has caused the change. Aniline dyes, as a rule, are not so stable as ordinary water colours when long exposed to light.—Eds. "B.J."]

A CAUTION TO ASSISTANTS.

To the Editors.

Gentlemen,—Through the medium of your paper I would like to give a few words of advice to any young assistant who might be tempted to leave (for higher wages) the ranks of the high-class photographer for those of the quick-trade, postcard, and cheap enlargement firms. In my own case I was properly apprenticed to a high-class photographer of old and good standing. I served my apprenticeship and studied at the local school of art, and was sent into photography, on good advice, to gain experience in the methods employed by other firms. I went my round, learning all I possibly could, and at last reached the rank of operator with a very good firm indeed, and in this capacity I was successful.

Then came my downfall. I accepted a position in a quick, rushing, cheap business at a salary much larger, although mostly built up of commission. I do not complain of the work, for any man who understands his trade can work under difficulties and different conditions. I had a run of prosperity, from a financial point of view, quite remarkable. I stayed there three years.

The point I wish to emphasise is the extreme difficulty in again obtaining employment with a high-class firm after having served three years with a low-class firm. I have made applications for employment repeatedly for four months, giving the latter firm as reference, which I think I am bound in honesty to do, and have received replies to about 1 per cent. of my letters. My work is just as good as it was three years ago, but I suppose my late experience and the fact of stooping to price-cutting, etc., is suffi-

cient to put the glass stopper in the bottle so tightly that nothing but a hammer will remove it.

If you think this advice is worth giving to any young assistant who is tempted to do likewise, perhaps the publication of this letter will have its good effect and prevent him wasting the best years of his life in the greatest of crimes—unemployment.—Yours, etc.,

OUT OF WORK.

Thursday, September 9.

REMOVING PRINTS FROM MOUNTS.

To the Editors.

Gentlemen,—A simple method of doing the above is to place on print a piece of blotting (fluffless side towards print) the same size, and damp it well. Leave it soaking until print readily comes away. Time from $\frac{1}{2}$ to $1\frac{1}{2}$ hours. No damage to mount. Not possible, of course, for dry-mounted prints.—Yours truly, F. NEWELL.
Manningtree, Essex.

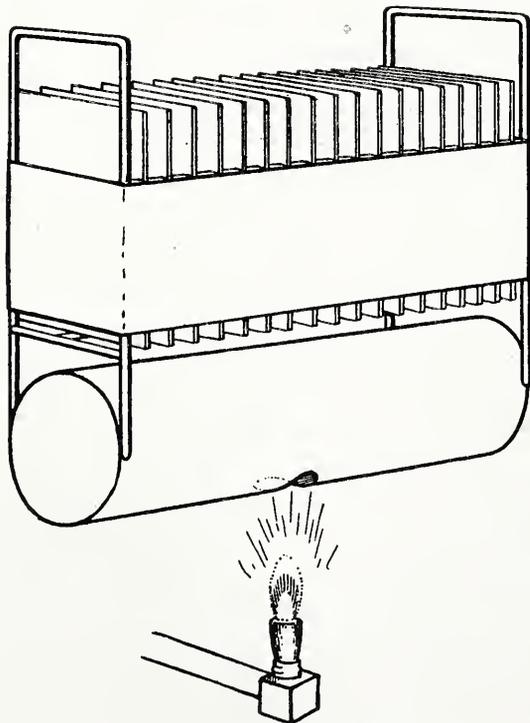
TWO HINTS ON PROOFING AND DRYING NEGATIVES QUICKLY.

To the Editors.

Gentlemen,—As the busy season is now coming with a failing supply of light and every one's aim is to get out pleasing proofs, combined with a minimum waste of time, the following may be of interest, especially as regards un-retouched proofs.

The enclosed for your inspection are proofs printed by good daylight ($\frac{1}{2}$ hour), and the same printed by enclosed arc in 20-30 seconds. Not only is considerable time saved in printing, but the better quality of the results by the arc is indisputable, and though purposely a contrasty negative was selected, it is much better than the daylight one, and, therefore, better order getter.

I find I am always enabled by electric light to get anything up to 20-30 negatives proofed next day to setting—even with a little retouching—and the distance from light modifies the contrast obtained, which is the great help.



At this damp season, a good way to ensure your negatives being dry and ready by the first thing in the morning following development, is to hang on wall a wire negative rack to hold 24 negatives about a foot above a gas bracket, and between the two suspend from the rack horizontally an empty platinum tin with cover on and a hole about the size of a penny, cut in the middle of the under side just over the burner. By leaving a very small jet of gas burning all night under the hole, it forms a hot-air chamber, and distributes heat equally the length of rack. Of course, negatives must be wiped surface-dry with a chamois leather, as any spots of water left on would show.

If centre of tin above the hole heats quicker than ends, a small flat piece of tin slipped in over the hole compensates and distributes

it better; one can soon regulate height of the burner to know greatest heat that can be safely used, and also the time wanted to dry.—Yours truly,

GORDON CHASE.

1, Prince's Avenue, Muswell Hill, London, N.

COMPARISON AND MEASUREMENT OF DENSITY AND CONTRAST.

To the Editors.

Gentlemen,—Professor Bryan's article on the "Comparison and Measurement of Density and Contrast" in "The British Journal of Photography" for September 17 leads me to write to you to point out what seems to me a somewhat serious error, and one which is very likely to increase the already considerable confusion existing on the subject of the increase of exposure produced by filters.

On page 725 Professor Bryan explains Beer's Law, and states that if a film transmits one-third of the light falling on it, then its "density factor" will be called three. This term is very unfortunate, because well accepted definitions of the constants of Beer's Law for photographic plates have already been given by Messrs. Hurter and Driffield. If a film transmits one-third of the light, they define its "transparency" as one-third, and the reciprocal of this, three, they term its "opacity." The logarithm of the "opacity" they term "density." Messrs. Hurter and Driffield's "densities" are therefore Professor Bryan's index numbers if the logarithms be taken to base two. As a matter of fact, it is customary in photographic work to take the logarithms to base ten. Anyone who is accustomed to ordinary photographic practice would therefore imagine the "density factor" to be the logarithm of the quantity which is intended, and I would suggest that in future he should call this quantity the "opacity," conforming to standard practice.

But this question of nomenclature is unimportant compared with the second paragraph on page 726, where he applies Beer's Law, which only applies to homogeneous light, to heterogeneous light with selective filters. If a given filter has a perfectly sharp absorption, and does not absorb any of the colour which it is supposed to transmit, then two such filters will transmit as much light as one, and the use of the two filters instead of one will not alter the multiplying factor of the filter. This can be seen if a sharp-cut red filter be examined. If several of these be put over one another, it will be found that the brightness is very little diminished. In order that two filters having opacities of x and y shall, when placed together, have an opacity xy , their spectral absorption throughout the region considered must be uniform.

For filters for orthochromatic work it is not desirable to have a perfectly sharp-cut filter, and, as a general rule, I should expect that if satisfactory three and five times filters were used together, they would increase the exposure seven to eight times on ordinary orthochromatic plates. On panchromatic plates they would probably increase exposure only about $5\frac{1}{2}$ times, even although they were filters deep enough to be three and five times on panchromatic plates.

I must apologise for questioning Professor Bryan's paper in this manner, but I would suggest that the way in which the paragraph is worded might lead readers to suppose that Beer's Law is universally applicable to heterogeneous light, and this note in the correspondence columns of "The British Journal of Photography" may assist in removing such misapprehensions.—I remain, yours truly

C. E. KENNETH MEES.

To the Editors.

Gentlemen,—The article by Prof. Bryan in the current issue of the "B.J." contains a paragraph on the effect of combining two "orthochromatic screens" of three and five times multiplying value respectively when used separately; and the conclusion is drawn that a combination of the two results in a "fifteen times screen." Perhaps I may be allowed to draw Prof. Bryan's attention to an oversight which has led him to make this erroneous statement.

The statement would be perfectly correct if an "orthochromatic screen" absorbed light uniformly throughout the spectrum instead of acting selectively on the blue and violet almost entirely. The description "three-times, five-times," etc., applies strictly only to combination of screen and plate considered together, the better colour-corrected the plate the lower the multiplying factor of given yellow screen on exposures made through it.

Further, it is quite impossible to say what is the multiplying factor of a combination of two such filters, except with a given plate, and as the result of experiment, and it is possible for

three-times and a five-times screen to combine to give a filter of value multiplying greater than five and less than fifteen times, according to the degree of colour correction of the plate under consideration.

Suppose, for instance, that the total light acting per second on a plate when no screen is used be 15 C.M.S. (actinic), and suppose this total 2 C.M.S. are green light which is not damped down by screens, and 13 cms. are blue-violet which is partly absorbed them. Then we get:—

	Green. C.M.S.	Blue. C.M.S.	Total.
With no screen	2	13	15
With "three-times" screen...	2	3	5
With "five-times" screen ...	2	1	3

It is obvious that the transparency, or proportion of the incident light transmitted, of the three-times screen to blue light is 3-13, that of the five-times screen is 1-13. The two combined will therefore transmit only 1-13 by 3-13, or 3-169 of the incident 13 C.M.S., or 3-13 C.M.S., and, as the green is undiminished, the total transmitted becomes 2 3-13 C.M.S., and the multiplying factor of the combined screens becomes 15 ÷ 2 3-13 = 6½ nearly.

Taking a different ratio of blue sensitiveness for the plate—say, 1:—the combined three-times and five-times screen for this plate will give a thirteen-times screen, and so on.

In conclusion, it may be useful to call attention to the fact that at Prof. Bryan calls the "density factor" of an image is the "opacity" (O) of Hurter and Driffield, and the "index number" proportional to H. and D.'s "density" (D), the only difference being that in the H. and D. notation 1 is the "density" corresponding to opacity 10, 2 to 100, 3 to 1,000, etc., instead of "indexes" 2, and 3 corresponding to "density factors" 2, 4, and 8 respectively.

Seeing that the H. and D. notation possesses the merit of giving a simple relation between "O" and "D" by the equation O=D, the notation suggested by Prof. Bryan appears to me to be less convenient than that in use.—Yours faithfully,

F. F. RENWICK, A.C.G.I.

Orland House, Avenue Road, Brentwood,
September 18, 1909.

Professor Bryan, to whom was submitted the above letters, writes as follows:—

Gentlemen,—I am greatly indebted to Dr. Kenneth Mees for his valuable and important corrections. But I would like to call attention to the difficulty I have experienced in finding any references in literature dealing with such matters as opacity, density, and contrast; I have consulted handbooks by the score, only to find the same instructions repeated over and over again as to timing exposure and development, compounding various developers and intensifiers, and adding bromide. In such handbooks the terms "opacity" and "contrast" are used in a vague and ill-defined way, and the terms which Dr. Kenneth Mees describes as "well accepted" are conspicuous by their absence. On the other hand, the more scientific literature which I have seen has mainly been devoted to technical theories, discussions relating to the latent image, and other matters of theoretical interest, covering very different ground. Yet if positives are to be made in numbers by anything but a printing-out process, it seems to me that some knowledge regarding opacity, density, and contrast should be made easily accessible to the ordinary amateur. Dr. Mees has now kindly furnished me with references, but others may be in the same difficulty.

I quite agree that uniformity of nomenclature is of very great importance. But, unfortunately, the popular handbooks above referred to always speak of the density of negatives, whereas it will be found that what they mean is almost invariably the opacity of the H. and D. notation. I do not see how you can get over this difficulty. If it were suggested to replace H and D's "density" by "thickness" that would remove the ambiguity, which is also overcome by adding the word "index." "Opacity" I certainly prefer to "density factor."

As regards the choice of a base in taking logarithms, I do not consider ordinary mathematical text-books, as a rule, sufficiently emphasise the fact that logarithms to different bases only differ in their scale or unit of measurement.

If the base is ten, the unit of density is a film which transmits one-tenth of the light falling on it; if the base is two, the unit is one which transmits one-half of the light. The difference between the scales is exactly analogous to the difference between measuring lengths in feet and measuring them in metres, and densities can be changed from base 2 to base 10 by multiplying by 30103, or from base 10 to base 2 by dividing by that number, just as metres are changed to feet, or vice versa by multiplying or dividing by 3.2809.

But as regards the advantages of the base 2 in calculating ordinary photographic exposures, as suggested in my previous paper on "The Index Method," my subsequent experience has shown that this method effects a great saving of time and trouble over the ordinary exposure tables and calculators. After a very little practice, the necessary indices will be remembered, and the calculations can then be performed in the time that would otherwise be occupied in fumbling in one's pocket for the calculator.

I quite admit that the reference to colour-screens in my paper was somewhat unfortunate. Of course, I knew that Beer's Law would only apply, strictly speaking, to individual colours; so that if a screen were to transmit one-half of the light of one colour, and one-third of that of another, two such screens would transmit one-quarter of the former and one-ninth of the latter light. But a more detailed discussion appeared out of place, and it would probably have been better to omit the subject altogether.

In comparing the opacities of different negatives, it is, of course, desirable to avoid comparing negatives which differ widely in colour. With negatives of the same colour it is easy to enlarge two small negatives on to one large sheet of paper even where widely different exposures are required for them. This, of course, requires that the two enlargements shall be fully developed simultaneously.—I remain, yours truly,

G. H. BRYAN.

Answers to Correspondents.

- * * All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- * * Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- * * Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.
- * * For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

- Marianne E. A. Powles, 40, Sussex Gardens, Hyde Park, London, W. Photograph of a Street in Chartres with Spires of Cathedral in the Background.
- E. A. Kime, 116, St. James' Street, Newport, Isle of Wight. Photograph of Interior of Saint Mark's Church, Wootton Bridge, Isle of Wight.
- J. P. Millar, S. West Bridge Street, Falkirk, Scotland. Photograph of Falkirk Football Club Players for Season 1909-1910.
- F. Fitch, Belmont, Harlesden Road, St. Albans, Herts. Photograph of St. Albans City Football Team, First Eleven.

SCOT and others.—In our next.

SYDNEY A. CARR.—1. Certainly the same allowance should be made in exposing Autochromes as in using ordinary plates. 2. We have read your letter of the 17th. but we are unable to discover any sufficient reason for the differences.

STAINED PRINT.—Will you kindly tell me the cause of the stains on the enclosed postcard? I printed a small batch, washed them for ten minutes in running water, put them to tone in a dish which I keep for toning only, kept them moving, and towards the end of the toning the marks appeared. The enclosed is the only one of the batch that is stained. Apart from the stain, do you consider the card a passable one?—J. E. GUBBINS.

The stains are due to something coming into contact with the print while it was being washed, or maybe while in the toning-bath. A splash of hypo solution or one of developer would cause similar stains. The print, but for the stains, is fairly good.

J. B.—Apart from the many articles in our own and our contemporaries' pages, we can only refer you to No. 98 of the "Photo-Miniature" (6d.) from your dealer.

ZINC POWDER.—Kindly let me know where I can get zinc dust from for throwing down silver in old hypo bath, and how much would you advise to use per gallon?—H. SLAECK.

Powdered zinc is supplied by all wholesale chemists, such as Hopkin and Williams, Cross Street, Hatton Garden. Cuttings of zinc, which may be had from any zinc-worker, will serve the purpose, though they take longer time. The necessary quantity to use cannot be given, as it necessarily depends upon the amount of silver in the solution to be reduced.

RECOVERY OF PAYMENT.—Can you let me know what I ought to do? I took a group which I copyrighted, and was asked by the representative of a certain paper to let him see a picture as soon as possible. I submitted a copy to him and told him I wanted half a guinea if he accepted same. He thought the price I was asking was too much, but said he would see his superior about it and let me know the same day. He has not written me as promised, but I find he has reproduced my picture in his paper. I have sent an account in for the half-guinea, but have received no reply.—COPYRIGHT.

The matter is simple enough. Make formal application for the money, and if it is not paid sue for the half-guinea in the county court.

M. J. C.—You ask no definite questions, but we presume you wish to know the causes of the spots which appear on the two sulphidated prints you enclose. It is impossible to say definitely the cause of the trouble, but in the case of the white spots a probable cause is hypo dust on the print. The black marks look like ink stains, produced by the conjunction of developer splashes with the bleaching solution. In the total absence of any particulars of treatment we cannot make any other suggestions. The formulæ you give are quite ordinary, and there is nothing in them to account for the spots. The fault is evidently one of manipulation.

C.C. PAPER.—Will you kindly give me a little information on the following in this week's "B.J."? (1) What is the best formula for toning C.C. paper to procure the best possible rich, warm tone? (2) What is the best method by which the same can be glazed without fear of sticking?—H. S. B.

(1) The best results are got by first toning in a good bath and then in one of platinum. We expect the makers of the paper you are using give formulæ for these, and you cannot do better than use these latter. (2) The method is that given under P.O.P. on p. 804 of the "Almanac."

INTENSIFIER.—Would you kindly let me know, through the medium of the "Journal," what is the formula for intensifying negatives? It is composed of mercury bichloride, potassium iodide, but I forget the exact proportion.—INQUIRER.

The formula is as follows:—

Mercuric chloride	50 grs.
Water	10 ozs.

Add 10 per cent. potass. iodide solution until precipitate first formed is redissolved. About 1½ ozs. will be required, and when clear add—

Sodium sulphite	4 ozs.
Water to make	20 ozs.

COVERS FOR VIEWS.—Do you happen to know of a firm or place where I could get the cardboard covers for collotype prints such as you see on sale at seaside places? I have seen exact imitations of herrings and fishes on opening. The collotype views are enclosed. I have seen a lot of different kinds, such as soldiers' kit-bags, with views inside. I am anxious to get some done to a design of my own and put my own views in. So would be obliged if you could tell me where I could get the covers.—INQUIRER.

As you will supply your own design, we have no doubt that any mount-maker will supply the mounts. See under "Mounts" in the "Almanac" directory of goods advertised.

STUDIO.—Messrs. Winsor and Newton, Rathbone Place, Oxford Street, are agents for the pencils.

NEGATIVES BROKEN IN TRANSIT.—I have had several valuable negatives broken in transit by the railway company, several of

which I cannot replace. They were well packed in box and carriage paid at glass rate, labelled in large type "Glass." Can I claim compensation from the railway company, as this is the second batch broken to pieces this year? What do you consider a fair price each as compensation, and should I employ a solicitor to get it through for me?—FIFTEEN YEARS PROFESSIONAL

We are afraid you will have some difficulty now in obtaining any compensation, as so long a time has elapsed. The claim should have been made at once when the parcel was opened and the contents found damaged. It would have been better had the parcel been opened in the presence of the man who delivered it. We cannot give any idea as to what you should claim, inasmuch as we do not know anything of the value of the negatives—their size or the subjects. We should think that it would not be worth while to employ a solicitor.

ACETYLENE.—We think you would find the same difficulty with the four-burner acetylene lamp, but we must confess to having seen very little of acetylene for portrait purposes. You would do well, we think, to write Messrs. R. J. Moss, 98/99, Snow Hill, Birmingham.

RIGHT TO EXHIBIT.—I shall be glad if you will be good enough to give me your opinion on the following:—I opened my present business at the beginning of the year. Two months ago I took a group of two little girls, the daughters of a well-known gentleman in the district. As the children are very pretty and made a good picture I had it enlarged and highly finished for a specimen for the window, and it proved very attractive. A few days ago the father came, and in a peremptory way ordered me to take the picture out of the window at once and not show it again, saying, "How dare I make such a use of his daughters' portraits, etc." As the picture has cost me a lot I offered to sell him it at a much reduced price, and I thought that was fair, but he refused in a very indignant way, and said that if the picture was removed at once he should instruct his solicitor to take legal proceedings against me. Will you please tell me if he can do so?—B. J. W.

Yes, certainly he can, and if he does you may find yourself involved in heavy law costs. You have taken an unwarrantable liberty with the customer's portraits without first obtaining consent. As you seem to be quite a beginner in the business we can tell you that it is a very unwise thing to do anything that will give offence to customers, more particularly in a country district like yours.

LENS QUERY.—I have just bought, secondhand, a lens, bearing the name of Voigtlander. It is about 3¼ in. across and about 8½ in. thick when focussed on the sun. It gives a very sharp image on a ground glass, but I cannot get with it a sharp negative. I thought at first that the camera might be wrong, but that is all right. The lens, by the appearance of the brass work, is a very old one.—A. J.

It is clear that the lens has a chemical focus, as all the early lenses of that maker had. If you examine the sliding ring you will probably notice some small engraved marks on it. They are to show the distance the lens has to be racked out, after focussing, to obtain a sharp negative.

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The British Journal of Photography

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SUMMARY.

THE BRITISH JOURNAL ALMANAC. One clear week still remains before the advertisement pages of the "Almanac" are finally closed. Orders, etc., should reach the publishers on or before Friday, the 15th inst.

As much common-sense advice on photographers' advertising as can reasonably be compressed into a single article is contained in that by Mr. C. H. Claudy from the "Photo-Era." (P. 781.)

The latest victims discovered by the "free enlargement" canvasser are persons letting furnished apartments. The canvasser presents himself as about to introduce a lodger, and on this basis gains an order for a frame. (P. 773.)

Steps are being taken in Germany to put a spoke in the wheel of the cheap photographer, but the difficult factor in the case is the photographic business done at ridiculous prices by large stores as a species of advertisement. (P. 774.)

Mr. Harold Hood, in an article on commercial flashlight photography, gives a number of quite necessary cautions as to the use of home-prepared flashlight powders. The article (page 776) contains also a number of useful hints.

A formula of service in providing negatives with a cheap and easily applied protective coating is given in an article by Mr. E. M. Stretthorpe. (P. 778.)

Mr. Harold Baker, in a paper in the current issue of "Photographic Scraps," lays stress on the conditions, other than those of toning process proper, in securing consistently good results in the development of sepia prints by the sulphide method. (P. 784.)

It is with the very greatest regret that we record the tragic death of our friend and contributor, Mr. Douglas Carnegie. (P. 785.)

We call attention in an editorial note to the usefulness of the thio-bamide reducer for the removal of stains caused by chromium sensitification or other process. (P. 774.)

Professor Namias, in a paper on the keeping qualities of sulphite of soda in presence of the substances most commonly used in developers, has arrived at conclusions which in some instances are in agreement with those of other experimenters, particularly in respect to sulphite mixed with caustic alkalis. The full text of the paper is given on page 779, and some editorial comments upon it on page 775.

Under "Photo-Mechanical Notes" an abstract is given of a further report of Mr. Arthur Payne respecting the "Paynetype" process of photo-engraving direct in the camera. (P. 785.)

A process of making colour screen-plates figures under "Patent Processes." (P. 786.)

EX CATHEDRA.

Still Another "Free" Enlargement Dodge.

Only a fortnight ago we commented on the shifts to which a canvasser of so-called "free" portraits was put to introduce his spurious business. The two gentlemen then referred to are now undergoing a term of six months' hard labour for making illegal use of the name of Messrs. Lever Bros. We now read in a recent issue of the "Daily News" of still another dodge of the canvasser to allay the suggestion of fraud which, unfortunately, is inspired by the mention of the phrase "enlarged portrait." "The man of enlargements is attracted by the card displayed in the window, 'Furnished Apartments.' He represents himself as being connected with a large firm of photographers, who combine the enlarging of photographs with a lodgers' agency. He looks at the rooms, is charmed with them, says he thinks the lady is not charging enough, and that he has two young men connected with a City banking firm that they will suit exactly. With regard to the enlargement, all he asks is that the firm shall be advertised in both its branches. He turns up in a few days with the enlargement, says the young men are coming, mentions the date of their arrival, and produces his samples of frames. What could she do but give the order for a frame? The price to be half a guinea. In the case known to me the lady had insisted at the outset that she must not be put to any expense in the matter of the enlargement—her finances, she explained, were very low, and, besides, she was having it done only to oblige him. Of course, the young men have never been heard of since. In this way the lady, poor and perplexed almost to desperation, was made to buy what she did not want, and chances of letting the rooms probably lost. For, on the completion of arrangements, the card was removed from the window."

* * *

The Polytechnic Classes.

The lecture inaugurating the commencement of the winter session of the Photographic School at the Regent Street Polytechnic will be delivered by Mr. Howard Farmer on Thursday evening next, October 14, at eight o'clock. The subject being "Among the Flying Men," with cinematograph and lantern illustrations. Following the custom of recent years, the teaching staff of the school will be present after the lecture, and will be glad to give intending students information or advice. We may direct the attention of assistants to the opportunities for perfecting themselves in their work and for acquiring a knowledge of other branches which are afforded by the series of classes conducted by Messrs. C. H. Hewitt, C. David Kay, Albert J. Lydden, Wolfgang Arndt, and others equally well qualified by their own professional experience to impart commercially valuable knowledge, which is often a very different thing

from the methods a worker may pick up by self-study. The school is open all day and in the evenings, and the full prospectus, obtainable from the Director of Education, the Polytechnic, Regent Street, London, W., will show the wide range of the instruction provided.

* * *

Cork Metal. A metallic mixture having been suggested under the name of "cork metal" as a suitable material for aeroplane construction, a writer in the current issue of the "Chemical News" has been prompted to make an analysis of the material, which turns out to consist chiefly of magnesium. This metal accounts for 99½ per cent., the remaining two-thirds per cent. being composed of zinc, with minute quantities of sodium and aluminium. The alloy is said to be 40 per cent. lighter than aluminium. In appearance it resembles magnalium, whilst its tensile strength cannot be much, if any, better than that of magnesium itself. Apart from the question of cost, "cork metal" would not be likely to prove of any value for the construction of metal cameras, even in the hands of a maker who was prepared to go to extremes in catering for the present craze for the *ne plus ultra* in the lightness of cameras.

* * *

Stains in Chromium Intensification. We have often had complaints of stains produced in the re-development process which completes the operation of chromium intensification, and from time to time we have drawn attention to various causes. Of late, we have been greatly troubled with stains due to the use of a different kind of developer to that which we ordinarily employ. The new developer worked excellently when quite freshly mixed, but when it had been in use for a little time it had the trick of producing brilliant yellow stains that for a long time resisted all attempts at cleansing. Finally, however, we tried the thiocarbamide clearing solution given in the "Almanac," and found that in double strength—2 per cent. thiocarbamide and 2 per cent. citric acid—it removed the stains very rapidly and thoroughly. This very useful clearer is one that deserves to be more generally used. Though the thiocarbamide is rather expensive to buy, yet it is cheap in use, as very little is required to make the bath, and this can be used over and over again. Apparently there is little, if any, effect on the intensification if the bath is no stronger than we have suggested, but a very strong bath does tend to show a reducing effect. If sulphuric acid is substituted for the citric acid a fairly powerful reducer is produced, but we have found that it is in practice a risky one to use, as it is very liable to produce a new kind of stain on its own account. No trouble of this kind has been met with in the case of the citric acid and thiocarbamide clearer, which is the solution we advise.

* * *

A German Scheme to Boycott the Cheap-jack. At various times we have called attention to the strenuous efforts photographers in Germany are making to protect their interests, and at the same time restore the profession to a better condition. The Dealers' and Manufacturers' Union, which is the main-spring of the protection organisation, has just held its twenty-first annual meeting at Dresden, passing various resolutions for the conducting of an energetic campaign against under-sellers. Within the last few years the photographic profession in Germany has run riot. All sorts and conditions of men have opened studios and are supplying the public with portraits at starvation prices. Some of them charge only 1 mark 50 pfennigs (a shilling

and sixpence) for a dozen C.D.V.s, and little more than double for a dozen cabinets. What the dealers and manufacturers propose to do in order to put an end to this is to refuse supplying these under-sellers with plates and paper. Exactly how they are going to carry on the propaganda is not altogether clear. So far they have contented themselves with a few threats without doing much. However, the Union is confident, and it will doubtless be interesting to see what progress it makes. There is more than a possibility that as soon as the manufacturers and dealers refuse to serve the low-priced man, other manufacturers will spring up to supply his wants, taking much of the trade out of its present channels without materially bettering the present situation. But this phase of the subject sinks into insignificance compared with the formidable rivalry with which the Union has to contend in the increasing number of large general stores which treat photography as a means of advertising themselves. Because of this they are turning out store photographs at a price which in all conscience "defies competition." It is these places which have done more than the cheap and nasty man to ruin the legitimate professional photographer. Their reply to the threats of the Union is that they may boycott them if they will; in which case they are prepared to manufacture their own plates and paper, for their own use and also for the large amateur trade over which they have command. Hence they are entirely independent, being practically the masters of the situation, and unless the Union can persuade them to come to some reasonable terms the likelihood is that they will continue on their own way, cheapening and helping to ruin the profession. And behind them the cheap-jack who can hold their own, can afford to laugh at an attempt to boycott them.

* * *

The Royal Society of British Artists.

The present exhibition of this Society perhaps above the average as far as oil paintings are concerned. A few of the works are of great merit, noticeable the fine and impressive "Wild Cornish Coast" (67), Alfred East. The President's other two works do not go beyond the limits of clever sketching. His portrait of Philip Laszlo is a telling, if rather matter-of-fact, piece of work, and the talented portraitist is seen to great advantage in his amazingly clever and altogether charming portrait of a little boy, called "My Son Stephen" (33). It is many a year since a child's portrait has been given with such a sensitive appreciation of childhood's characteristic such power, such reticence, and such masterly style. In a great many of the pictures show lack of originality both in motive and treatment, but perhaps this is not to be wondered at in a society that is still in the sloughing state. There is much in the way of old-time banalities that remains to be shaken off. The water-colours would be disappointing but for one or two well-known men, whose works redeem the collection. Amongst these are the rich and harmonious pastel interiors by Frank H. Swinstone, who finds good material in agricultural outbuildings.

* * *

The Beauties of the Technical Section.

A writer in the "Art and Artists" column of the "Globe" hopes that the exhibitors in the Pictorial section of the New Gallery will pardon him for saying that the most interesting display is not in the large room, which they are privileged to fill, but in the "humble balcony" where the scientific and technical exhibits are stowed away. These represent "but a fractional part of what photography is doing in unfolding the marvels of creation, but even that fraction is surpassing wonder." We doubt if all the pictorial

will forgive an art writer for such a statement, but it is in any case one that we have heard a good many times of late. After studying a fine photograph of, say, a nebula, which is beyond all question a thing of surpassing beauty, most people feel with the writer we have quoted that "the ordinary photographer fails to attract." The pictorial photographer may look upon this as heresy and treat it with scorn, but he would be far wiser to consider the matter calmly and endeavour to find out the reason for it. There is plenty of fascinating beauty in nature outside nebulae, but how is it that it appears in the nebula photograph and is missed in the pictorial efforts? May we suggest that in most cases it is because the latter remind us too much of the photographer and too little of nature? The nebula-photographs show more nearly the ideal impersonal quality that every artist strives for. They are beautiful things quite regardless of who happened to be the maker of them; indeed, if they are technically perfect, we can forget that they are photographs at all, and can imagine that we are studying nature itself.

SULPHITE OF SODA.

THE paper by Prof. Namias on the alteration of sulphite in solution, which we print on another page, is of considerable interest, as it deals with the behaviour of sulphite and soda in very varied conditions. It does not exhaust the subject by any means; but still, it contains a good deal of information of practical use. There is, however, one point that seems to require a little further consideration, and the conclusion arrived at is quite contrary to general experience. It is stated that the addition of acid sulphite affords no notable advantage in the way of preservation of the sulphite, yet such an addition is perhaps one of the most effective methods of preserving sulphite in common use. The deterioration of the sulphite in the presence of carbonate has, of course, been noted before, and it is rather important to remember that carbonate is always present in the so-called "pure" sulphite used by photographers. Strangely enough, this fact is often overlooked by experimenters, or at any rate it is not mentioned in their writings, so there is always an element of doubt as to whether it has been taken into consideration by them. Pure sulphite, free from carbonate, can, no doubt, be produced in the laboratory, but this is not the kind ordinarily used, hence experiments based upon its behaviour are apt to be misleading. It may, perhaps, be assumed that the preserving effect of an acid sulphite depends on the neutralising of the carbonate always present; but this idea requires confirmation by actual experiment. As a rule, much more is used than is necessary merely to neutralise the carbonate, and the resulting mixture keeps much better than a pure sulphite simply free from carbonate can be expected to do.

Precisely why carbonate assists the oxidation of the sulphite is a mystery. Analysis, however, shows that as the sulphite diminishes so also does the carbonate, so there is little doubt that reactions of some sort take place, either between the two, or more probably between the carbonate and some of the decomposition products of the sulphite. A sample of ordinary pure sulphite will usually contain from $1\frac{1}{2}$ to 3 per cent. of carbonate when the solution is quite fresh. When the sulphite has completely gone it will generally be found that the whole of this carbonate has changed to an equivalent quantity of bicarbonate, which suggests inter-action with an acid decomposition product. If, however, this inter-action helps to accelerate decomposition, we should expect soda hydrate to be quite effective, if not more so, than the carbonate, whereas

according to Professor Namias it is less so. From past experience, we think there is some uncertainty with regard to the action of the hydrate. We have known, and recorded in these pages, cases in which mixtures of sulphite and hydrates have deteriorated with extraordinary rapidity; on the other hand, we have also noted cases in which the solutions seemed to last remarkably well even when carbonated alkalis were present.

We fear the truth of the matter is that we know very little indeed about either the causes or the manner of deterioration of soda sulphite. No two samples of the salt behave alike, and it often happens that the better the sample seems to be at the start the worse are its keeping qualities. We have known very pure high-priced samples to become useless in a few days, while cheaper and less pure ones have retained their strength remarkably well for weeks, or even months. Professor Namias does not give full particulars of the method according to which he kept his samples, but it certainly seems that in a 5 per cent. solution his samples showed very poor keeping qualities. When we conducted our experiments we used solutions of 1.26 per cent., or just about one-quarter of 5 per cent. We adopted these weak solutions so as to ensure a reasonably rapid change, but even with this degree of dilution, while some of the samples were gone in a fortnight others still retained half their original strength. Six days is a very short period for changes of the extent recorded by Professor Namias. The analysis of sulphite is itself a rather complicated operation, and it is to be feared that some of the results obtained are often incorrect owing to imperfect analysis. It is usually assumed that sulphite and sulphate alone are to be looked for, and if this assumption were correct, then simple titration with iodine should be sufficient. There are, however, other methods beyond the iodine one of determining sulphites, and if we use two methods, checking one against the other, very curious and incongruous results are often arrived at, these results differing with different samples. If, for example, we determine the sulphite by titration with acid, as well as by titration with iodine, it will often be found that the iodine gives the higher reading with fresh solution, while as the solution becomes stale the two readings approach one another, and eventually agree. This phenomenon requires some explanation, for it suggests the presence of substances other than sulphite and sulphate. Some time ago we conducted a series of tests on sulphites over a period of about four months, with very inconclusive results. Only one point seemed evident, and that was that samples which when fresh gave the same reading with both the acid and iodine, as a rule rapidly deteriorated, one dropping from 90 per cent. to 65 per cent. in one day. On the other hand, samples which at first gave the higher iodine reading lasted better, the drop in one instance being from 78 per cent. to 54 per cent. in nine days. This sample when fresh gave a reading of 75 per cent. with the acid test and 78 per cent. with the iodine, and the suggestion is that the difference indicates the presence of some impurity which acts as a preservative. The lowness of both readings is also noteworthy, as it indicates that a high proportion of sulphite in the first instance is not a guarantee of serviceable quality. In fact, the sample that initially gave the highest proportion of sulphite, and was presumably the purest, was the worst in point of keeping quality of any of the samples tested. We may add that the sample giving the low reading mentioned is one of the best known and most serviceable brands on the market, and is very largely used by those who have experienced its good qualities. From the point of view of the practical worker, we are therefore not inclined to attach any special value to samples that show high initial percentages of sulphite.

LARGE FLASHLIGHT WORK: SOME WARNINGS AND LESSONS.

JUDGING by the frequency with which the subject of the application of flashlight work to commercial purposes is referred to in the "Journal," it should not come amiss to add some practical data based on two or three lively experiences of my own. I have, as a rule, the strongest prejudice against using and recommending so-called proprietary mixtures. The success of so many of the made-up developers, for example, seems to be based on the sublime faith placed by a certain sort of amateurs in any developer except those of which they know the composition, and that is the sort of spirit to be deprecated among professional photographers. My prejudice extends also to flashlight mixtures and torches made and sold under fancy names. The origin of my objection is perhaps based on the relatively higher cost of the "patent" flashes compared with those I make myself.

Yet—let me emphasise this important point by a new paragraph—I will say this for the improved powders, such as the "Agfa," "Bayer," or Fuerst's, that their use is vastly to be preferred until the operator becomes so conversant with flashlight procedure that he can with confidence tackle the firing of fairly large charges for comparatively big events. These improved powders differ materially from the chlorate-magnesium one, with which all my larger work, of the type described later herein, had been done, in that they are supplied to work at something less than explosion-speed, and with proportionately greater safety. Indeed, it should be borne in mind that my own experiences here recorded are more intended as a warning than as an example, and I hasten to express my conviction that carefully mixed home-made powders—even chlorate mixtures—fired in extended trains, and never in heaped mass, are next door to fool-proof. But—this is important—a milder and safer mixture than one with chlorate is one composed of three parts nitrate of potassium to two parts of magnesium, and this is strongly to be recommended from satisfactory experience. Because the energy of flash-mixtures appears cumulative—that is, that large charges seem to develop more proportionate force than small ones—the precaution to extend the train longer as the charge grows bigger is worth remembering.

Flashlight work of the lesser magnitude had always some fascination, even in the photographic tooth-cutting days. Yet it was not without some inward excitement that I accepted the invitation of the Committee of the Middlesbrough Musical Festival, 1903, to take a group of the combined orchestra and chorus during the final rehearsal in the Middlesbrough Town Hall. I had undertaken nothing approaching this in magnitude previously, and knew of no handbook on the subject; consequently I judged it best to minimise the chances of personal discredit by rehearsing operations on the night before the event. For my rehearsal I got a few friends to stand about in the main positions on the platform. Twelve ounces of the flash-mixture—simply 8 oz. of dried and pulverised potass chlorate and 4 oz. powdered magnesium, brought in separate bags, and mixed with cardboard spatulas at the hall—were placed in a specially made dish, rather like a big dripping tin. This tin was placed at the front and the extreme right of the highest gallery, which projects perhaps one-third into the main hall. The camera, 15 x 12, with Cooke lens, stopped to $f/8$, was placed in the front of the balcony (or lower gallery), slightly to left of its centre.

From subsequent observations, it had seemed inexplicable why the explosive force of this 12 oz. of mixture should seem so much milder than one-half or one-quarter the amount fired in other places. The explanation seems to be that it depends

not only on the charge, but also on the size of the building and the degree to which it may be sealed up by closed doors and windows. The state of the powder, too, is of importance. In one notable instance, to which I will refer later—in which a large group was taken by flashlight in a glass-roofed "Winter Garden"—I carefully dried the chlorate, before mixing, over a stove, and it had probably barely cooled before using. The results of that comparatively small charge are detailed further on, and will probably influence readers to pulverise gently but not to warm the chlorate of potassium.

The powder was piled in a loose cone-mound in the large dish which rested on a thick board on the broad gallery ledge. The charge was fired by the rather crude way of a taper, whose brass holder was fitted to the end of a pole about 15 feet long. Nothing untoward occurred, except that it was found rather difficult to hit the mound steadily with the taper flame, because of the "wobble" of the too-flexible pole. The powder "went off" with a sharp thud, in a way not easy to describe.

Development of the test exposure was effected by weak pyro-potass, the formula being simply:—

10 per cent. soda sulphite solution	2 oz.
10 per cent. potass. carbonate solution	2 oz.
Pyro, dry	2 grains.

No restrainer was used.

The actual plate used for the test exposure I cannot remember but it was somebody's "special rapid," and I found the image come up in a rather unsatisfactory, weak way, but in the meantime I had obtained some 15 x 12 "Monarchs" from Ilford Ltd., which had only been introduced a little before that time.

That the work was serious enough will be gathered from the fact that Middlesbrough Town Hall is roughly 130 feet long by 60 feet wide and 60 feet high, and the members of chorus and orchestra and those in front of the platform numbered about 375. To minimise the chances of fiasco, I used two of my own cameras, and borrowed a third; and that is a precaution I should very strongly urge on a professional undertaking any such work of public prominence. Any suspicion of failure in connection with such an undertaking is likely to prove a bad advertisement for the photographer; while, on the contrary, actual experience shows that the successful production of a large, reasonably well lighted group is a profit in itself, and an excellent advertisement to boot.

On the proper night, with my battery of cameras, and with arrangements as to position, etc., as before, I stopped to fire, and used exactly double the flash-powder, relying on the much higher H. and D. number of the "Monarch" plates for an increase in detail. I fired the charge personally from the gallery, an alert assistant in the balcony below removing the cap on my shouting in stentorian tones: "Now—please—look at the cameras, not at me!" (I don't know what "stentorian" means precisely, but it seems to explain the quality—a surfluously loud, clear shout.) A moment later I plunged my flaming taper into the large and distinctly formidable heap of grey powder, and—the flame was completely extinguished.

That all the members of the group had not obeyed orders, but must have noticed the light that failed, was shown by the loud titter which followed. As I feared an actinic effect might be felt from the arc lamps, which were burning high up, I called loudly: "Keep quite still, please"—and a very few seconds later successfully fired the charge. The concussion—not to say explosion—which followed was distinctly awe-inspiring and unlooked for, in view of the mild behaviour of the

quantity of the previous night; and the experience goes far to prove what an extremely dangerous element flashlight mixtures might be in the hands of an incautious or indifferent operator. The heat generated in that momentary explosion is remarkable, in that the whole length of taper was instantly consumed throughout within its brass fitting, and the tinning of the dish blasted away clear down to the iron. The finished result of this group, if not a complete success, was nevertheless very satisfactory. Out of the large company not more than two or seven persons had moved seriously between the two attempts at firing, and the arc lamps did not do nearly the work I had expected. The lighting was more natural than usual, and the exposure ample.

The lesson from the miss-fire is that one must "tickle" the powder with the lit taper rather than plunge it in overhead. An improvement in detail is to place a small charge of gunpowder—2 or 3 drachms—beneath and slightly beyond the edge of the flash-powder. But I have other and more important improvements to suggest in due order.

About three years later, I was asked to photograph a big group in the People's Winter Garden in the same town, and gained a little local notoriety by undertaking the work, or rather, by the consequences involved. The Winter Garden is long, rather low, glass-roofed building, perhaps 80 feet by 40 or 50 feet, and I admit a certain amount of reluctance in accepting this job, because of the difficulty of combining a large sufficiently actinic and yet with a minimum of convulsive force.

Yet, as my clients pressed for despatch, I had no choice but to make the best out of the conditions. I used a total of 10 oz. of the same mixture as above spread in a ridge across the bottom of a large enamelled basin. This I fired electrically, in the manner of accomplishing this should be of interest. Part of the flash-mixture was made to overlap a small train of gunpowder, and this in turn intermingled with a tuft of cotton-wool lightly soaked in spirit. I borrowed a powerful induction-coil, of the sort used for mine-firing. This, though very valuable—occupying a case about 6 in. square—gave a quite considerable spark of about $\frac{1}{2}$ in. length with a battery of four ordinary household dry-cells, costing about 1s. 3d. each. For this I simply arranged a crude terminal-board, with the wires connected down to approach each other to within about $\frac{3}{8}$ in. apart. The spiritous cotton-wool, with its "tail" merging into the small pile of gunpowder, was arranged closely about the wire-terminals.

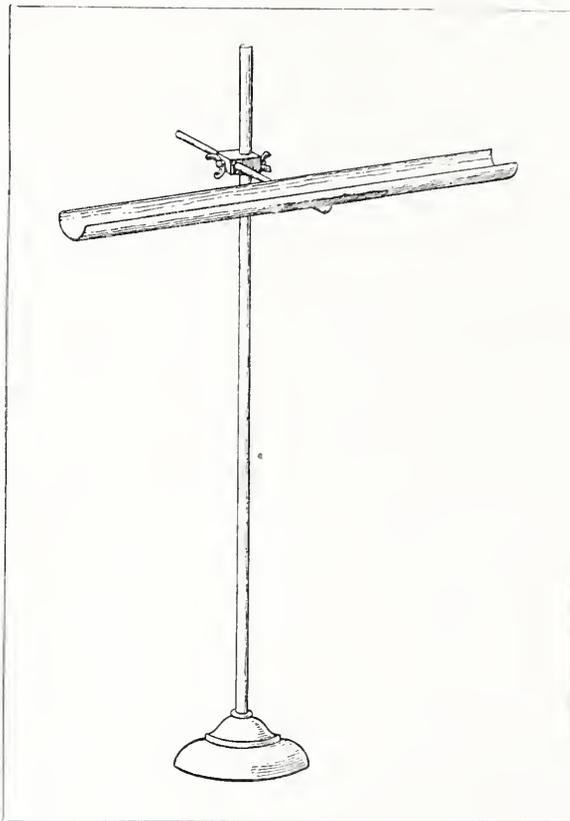
There tends to be a rather uncanny suspicion in the imaginative worker that someone is sure to switch the current on while his head is studiously bent over, arranging the cotton or powder. To minimise that, therefore, the operator must face the switch, and previously forbid anyone to approach within two or three feet of it, in the meantime setting some trustworthy person to act as watch-dog.

In the instance of the Winter Garden photograph all went well up to the firing of the flash—but, after, the effect was decidedly exhilarating. There was a report quite amazing in volume, considering the (comparatively) small charge. No one was hurt, though the crowd had pressed to within uncomfortable range of the charge. The powder basin was absurdly blown out, and the steps on which it had stood were flattened to the ground and completely smashed. An assistant quite twenty feet from the flash who was "managing" one of the cameras, knocked this over, and for a time appeared inextricably mixed up with it. He excused his clumsiness by saying that the concussion knocked him down. That might be true; though I was nearest the centre of trouble—about eight feet from the flash—I felt no inclination to sit down.

It, as showing the vagaries and great force of the explosion, could be recorded that a counter biscuit-case standing near its glass front shattered; a row of crockery, in another room,

the open door into which was about fifteen feet away, was swept clear off the shelf; at the main entrance, two large fanlight windows fifty-five feet away were blown into the street; and within three minutes of the bang I was asked by a police-inspector accompanied by a constable or two—whether I was aware that there were about 3,000 people collected outside in the street—the "Flash" having evidently been heard and seen from a wide distance! Oh, an excellent advertisement, but of the sort one would rather pay to avoid!

I believe this extraordinary contretemps was due to the fact that the powder was heaped too much together, and that there



was no air outlet open except the chimneys (which, by the way, needed no cleaning for some time afterwards). This latter event has its humorous side, but these notes are written with the very serious intention of emphasising in the strongest possible way, and bringing home to photographers, the very real danger, even to life, in the handling of mixtures of which chlorate of potass. forms a part.

All more recent flashlight exposures I have made without the least approach to explosion by firing in trains more or less elongated, the powder being fired in ordinary 5 in. section iron roof-gutters, using the electric spark-firing via cotton-wool and spirit. The gutter is fixed to a fairly robust head-rest stand, and is adjustable, so that either six feet or three feet length may be used at will, by simple screwing or unscrewing. Not only is such an arrangement safer, but the lighting is of better quality. A reflecting sheet may be used with good effect, but the fabric of it should have been soaked in 10 per cent. alum, which minimises the chances of firing.

To sum up:—

There is no such thing as a "safe" flash-powder (the "time" mixtures are excluded, their effect not being a flash proper); real safety lies in the cool, cautious, resourceful operator.

Neither is there a "smokeless" powder; it is always well to point out clearly beforehand that some perfectly harmless white smoke is to be expected, which in confined limits may show a deposit of an equally harmless white powder.

It is always best to use a minimum of powder, the quickest of reliable plates, and the maximum lens aperture the subject will allow. For dinner parties, for instance, the sensible use of the swing-back, or side-swing, may save two-thirds of your powder and a similar proportion of smoke.

Not only be perfectly cool yourself, but see that you employ no assistant whose head is not screwed on the right way. It would be foolish in me to exaggerate flashlight dangers; yet a simple mistake on your helper's part is capable of producing

for you an excellent advertisement, the fruits of which a contingency of a sort might quite prevent your enjoying.

Lastly, and most important: Keep well outside the danger zone of all fabrics, curtains particularly.

In these notes there is no intention of discouraging flashlight work, which, normally, involves but the simplest preparation, and is profitable enough to warrant the attention of capable photographers as an excellent side-line.

HAROLD HOOD, F.R.P.S.

AN AQUEOUS VARNISH FOR NEGATIVES.

VERY many photographers expend a large amount of time and patience on the production of their negatives, and after that seem to care little or nothing about their preservation for the future. They will often go long distances, perhaps to foreign countries, to expose the plates, spend a lot of time on their development, also at times go to a deal of trouble in intensifying or reducing them in order to get the best results. When all this is done they take but little heed as to the future of the negatives, notwithstanding that it may be quite impossible to obtain others of the same subject. Often when the negative is printed from it acquires a stain by contact with damp paper, and sometimes the stains produced in this way cannot be removed without a great deal of trouble. Hence the negative made after so much trouble and labour is irretrievably ruined. Only then is it generally realised that all this might have been avoided had a trifling extra trouble been expended by giving the negative a protective coating of some kind.

A Varnish for Wet Negatives.

In the above remarks I have had amateurs in mind more particularly, but what has been said applies also to many professional photographers, many of whom do not take the trouble to varnish their negatives. This neglect frequently leads to considerable pecuniary loss to them should the negative happen to get stained, and therefore it may be of service to give a method by which negatives may be given a protective coat which can be applied without difficulty, and with practically no trouble at all, while the operation is done while the negative is still wet. It should be said at once that the coating is not equal to a spirit or a celluloid varnish, but it is very much better than none at all. In a word, it is an aqueous solution of shellac. The following is a good formula:—

White lac (freshly bleached)	5 ozs.
Borax	1 oz.
Water	20 ozs.

Sometimes a small proportion of carbonate of soda is recommended, but I much prefer to omit it. The water and the borax are put into an earthen pipkin, or an enamelled iron saucepan, over a gas-burner, and brought to nearly boiling point; by this time the borax will have dissolved. The lac, broken up in small pieces, is then put in and kept stirred until it is all dissolved. Next another pint of water (hot) is added and well mixed. The solution is then allowed to stand till next day. It now requires to be filtered through paper. Before doing that it is well to strain it through fine muslin, as without that being done the solution has a tendency to clog up the filter. The above formula will be about right for most samples of shellac, but some yield rather more viscous solutions than others, so that a little less or more water may be required than that given above.

Flowing on the Varnish.

The varnish is applied as follows:—After the negative has been thoroughly fixed and washed, it is drained for a minute or

so. It is then held in a sloping position, some of the varnish poured along the upper edge, and flowed slowly over the plate in an even wave, carrying what water is on it into the sink. The plate is then slightly drained and a second lot applied in the same way. After that the plate is drained somewhat closely. Finally, a third coating is given, being this time flowed backward and forward for a minute or two so that it can well penetrate into the gelatine film. This lot of the varnish, in economy is a consideration, may be used for the first application of the next negative. The plate is then stood on one corner, on blotting-paper, and allowed to dry spontaneously. Should some of the varnish happen to get on the back of the plate it can easily be wiped off with a damp sponge or a piece of rag while it is still wet. If it is allowed to dry on it is not so easy of removal. An alternative method of using the varnish is to allow the negative, after washing, to get perfectly dry. It is then put to soak in a dish of the varnish for four or five minutes, in which time it will have well permeated the gelatine film. The negative is then drained and reared up on one corner, resting on blotting-paper, and dried spontaneously. Both methods are good; but, on the whole, I rather prefer the former, as in the latter the back of the plate coated as well as the front, and the coating on the back is not always even, so that it has to be cleaned off, when dry, before the negative is printed from.

Recipe books tell us that when the aqueous lac varnish dry it is waterproof. This is quite a fallacy, as may be proved by immersing a negative coated with it in water for a few minutes. If that is done it will be seen that the gelatine film swells up, showing that the lac has been permeated by the water; yet notwithstanding that, the lac is a fairly good protection against mere moisture. It will readily be seen that with the aqueous solution the lac to a great extent has been absorbed in the gelatine, and does not merely rest upon its surface, as it does in the case of a spirit varnish, which does not really enter it at all. The surface given by the aqueous lac varnish is an excellent one for retouching upon without any further preparation, as it takes the pencil readily.

One of the troubles that the inexperienced meet with in varnishing negatives with a spirit varnish is that it does not flow quite freely over the plate, and is apt to run off at the edges and get on the back; there is not the affinity between the spirit varnish and the gelatine film that there is with a collodion film. There is, however, no difficulty whatever in coating the aqueous varnished negative with a spirit varnish. If the plate be slightly warmed—just sufficient to prevent the varnish from chilling—it will be found to take as kindly as the gelatine negative as if it were a collodion one. After the varnish has been drained off, the negative should be held in front of the fire and made as hot as the hand can well bear. In this way, with little trouble, we have our negative well protected against moisture as well as mechanical injury.

E. M. STRETHORP

ON THE ALTERATION OF SULPHITE IN SOLUTION IN PRESENCE OF VARIOUS DEVELOPERS AND OTHER SUBSTANCES.

A Paper read before the Congress of Applied Chemistry held in London.

THE alteration which sulphite of soda undergoes in solution has been the subject of considerable research in the past. Some years ago MM. Lumière and Seyewetz undertook experiments on the change which takes place in both dilute and concentrated solutions of sulphite, and they ascertained the best manner of preserving such solutions. From these experiments it is seen that the concentrated solutions alter to a much less extent than the dilute, and, further, that the addition of a small quantity of a developing substance greatly improves the stability of the sulphite solution.

Further experiments in this direction have been in progress by the writer from, however, a somewhat different point of view than that taken by MM. Lumière, and one which it would appear of greater importance for the purposes of practical photography. These experiments have had for their object the examination of the action of the different substances which are added to developing solutions (such as bisulphite, carbonated and caustic alkalis), as well as the various developers—in each case on the conservation of the sulphite solutions.

I will first state the results of the analyses. The following additions were made to a 5 per cent. solution of crystallised sodium sulphite:—

Caustic soda	1 per cent.
Sodium carbonate	3 per cent.
Potass. metabisulphite	1 per cent.

By making these additions, four test solutions were obtained, each of which was divided into two parts. To one part no addition was made, whilst to the other 1 per cent. of hydroquinone was added. The solutions were left in similar open vessels of about 3 in. diameter, and containing about 100 ccs. The results of the chemical analyses and the keeping qualities of the sulphite solution alone, and with the various additions, are given in Table I.

The quantity of pure sulphurous acid employed in the preparation of the sodium sulphite solution corresponds almost exactly with the calculated quantity in a 5 per cent. solution of crystallised sulphite or in a 5 per cent. solution of sodium sulphite, with addition of 1 per cent. potass. metabisulphite. According to calculation, there should be (if the products used are of absolute purity) 1.27 per cent. sulphur dioxide in a 5 per cent. sodium sulphite solution, and 1.5 per cent. in a 5 per cent. solution of sodium sulphite containing 1 per cent. metabisulphite. The results given in Table I. are the mean of a number of analyses, and the figures may, therefore, be taken as representing the results with considerable accuracy. The following conclusions may be drawn from the figures:—

1. Addition of caustic alkali to sulphite solution restrains the oxidation, whilst addition of carbonated alkali appears to hasten it a little.
2. Addition of a small quantity of bisulphite (at any rate, when the sodium sulphite solution is exposed to the air) affords a notable advantage.
3. In presence of developing substances, and particularly of hydroquinone, the alteration of the sulphite takes place more quickly in a solution containing caustic alkali, whilst the oxidation takes place much more slowly (when hydroquinone is present) in all other cases.

Thus it will be seen from the foregoing that the tendency of the solution to oxidise is reduced by the conjunction in one solution of the sulphite and the developer, but that this is not the case when caustic alkali is present. And this is not

to be ascribed to the action of the alkali on the sulphite, since, as will be seen, the sulphite solution alone is of a greater permanency in presence of caustic alkali.

It has further appeared of importance to examine how the different developers compare in this preserving action upon sulphite, and experiments were therefore made with other substances than hydroquinone, employing for this purpose those which are made up with sulphite and carbonated alkali, since these are the developers in most general use.

These experiments have shown that of the different developers metol and glycin exert the most favourable action as regards reduction of oxidation. It can be said that the oxidation of the developer by the air takes place along with that of the sulphite. Sulphite and developer exerting a mutual action upon each other, it follows that in every case the absence of one causes a more rapid alteration of the other, with the exception of the case already mentioned, when caustic alkali is present.

This preserving action is independent of the reducing energy of the developing substance. It is almost the same in the case of the slow-acting glycin as in that of such a rapid developer as metol. Hydroquinone, which possesses much less energy than metol, acts much more weakly as a preservative of sulphite than metol; and in the case of the solutions containing hydroquinone the oxidising action of the air is much more noticeable as regards the developer than as regards the sulphite: the developing solution becomes dark-brown in colour, although considerable quantities of sulphite were present.

This pronounced tendency of the developer itself to be more easily oxidised than the sulphite is particularly noticeable in the case of the diamidophenol developer, as shown in Table III. In a paper which I have contributed on the influence of boric acid on the diamidophenol developer, there is pointed out the advantage which may be taken of boric acid as a preservative. Nevertheless, it is evident that even when there are still two-thirds or more of the sodium sulphite unaltered, the diamidophenol is so completely oxidised that the bath is useless.

In addition to the developing substances mentioned above, experiments have also been made with pyrogallic acid, in making which difficulties were encountered on account of the strong colour produced on oxidation of the solution, and also the action of the pyrogallic acid upon the iodine employed in determining the proportion of sulphite. The method was therefore adopted of liberating the sulphurous acid under conditions for avoidance of oxidation by means of an acid absorbing it in a solution of standard iodine, and then determining the excess of iodine by means of a standard solution of sodium thiosulphate. In the case of such determination, it appeared that the oxidation of the pyro in presence of sulphate and carbonate took place very quickly. Comparing the results with a metol developer the following was obtained:—

PERCENTAGE OF SULPHUR DIOXIDE AFTER TWO DAYS' STORAGE.
The sulphur dioxide was estimated by liberating the gas as described above.

5 per cent. solution of sodium sulphite containing 3 per cent. sodium carbonate and 5 per cent. metol	1.15 per cent.	Colourless solution.
5 per cent. solution sodium sulphite with 3 per cent. sodium carbonate and 5 per cent. pyro ...	2.26 per cent.	Black solution.

It will thus be seen that in presence of pyro and sodium carbonate, the oxidation of the sulphite took place much more

rapidly, not only in the case of a metal developer, but even in the case of a bath made up of sulphite and carbonate only.

As regards their action on sulphite, the organic developers may be classed in three divisions:—

1. Developers which retard the oxidation of the sulphite and

TABLE I.

Percentage of sulphur dioxide.	At time of making.	After 1 day.	After 2 days.	After 3 days.	After 6 days.
Plain 5 p.c. solution of soda sulphite, cryst. A.....	1.22	.94	.70	.48	.26
A with addition of 1 p.c. caustic soda B ...	1.22	.98	.76	.58	.42
A " " " 3 " soda carbonate C	1.22	.95	.65	.40	.23
A " " " 1 " potass metabi-sulphite D	1.78	1.24	.98	.76	.54
A with 1 p.c. hydroquinone E	1.22	1.16	1.10	1.04	.58
B " " " F	1.22	.80	.54	.26	.02
C " " " G	1.22	1.12	1.06	.98	.42
D " " " H	1.78	1.74	1.72	1.08	.92

1. Deep yellow. 2. Yellowish brown. 3. Very dark.

TABLE II.

Comparative keeping qualities of soda sulphite solutions containing various developing substances. The figures give the percentages of sulphur dioxide (SO₂) in each solution.

	At time of making.	After 1 day.	After 2 days.	After 4 days.	Remarks.
5 p.c. solution cryst. soda sulphite with 3 p.c. soda carbonate	1.20	1.04	.63	.33	Colourless after 4 days. Solution became deep yellow after 4 days.
" 5 " hydroquinone	1.33	1.20	1.19	1.00	
" 5 " metol.....	1.32	1.31	1.31	1.19	Colourless after 4 days.
" 5 " glycin.....	1.33	1.33	1.32	1.22	Colourless after 4 days.
" 5 " hydroquinone and .05 " metol	1.32	1.20	1.20	1.07	Became deep yellow after 4 days.

TABLE III.

Keeping properties of soda sulphite solution in presence of diamidophenol. The figures give the percentages of sulphur dioxide (SO₂) in each solution.

	At time of making.	After 1 day.	After 3 days.	Remarks.
5 p.c. soda sulphite solution with 5 p.c. diamidophenol	1.33	1.14	.90	Very dark-coloured after three days.
" 5 " boric acid	1.27	1.20	1.05	Yellow after three days.
" 5 " boric acid and 1 " potass metabi-sulphite...	1.97	1.91	1.78	Yellow after three days, but somewhat less than with boric acid only.

themselves oxidise in the air when the quantity of sulphite is very small. Among these are metol, glycin, and hydroquinone.

2. Developers which, while they retard the oxidation of sulphite, are themselves oxidised with considerably more rapidity than the sulphite in the presence of air. Diamidophenol is a developer of this kind, and therefore may be kept in single solution only for a short time.

3. Developers which hasten the oxidation of sodium sulphite in the air, whilst they themselves suffer only in presence of alkali and sulphite a less rapid oxidation than in presence of alkali alone. Pyrogallic acid is a substance of this kind.

These different qualities of the various developers in regard to sodium sulphite will throw light, it is hoped, upon the behaviour of developing solutions. It may be assumed that as a developing solution acts as a reducing agent of silver-bromide, the sulphite takes an active part in this reduction, or, on the other hand, remains indifferent, according to the kind of developer with which it is combined.

R. NAMIAS.

SOME METHODS FOR THE SURFACE PROTECTION OF METALS.

[The following paper, recently read before the Optical Society by Mr. H. S. Ryland, relates to a branch of practical manufacture of as much importance to the photographic as to the optical trade, and one which is very meagrely treated in books and periodicals.—Eds. "B.J."]

I AM venturing to give this paper, not because of my knowledge of the subject (which is small), but because of our lack of knowledge. The whole matter is one for a technical chemist, but I hope that this brief paper will draw attention to a matter that needs attention—the finish of our work. Of course, the colour of a lacquer or tone of a bronze does not improve the accuracy of a theodolite, but it does improve its selling value.

Further, the subject of surface protection is one that should interest others besides ourselves. When we see rusty girders painted over and used in the construction of skyscrapers, and when we are able to kick a hole through the girder plate of a railway bridge (this is possible in London) we realise that the whole matter is one of importance.

The protection of metal surfaces may be divided into two main types: First, protection against friction; second, against corrosion.

Under the second heading we may place ornamental protection and change of colour for purely ornamental purposes. And the second type may be further subdivided into three further types:—(1) A surface may be protected or ornamented by a coating of material, such as paint, varnish, or lacquer, or (2) by a chemical change of its surface, or (3) by the deposition of some other metal upon its surface.

Protection against corrosion, again, must be divided into two sections:—(1) Where the metal is in contact with the human

skin as in spectacle work, (2) where it is exposed to the atmosphere.

Japanning and Lacquering.

We will deal first with the protection and ornamenting of such surfaces as are used in optical instruments. For this purpose a coat of paint or lacquer is generally used. A paint or japan consists of a solvent such as oil, a medium such as asphaltum or bitumen, and a colouring pigment. It must be applied to a cold surface and subjected to a period of heating to evaporate the solvent and leave the medium and pigment as a thin and more or less even layer upon the surface. A lacquer consists of an easily evaporated solvent, such as alcohol, a medium or shellac (which may be used in conjunction with other gums such as mastic), and either a pigment or stain, such as lamp black or gamboge. Another lacquer is used in which the solvent is amyl acetate, and the medium celluloid.

The shellac lacquer is applied to a hot surface, which immediately evaporates the alcohol and leaves the medium and colouring matter as a thin layer on the surface, while the celluloid lacquer is applied to a cold surface, leaving the medium to evaporate slowly of itself.

Various metals and conditions of service will determine the choice of japan or either type of lacquer. Where the surface has to be rubbed a japan is best, since it is harder and in a thicker layer; but where a surface has only to be protected

against the atmosphere, or blacked to prevent too great a reflection of light, a lacquer is preferable. Whichever is used, it must be hard enough to withstand friction and sufficiently elastic to follow the expansion and contraction of the surface with varying temperatures. Also, the effect of heat on the pieces to be treated must be considered. A piece which has been soft soldered together must not be subjected to too great a heat.

Blackening Metallic Surfaces.

It is often necessary to render a surface black, and a lacquer is unsuitable. A chemical change of surface is then required, termed bronze. The method adopted must depend entirely upon the piece to be blacked and the metal of which it is made. We will take the brasses first. Where heat may be applied, a bronze, consisting of nitric acid, copper, and silver, may be used, but where heat may not be used an ammonia bronze, or a bronze giving a deposit of iron, should be used. If the piece be of steel it may either be coppered first, and then treated with a cold brass bronze, or a sulphur, or phosphoric acid bronze may be used.

In cases where the metal is in contact with the skin, as a spectacle bridge, a deposit, or coating, of an incorrodible metal must be used. Sometimes where an instrument is to be used in extremes of temperature it is absolutely necessary to cover each part which comes into contact with the skin with vulcanite, india-rubber, or leather. The metal absorbs heat more readily than vulcanite, and in very cold climates the loss of heat by the skin may be so rapid as to act almost precisely as if the skin were brought into contact with a very hot surface.

Metal-Surfacing.

For protection against friction, we may either face the wearing surface with a harder metal or, in the case of steel, harden the surface; while iron may be case-hardened. At the same time, for instrument work, the provision of sufficient bearing surface and the exclusion of grit will not only save expensive hardening, but also expensive adjustments to take up wear.

Among other methods of protection against both friction and corrosion, by means of a metallic coat, may be mentioned electroplating, which is an industry by itself; and galvanising, both by the hot process and the zinc dust process.

To turn to bronzes, for the brasses I have found the following useful for different purposes.

(1) The silver nitrate bronze. I have found this work best when used as follows. Make a saturated solution of silver nitrate, and add an equal amount of nitric acid, as one solution. The second is nitric acid, which has dissolved as much copper

as possible. The piece to be bronzed is dipped successively in each, and steadily heated until black.

(2) The ammonia bronze. This is an excellent bronze, and is made and used as follows: Take 8 ozs. ammonia .866, add 1 oz. copper carbonate, and 4 ozs. water. Work is to be cleaned and immersed until black, and then wiped dry with cotton waste, and lacquered or not as desired. The only precaution to be taken is to see that no soft solder is on the surface.

(3) For darkening a surface antimony chloride may be used with good effect. This can be applied with a soft brush.

(4) Platinum chloride applied as No. 3.

(5) The ordinary iron bronze. 1lb. hydrochloric acid, $\frac{1}{4}$ lb. white arsenic, and $\frac{1}{4}$ lb. iron perchloride. The worker should be protected against the fumes of this, and the work must be brushed dry with sawdust and bran or blacklead.

(6) The mercury sublimate bronze used as No. 5. This bronze has the peculiar effect of rotting drawn or rolled brass, but for cast work it works well.

Numerous colouring effects may be obtained by the use of hypo. reduced with sulphuric acid; mercury nitrate, iron nitrate, and other materials, but the above selection in skilful hands will give every effect desired for optical work.

For iron or steel we may use the new phosphoric acid bronze, which not only gives a good black, but affords an excellent protection against rust. A steel spectacle frame protected by this method is exceedingly good. Also the various nitric acid and sulphur blacks are good.

For such work as the leaves of iris diaphragms the work may be dipped in a copper sulphate solution and bronze No. 2, 3, or 4 used afterwards.

For aluminium I have found No. 5 useful, but it must be washed in plenty of running water. Also dipping in copper sulphate and finishing with No. 2 or 4 gives a good effect. There is room for a good deal of work on aluminium protection and soldering.

As regards an actual coating, I shall not spend time in discussing the various japans and blacks; but one method is exceedingly useful. That is to give the work a coat of medium, such as colourless lacquer, allow it to cool, blacken it evenly by the smoke of an acetylene gas (or candle) flame, and warm till bright. All lacquers and blacks of the lacquer type are improved by the addition of a little boracic acid and a few drops of ammonia.

I think that this matter of surface protection and colouring might well be made a special study by one who has the time and knowledge, since it is not only of interest to us but to everybody who has to deal with metals at all.

H. S. RYLAND.

METHODS OF ADVERTISING.

[In the following article by that well-known writer in the American photographic Press, Mr. C. H. Claudy, attention is directed to methods of value to the professional photographer to which we have at one time or another drawn attention in these pages. The booklet, the calendar, systems of follow-up letters, etc., etc., are all expedients which are of value, according to individual surroundings, and no apology is needed for again directing notice to a department of the photographer's business which is too apt to be neglected.—Eds. "B.J."]

If it were possible for you personally to address an audience of ten thousand people, all of whom you wanted to impress with the fact that you were a good photographer, that your pictures were unusual, and that they should patronise you rather than someone else, and if, in that address, you had but one minute to speak, what would you say? A newspaper advertisement must occupy considerable space to require one minute of reading.

You pay a newspaper for the privilege to tell its readers why

they should buy of you. To be careless in the manner in which you tell your story is to throw away both money and opportunity. It is for this reason that the man who writes his own advertisements is like the layman who handles his own case—he has a fool for a client!

You would laugh at the idea that an amateur photographer of average ability could make his own portrait as well as you, with all your experience and equipment. But what difference is there when you attempt to write your own advertisements.

instead of going to the man with the equipment and the experience and get him to do it—he who can do it well?

Whatever form of advertising you adopt, don't stop spending money with securing the opportunity—spend a little more to use the chance up to the limit of its possibilities.

Advertising schemes are without number; but certain ones are more or less standard. Some of these I am going to discuss in detail.

The Booklet.

It is probably the most effective shot in your locker if it is properly made, well loaded, carefully aimed and deftly fired. So many people believe that any advertisement is all advertisement, that it is difficult to get credence for the statement that the printed matter is only a part of any campaign for business. Yet if you had a million copies of the finest booklet in the world, descriptive of your work, and sent them all for distribution to Hong-Kong, you wouldn't expect much in the way of immediate results!

A booklet should have a purpose. A booklet should have meat in it, a reason for existence, a story to tell. If you have won a prize, a medal or diploma, a little brochure modestly telling about it, the causes which led to the prize being won, and something about the prize-winning picture, is a case in point. If you have a new camera, a new lens, a new method, a new style, a booklet which will attractively portray it to your customers should prove an investment yielding good returns. But a booklet which says merely that your name is Smith, that you make pictures, that your prices are thus-and-so, and your address such-and-such, is money wasted. Never use the booklet, which is expensive, when a less expensive form of advertisement will do the work. But *never* issue a *cheap* booklet, unless you do cheap work. To put good advertising on poor paper with poor presswork is to reduce its value fifty per cent., and to advertise refined photographic work of high quality in any but the highest-class manner is to throw coin away.

The Calendar

is sometimes an effective advertisement and sometimes a delusion and a snare. In my humble opinion it is more often the latter than the former, when it comes to the photographic business. Few men would pay any attention to the name and address on the calendar in their offices if their wives wanted a photograph—they are much more likely to credit the last picture they have seen with your name.

But I recall one brilliant exception, in which a photographer designed an ingenious calendar and found that it paid. Just before Christmas he advertised that with every order of a dozen prints of a certain popular style he would give a Christmas present. He worded his advertisement so that it seemed rather that he was anxious to enter into the Christmas spirit and give his customers a little gift than as if he were offering a premium. When he came to deliver his gifts the customer received a package neatly done up in tissue paper, tied with red ribbon, stamped with a holly seal—exactly as if it were a genuine Christmas gift from some thoughtful friend. Inside the package was a neat, plain card, on the bottom of which was a small and dainty calendar and on the upper half a *platinum print corresponding to the order supplied*. Above was engraved a tiny card bearing the greeting: "Merry Christmas from me to you!" The inference was irresistible. Besides creating good feeling between the photographer and the customer, the gift was of a nature to be given away again immediately, since no one cares for a calendar adorned with a picture of himself. And the advertising value came in this way: the clever photographer had permitted himself to place a neatly embossed card of his own, not too conspicuous, at the lower left corner—"Smith, Portraits. 101 Elm." Besides, he had signed the platinum print, as usual, and his name was printed on the back of the card!

Oh, canny Smith! Something for nothing has ever been a lure. When that something is a good advertisement, and morally certain to be passed on; when it costs little and, in addition to making friends with the person to whom it is first given, is likely to make a customer of the second, as well as of the various people who are told of the idea, it is certainly one to pay. *That* was advertising with brains.

The Street-Car Card

can be made of service anywhere, but not unless it is carefully designed, well executed, and frequently changed. There is one objection to it for photographers' use: large advertisers can afford to have lithographed and three-colour half-tone cards in cars, printing them in huge quantities. *You* cannot. A plain, printed card suffers by comparison, and you can't afford to have your business or your name seem less refined or less successful even than some one's premium ham, another's floating soap, or a third's patent medicine. Better cut out the car cards, unless you feel you can afford a dainty set. Personally, I don't see why you can't afford five hundred cards in sets of fifty, each decorated with a D. O. P. portrait. Ten 4 x 6 portraits, in lots of fifty each from ten negatives, all of pretty girls, daintily dressed women and babies, and finished, half in black and half in sepia, ought not to be more than two days' work for a small force, and a set of fifty cards in fifty cars, changed weekly, for ten weeks, during the Christmas rush, will bring big results. But be very sure you have permission to use the pictures, or you may run against trouble.

Blotters

are fairly well exploded as advertising mediums. When an advertising campaign has so thoroughly covered the territory that all that is necessary is to keep a name before the public, so that the advertising which has been done will not be forgotten, blotters may well serve their turn. The same is true of rulers with names and businesses printed on them, paper-cutters, and other advertising novelties. But as business-getters such articles are generally a failure, particularly when they are aimed at people whose pocket-books must open to some wideness to deal with you.

Follow-up Letters

are vitally important to most advertising campaigns. A really good follow-up letter is a jewel without price. It is used to go after names secured in some way or other, to produce business which is shy in coming. Different communities demand different methods. Large cities are less fruitful ground for follow-up letters than small ones, and certain localities will stand a larger number sent after names than others. But your advertising man must lay out your system for you—every business is a law unto itself in such matters. Alas, however, many a good advertising man is a failure when it comes to writing follow-up letters, and doesn't know it. Beware, as you would the devil, of a follow-up letter which reproaches, which complains, which finds fault, which reproves, or which makes any accusation. For instance, "We cannot understand why you have not taken advantage of our liberal offer—surely you cannot afford not to have us take your picture," is going to make the average man say to himself, "Well, I don't care a hang whether you understand it or not!" and throw the letter away!

To say to a prospective customer, *via* form-letter, "We cannot afford to draw your attention again to our offerings at this season," is just throwing space away. To write a man who you believe, may sometime have his portrait taken by you "You are neglecting an opportunity to get a rare bargain—don't delay any longer, but let us make an appointment," is so trite and commonplace as to be altogether wide of the mark. One vital mistake you and a thousand others like you make when it comes to sending out four or five consecutive form letters at intervals of a week or ten days, is to think that each must contain some reference to the last; that the letters must

tell a definite, continued story. Thus, Number 1 tells your name and business and what you want; Number 2 mentions that Number 1 has been sent, and, "Why don't you take advantage of the chance?" Number 3 says that Numbers 1 and 2 have been sent you, and you cannot understand why the recipient hasn't come in and spent money; Number 4 ends up with the statement, "We have sent you Numbers 1, 2, and 3 letters, and have had no reply, and now beg for the last time to inform you that Smith's is it when it comes to making pictures!"

This is all wrong. Numbers 1, 2, 3, and 4 should be entirely different letters in form, in tone, in contents, and in method. Each should be a shot in itself. If Number 1, telling him (the recipient) of new panel platinums at \$7.00 per dozen, doesn't bring forth a reply, let Number 2 speak of 16 x 20 or 1 x 2 vignettes. If the customer-to-be doesn't want either, tempt him with a miniature or an exclusive head. In Number 4 show him where money is to be saved on some style at this time of the year.

Make each letter cheerful. Make each one courteous, each one optimistic. Let nothing go into your letter you wouldn't let your receptionist say to a customer. Imagine your young lady saying to a man who had spent half an hour looking over samples and then decided he would call again, "Well, I can't understand why you don't buy. Surely these are cheap enough!" Do you suppose that man would ever come back? Not a bit of it. But if the young lady smiles him out, asks him if she can't show him something else, asks him to come to her for waiting-on when he returns, and makes him feel at home, when he *does* decide he can afford a sitting, he is coming where he was well treated. Exactly the same principle holds good with form-letters. You can create either a favourable or an unfavourable impression—you can interest a man in your methods or your business or your styles, or all three, or you can antagonise him with your tactless words. Remember always that you are, in a letter, going to say perhaps two hundred words to a man; pick these two hundred with care, and make them breathe not only success and good prices and the picture he must have, but courtesy and good will.

Canvassing.

There are photographers who do it. I disappoint one young woman regularly every month. She wanders into my office with samples and a large red hat, and sits down and endeavours to ingratiate herself with a smile, and tries to look as if she would cry. I decline to order. I always do decline, and she never does. I would never think of going to the gallery she represents for photographs. It seems to me that, needing such methods to get work, the work itself cannot be first-class. To send out agents to solicit by the ticket or coupon method is a precarious business. It is somewhat like purloining a man's watch in a street-car in order to get two years' free board—State's prison. To promise a house and lot or an automobile or a ninety-seven-piece dinner set with every dozen pictures all that is necessary to keep every thinking man and woman in your city away from your doors. But I forget I am talking of respectable photographers!

Miscellaneous Schemes.

There are several ways to get publicity, some of which come more under the head of business-getting than simple publicity. Thus, the man who opens a new studio and neglects the opportunity for a reception—well-advertised, with engraved invitations to the best people in his town, and something in the way of a souvenir—is letting a chance slip by. But it takes brains and tact and some social skill. Ill done, it is better left undone. Well done, and it will bring notices in the papers and business will follow. Invitations to certain people to have their pictures taken free

"to complete our gallery of public men" or "to finish our set of prominent society people" sometimes result in orders from the negatives so made. But it always seems a catch-penny scheme—unless, indeed, you are truthful, and really do need the pictures to fill out a set from which newspapers and magazines are constantly ordering.

You fight shy of the dentist with the free-sample filling; the drug-store with the free-sample medicine; the doctor with the "thirty days' free treatment." What guarantee have you that your invitations will not be received in the same spirit? Different localities and circumstances need different methods of treatment from an advertising standpoint; but human nature is pretty much the same in New York and Kamchatka. It is the general consensus of opinion that any advertising scheme which has "free" attached to it, as applying to anything else than booklets or advertising matter, is likely to do more harm than good among the class of people photographers try to reach.

Free Pictures to the Press

is a scheme with many advantages. To see "Photo. by Smith-Jones" every day in a newspaper is first-class advertising for you. But it means that you have to go, at any and all hours, anywhere, for any kind of a picture; if your town is large and your papers alive, it means that you have to keep one man busy doing nothing but that. Yet even the salary of one man and the cost of plates and paper he uses do not make an exorbitant sum when you consider the advertising you get in this way. Much more critical attention is paid to pictures illustrating a news-story than to any other single thing in a newspaper. The advertising comes in having your name associated with such pictures. I can recall one firm, now very prominent in photographic circles, which made its reputation and its business largely through this means of advertising.

But whatever scheme or schemes you try, there are certain points to be remembered in connection with all. No advertising of a high-class studio is good advertising unless it is dignified. None is worth considering which may antagonise a possible customer. It's poor advertising which is iconoclastic. It isn't enough to tell people what a picture ought not to be, and what the other fellow fails to do; you must let your public know what a picture should be, and that you can supply it. Thus, in this advertisement,

DON'T BUY CHEAP PHOTOGRAPHS.
CHEAP PHOTOGRAPHS ARE NEVER GOOD PHOTOGRAPHS.
Try Ours.
SMITH'S

the impression is given that you are an expensive man, and that to be good a photograph must be costly. Compare with this, which expresses the same idea, constructively:

YOU CAN'T BUY SOMETHING FOR NOTHING.
But

YOU CAN BUY THE BEST PICTURES FOR A REASONABLE PRICE
At
SMITH'S.

Of course, these are mere skeletons—"sketches," the ad. man calls them, containing the germ to be worked out. In this case it is the most obvious of all germs, the price-germ, and was chosen here as being the easiest on which to hang a deadly parallel comparison.

Finally, never forget that advertising is just a talk between you and the man who reads it; never say in advertising what you can't afford to say face to face; and, inasmuch as your space (time) is limited, consider most carefully what you will say and—equally important—how it shall be said.

For so, and so only, shall you find advertising paying you the dividends it pays the man who is master of the subject, or who has the good sense to choose for his advertising man him whose experience is large and whose success in advertising is measurable in results.

C. H. CLAUDY.

TONING BROMIDE PRINTS WITH SULPHIDE.

[The following article, giving the author's experience in the sulphide toning of bromide prints, appears in the current issue of "Photographic Scraps." It will be seen that Mr. Harold Baker finds it necessary to pay more attention to the choice of developer than to refinements in the toning process itself.—Eps. "B.J."]

IN actual work, the difficulties of the sulphide method of toning bromide prints do not appear to be great, especially when the process is carried out almost daily. Success or failure seems to depend far less on the toning itself than on the preparation of the print.

I use a bleacher composed of equal parts of potassium ferricyanide and ammonium bromide dissolved in a convenient quantity of water (the strength of the solution seems of no consequence). Variation of the proportions of the two salts, within moderate limits, does not seem to make any difference in the ultimate result. I do not think any change in colour is obtained by increasing or decreasing the proportion of bromide, and I cannot detect any alteration in the result by using potassium bromide instead of the ammonium salt. All differences in colour, freedom or otherwise from stains and so on, depend entirely, I believe, on the exposure and development of the print.

Developers for Gaslight Papers to be Sulphide-Toned.

Gaslight papers usually produce browns of a yellower colour than bromide papers, and they are also, I think, less susceptible to change of colour due to exposure and development. They may be developed with hydroquinone and metol, in conjunction with sodium carbonate, well restrained with bromide, and will give a good colour, on the yellow side; but the same paper developed with metol and potassium carbonate and little bromide will give a very similar colour. If bromide paper were used, however, there would be a great difference between the two prints. The one developed with well restrained metol-hydroquinone would be far warmer in colour than the one developed with metol-potash; but the exposure in the second case would have to be much shorter than in the first. The colour of the toned bromide print, in my opinion, depends entirely on exposure and development.

The Need of Clean Working.

One of the greatest troubles in sulphide toning is the frequent occurrence of blisters. This has been greatly increased in Birmingham, and probably also in Manchester and Liverpool, by the substitution of soft water from lakes for the old hard water from wells. At one time in this district, blisters were so frequent as to cause most serious losses to photographers. But the use of Ilford "Carbon surface" bromide paper has changed all that, and blisters even in toning are of the rarest occurrence, and can always be traced to a bruise in the paper, caused by rough handling. When soft water has to be used, especially if the prints are to be toned, an acid fixing bath containing alum is essential. When printing and developing prints intended for toning, greater care as to cleanliness must be exercised than is necessary for black prints. The right hand should be used for moving the print in the developing dish, and, as soon as development is complete, the print should be picked up with the right hand, and both back and front be drawn over the edge of the dish, to remove as much developing solution as possible. The print should then be dropped face down into the fixing solution, pressed under with the left hand, and quickly moved about to allow the fixing solution to act upon the surface as rapidly as possible. If this is not done dark marks will appear when the print is toned. The fixing bath should be reasonably fresh and not be used long enough to weaken it. It is almost impossible to avoid uneven toning when a worn-out fixing bath has been used.

The right hand should never touch a print after it has entered the fixing bath, and the left hand should never touch a print before it enters the fixing bath.

An interesting and convincing experiment is to handle a print in the developer with fingers on which there is only a trace of hypo, and afterwards tone it. Towels for wiping the hands while developing must not be used too long, or hypo will be conveyed to the right hand and cause untonable marks, generally streaming from the corner by which the print is picked up.

Insufficient fixing will also cause dark stains in toned prints; this is another reason for not running the fixing bath too low

The Effect of the Negative.

As the colour of the toned print depends on exposure and development, it is necessary to keep to negatives of fairly even density. It is impossible to get prints of the same colour from an excessively thin negative, and from an excessively dense one.

In order to obtain a good print from the thin negative, a restrained developer would have to be used, while for the dense one as little restrainer as possible would be necessary. Of course, in the case of the thin negative, a short exposure as to time must also be given, and in the case of the dense one a long exposure; exposure does not mean length of time, but actinic effect on the silver salts in the paper.

Help with the Developer.

If I wish to secure a rich, warm sepia colour from an average negative, I use a developer containing more hydroquinone than metol, and plenty of potassium bromide; I use sodium carbonate as the alkali, and use rather less sodium carbonate solution and more metol-hydroquinone than if I were printing for black prints. For a cool sepia I use equal parts of metol-hydroquinone and potassium carbonate solutions, and my exposure would be half as long as that for warm sepia. Exposure and development for cool sepia is also very suitable for black prints, not intended to be toned.

Ilford bromide paper affords such exceptional latitude that it may happen, when a trial is being made, that a print may take quite a long time to develop to the full depth and yet give a beautiful result. Another trial should be made with a longer exposure, so that development will be complete in half the time required for the first. When fixed and dried it will be difficult to distinguish between the two prints, but when they are toned they will be quite different in colour. If carefully examined while both are wet, a slight difference may be detected; the short exposure and long development will give a cold, almost blue-black print, while the other will have a slight suggestion of brown, or even green. Metol, without hydroquinone, will give the blue-black colour and will tone to a cold brown.

I have heard of prints that refuse to tone at all, but have never met with an instance; I have, however, sometimes had trouble through using the bleacher too weak, when all kinds of stains have resulted. If the bleacher is dissolved in hot water, to save time it must not be used until it is quite cold, or the delicate tones of the prints will be bleached away.

Precautions in the Toning Process Itself.

Prints should never take longer than five minutes to bleach. A sulphide solution should not be used too strong, as it softens the gelatine of the prints; but it should not, on the other hand, be too weak, or the bromide may not be completely changed into sulphide. When the image has darkened over its whole surface it should be left in the solution for quite a minute, in order to ensure complete conversion of the bromide into sulphide. The print should then be removed to a solution of alum to prevent all risk of blisters; if the prints have been dried before toning the alum bath is not necessary with Ilford paper, but it is not much trouble to use and reduces the danger of blisters to a minimum. If the prints are toned as soon as they are washed from hypo the alum bath is necessary if the water used is soft; without it, blisters are sure to appear.

It is better to keep the prints face down in the alum solution, as they are liable to have a white precipitate thrown down on their surface which does not show until they are dry; a certain amount of this precipitate almost always shows, but it is much less when prints have been laid face down. This white deposit can be cleaned off with a tuft of cotton wool moistened with methylated spirit, but if this fails, sometimes does, a little of the "encaustic paste," well known to old photographers, will remove it entirely and at the same time improve the appearance of the print. It will also, I think, prevent the iridescent appearance of the shadows which shows itself when the prints are exposed to an impure atmosphere.

It is advisable to keep the prints face down in the acid fixing bath also, because after the bath has been in use for a short time a white precipitate forms, which is likely to be deposited on the face of the prints if they are fixed face upwards.

P.O.P. Effect on "Gaslight,"

It may not be generally known that a "Gaslight" print will tone to a colour very much resembling a cold toned P.O.P. print, if it be left in the acid fixing bath for 12 or 14 hours. The photographic postcards, produced in such large numbers, are said to be toned in this way.

Photographers must not expect to secure the same colour in all their prints by sulphide toning, unless the negatives are fairly uniform in density, so that conditions of exposure and development may be substantially the same.

It is important to remember that warmer colours are produced by longer exposures and restrained or weakened developers; and colder colours by shorter exposures and developers which act quickly, such as metol, "Certinal," or "Rodinal."

HAROLD BAKER.

THE LATE MR. DOUGLAS CARNEGIE.

To many of our readers the sad news contained in the evening papers of Friday in last week, repeated in the morning papers of the following day, will have come with a sensation of grief which will not quickly pass away. For the past few years Mr. Carnegie had been engaged in lecturing upon scientific subjects under the University Extension Scheme, principally in the North of England, where his courses of instruction were received with almost phenomenal enthusiasm. Yet he himself was subject to moods of depression, during which he took the most pessimistic view of his work. His death in a Darlington hotel on Friday, October 1, came as the tragic ending to this strange illusion. The funeral took place at Chesterfield on Tuesday last.

The son of a doctor; Carnegie was born in China, but received his early education at Staveley Grammar School and at Epsom College. From the latter place he gained an exhibition scholarship of London University and proceeded to Caius College, Cambridge, where, after a distinguished career in science, securing a double-first in Parts 1 and 2 Natural Science Tripos, he became assistant lecturer and demonstrator in the chemical laboratory of Caius College, a post which he held from 1884 to 1889. In 1890 the care of his health led him to accept the chair of chemistry in Colorado University, U.S.A., but in 1893 he returned to England to become science master of Leys School, Cambridge. For some time also he acted as research chemist to the Cambridge Colour Works, Loughton.

In the domain of pure chemistry, Carnegie will be remembered by a number of contributions, both literary and experimental. He wrote the article on the periodic law in the last edition of Watt's "Dictionary of Chemistry," and he was the author, with Professor Atkinson Muir, of a textbook published in 1887 under the title of "Practical Chemistry, a Course of Laboratory Work." He was the first to suggest the analytical method in which zinc is used for the reduction of ferric iron in the quantitative estimation of that metal with bichromate solution, and many pieces of apparatus employed by chemists and demonstrators are due to him. In his lecture work he showed the greatest ingenuity, himself constructing most of the apparatus he used, and very largely employing photographs of the stages of an experiment which he could not perform before an audience. On the last call he paid to the office of this journal he brought with him a number of Autochrome transparencies of skeins of wool, showing the extraordinary matches of colour made by combinations with various types of colour-blindness. These were for use in his lectures on Light and Sight, now broken off.

In photography, our readers will no doubt be aware of his work in conjunction with his friend and neighbour, Welborne Piper, on the action of bichromate on the silver negative image, published in the "Amateur Photographer" in 1905, experiments which led to the present chromium intensifier. His later papers on the theory of multiple photography, on the H. and D. photometer, and, quite recently, on the sulphide toning process, have been published in our pages and do not need to be further referred to. Carnegie was one of the few scientific chemists who was both acquainted with and

interested in practical methods of photography, and there is no doubt that with life and leisure he would have done valuable service in the investigation of many of photography's unsolved problems. As it is, we mourn the departure of a brilliant scholar, a type of man that is meant by "English gentleman," and a sincere friend.

Photo-Mechanical Notes.

Photo-Engravings Direct on the Metal in the Camera.

A further patent has been granted to Arthur Payne in connection with the process of preparing photo-etched plates by direct exposure in the camera already the subject of patent No. 28,415, 1908. ("B.J.," March 12, 1909, p. 198.) According to the later patent (No. 18,775, of 1908) there is provided the following alternative method of converting a negative into a positive image by means of an electrolytically deposited resist.

A positive image from a negative original or a negative image from a positive original is first prepared according to the methods described under the headings "Special Manipulations No. 1 Method" and "General Manipulations" of the prior specification.

If, having obtained the negative image, a positive resist is required or vice versa, the prepared plate is immersed in a bath such as is used in the electro-deposition of metals and a coating of a suitable metal is deposited, either by means of, or without, an electric current, upon the face of the metal plate to be etched (the particular metal deposited would be one that is not affected by the etching solution used, and so protects the metal plate where it is deposited), the substratum resist preventing the metal being deposited except where the metal is exposed. When a suitable thickness of "metal resists" has been deposited upon the plate, it is removed from the bath and washed, the substratum resist being then removed from the plate, leaving the "metal resist" on the plate. The plate is then etched in the usual manner.

For example: A negative image is prepared upon a zinc plate from a line drawing in such a manner that if this plate were placed in the etching bath an intaglio plate would be obtained, but in the preparation of a positive image the plate receives a coating of copper by immersing it in a copper cyanide bath with the prepared surface facing a copper plate and passing a weak electric current through the solution in the usual manner. The substratum resist is then removed and the plate etched in an etching bath of nitric acid of about 5 per cent. to 10 per cent. strength as usual. Other suitable metals than copper may obviously also be used.

The copper is deposited from a hot or cold solution of copper cyanide or such as is usually used for this purpose, the following solution being a suitable formulæ:—

Water	80 oz. (fl.)
Soda bisulphite	1 cz.
Potassium cyanide 50 per cent.	3/4 oz.
Copper acetate	1 1/4 oz.
Ammonia .880	3/8 oz. (fl.)

Dissolve the bisulphite and cyanide separately in small quantities of the water. Place the copper acetate in a mortar and moisten with a little of the water, rub it into a thin paste and add the cyanide solution. Add the bisulphite solution to the bulk of water, then add the acetate solution, and lastly add the ammonia. Any of the usual electro-plating solutions of copper cyanide may be used in lieu of above.

Silver may be deposited upon copper or brass from a solution of silver cyanide used in the usual manner, and the plate etched in a perchloride of iron bath.

By first etching the metal plate and then electrically depositing a metal upon the plate before removing the resist, metallic plates may easily be prepared with pictures and designs in inlaid metal.

This process may also be used for the production of engraved metallic plates for ornamentation, such as illuminated or memorial brasses, or for ornamental metallic fittings of any description, or for name plates, engraved dials, etc., either in intaglio or relief made in the manner already described, and if required the hollows may be filled in with coloured wax or other suitable material.

FORTHCOMING EXHIBITIONS.

1909.

- September 10 to October 23.—The Photographic Salon. Sec., Reginald Craigie, 5A, Pall Mall East, London, S.W.
- September 23 to October 30.—Royal Photographic Society. Sec., J. McIntosh, 35, Russell Square, London, W.C.
- October 6 to 13.—Portsmouth Camera Club. Sec., James C. Thompson, 23, Elm Grove, Southsea.
- October 21 to 23.—Rotherham Photographic Society. Entries close October 11. Secs., H. C. Hemingway, Tooker Road, Rotherham, and F. Sargeant, 17, Aldred Street, Rotherham.
- October 27 to 28.—Watford Camera Club. Entries close October 21. Sec., W. J. Edmonds, 3, The Parade, Watford.
- November 10 to 13.—Hackney Photographic Society. Entries close October 12. Sec., Walter Selfe, 24, Pembury Road, Clapton, London, N.E.
- November 23 to 26.—Southampton Camera Club. Sec., S. G. Kimber, Oakdene, Highfield, Southampton.
- December 31, 1909, to January 8, 1910.—Wishaw Photographic Association. Entries close December 18. Sec., R. Telfer, 138 Glasgow Road, Wishaw, N.B.

1910.

- April 5 to 9.—Sheffield Photographic Society. Secs., J. A. George and J. R. Wigfull, 14, Parade Chambers, Sheffield.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following patents have been applied for between September 20 and 25:—

- PHOTO-PENDANTS.—No. 21,397. Improvements in photo-pendants, lockets, and charms. William John Renfrew Pellow and George Adams, 128, Colmore Row, Birmingham.
- ANIMATED PICTURES.—No. 21,491. Improvements in or relating to apparatus for producing animated pictures by the movement of a vehicle. Waclaw Czerniewski, 111, Hatton Garden, London.
- CINEMATOGRAPH.—No. 21,568. Process for manufacturing bands for cinematograph films. Henry Danzer, 1, Queen Victoria Street, London.
- RETOUCHING.—No. 21,586. New or improved instrument for retouching photographic negatives, matt prints, and the like. Athole Victor Davis, 236, Ifley Road, Oxford.
- REFLEX CAMERAS.—No. 21,588. Improvements in or relating to reflex cameras. Arthur Lewis Adams, Birkbeck Bank Chambers, Southampton Buildings, London.
- CINEMATOGRAPH-PHONOGRAPH.—No. 21,675. Apparatus for maintaining the synchronous running of cinematographs and phonographs. Jules Greenbaum, 231, Strand, London.
- TOY-CINEMATOGRAPHS.—No. 21,800. Improved stage with projecting surface for toy-cinematographs or the like. Oskar Messter, 100, Wellington Street, Glasgow.
- TOY-CINEMATOGRAPHS.—No. 21,801. Improvements in toy-cinematographs. Oskar Messter, 100, Wellington Street, Glasgow.
- CAMERAS.—No. 21,818. Improvements in or relating to photographic cameras and to means for introducing plates into and removing them from the same. Walter Ernest Chapman, 139, Queen Victoria Street, London.
- CINEMATOGRAPHS.—No. 21,891. Improvements in cinematograph films. Oskar Messter, 100, Wellington Street, Glasgow.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

- COLOUR SCREEN PLATES.—No. 18,744, 1908. (May 26, 1908.) The invention relates to improvements in the process for the manufac-

ture of mosaic colour-screens according to Patent No. 11,698 of 1908 ("B.J.," March 19, 1909, p. 221). In this addition, the distribution of the greasy material on the original layer of gelatine may be obtained by any known method of printing as, for instance, lithographic copper-plate, or by spraying, etc., in place of photographic methods as in the prior specification.

The drawings represent on an enlarged scale a fragment of screen at the various stages of its preparation.

The transparent support *a* (glass, film, etc.), intended to form the support for the screen, having been coated with a thin layer *b* of gelatine or of other suitable substance, is submitted to the following operations:—

1. A suitably chosen fraction of its surface (for instance, two-

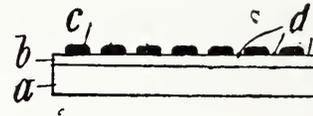


Fig. 1.



Fig. 3.

thirds) is covered with greasy material *c* of any desired fluidity, any well known printing process, or spraying being used for the purpose. The part played by the greasy material *c* is simply to constitute a temporary resist, in the form of lines, points, grains, etc., either regular or irregular, or having any geometric or irregular shape. Its colour is, therefore, immaterial, it is preferably black, so as to enable the work to be more easily observed.

Figs. 1 and 2 show the application of the greasy material in the form of vertical equidistant lines *c c* indicated by vertical hatching.

2. Dye by imbibition all the part *d* of the surface which has been left uncovered by the greasy resist. This is done (e.g., with orange dye) by immersing the plate in a dye bath or by applying a dyed plate (Fig. 3).

3. The whole surface is varnished with a varnish *e* (Fig. 4) ful-

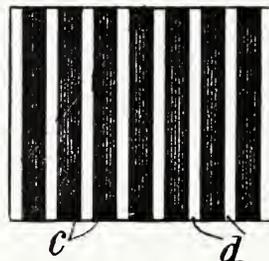


Fig. 2.

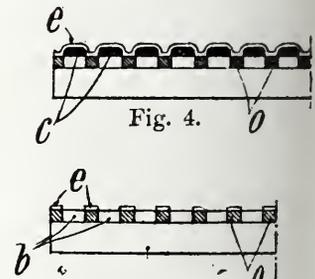


Fig. 4.

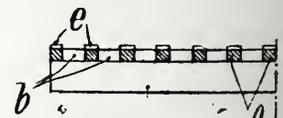


Fig. 5.

filling the two conditions: (*a*) Its solvent must not dissolve the greasy material used; (*b*) its resin or gum resin must be insoluble in a solvent of the greasy material used, and incapable of becoming incorporated into the material.

For instance, if the greasy material used contains linseed oil and the varnish is composed of gum-lac previously extracted with means of ether and dissolved in alcohol (which is a solvent of the varnish), the alcohol must not dissolve the greasy material, and on evaporating must leave on the whole surface a thin layer of gum-lac. Such a varnish adheres strongly to the uncoated gelatine exactly at the points where the colour was able to adhere, and forms an impermeable insulating layer; but wherever it comes in contact with the greasy material *c* which has remained soft it covers it without becoming incorporated with it.

If, after the drying of the spirit varnish, the support thus treated is subjected to the action of a solvent of the greasy material, such as, for instance, benzine or essence of turpentine, the preliminary greasy impression will dissolve very easily by rubbing slightly, which will remove from the support, with the greasy material, those parts of the spirit varnish which, having come in contact with this greasy material, have not been able to adhere to it, and consequently to the support, allowing only the adherent parts to remain on the latter.

The gelatine *b* is thus exposed at every point at which it is protected by the greasy impression. After the operation, two-thirds *b* of the free surface of the screen will be free and a third *o* coloured orange, the colour being covered with an impermeable varnish *e* (Figs. 5 and 6).

4. Half of the total surface is covered with greasy material, either in the form of horizontal lines *f* as shown in Fig. 7, or in any other form, whereupon the surface remaining free is dyed, for instance violet *w*, the surface in the present case consisting of

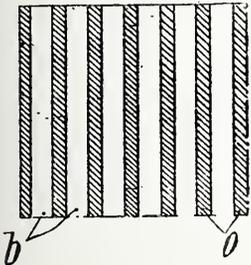


Fig. 6.

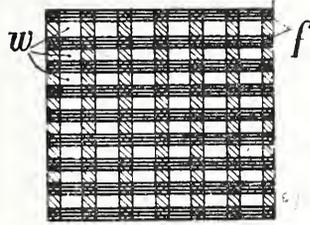


Fig. 7.

rectangles *w w*, limited on the one hand by the greasy material just deposited, and on the other hand by the varnish covering the orange colour already applied.

5. The surface is again varnished, then the greasy material is dissolved and removed as described in Paragraph 3. There remains then (Fig. 8) one-third *o* of the surface coloured orange (continuous hatching), another third coloured violet (long dotted hatching) and the third portion *b* uncovered.

The coloured surfaces being covered with a varnish, there will only remain one-third of colourless surface where the gelatine is exposed, the third being dyed by simple imbibition with the third colour *v* (green, short dotted hatching, Fig. 9).

The whole surface is then cleaned by means of a solvent for varnish, e.g., alcohol, so that the screen will be constituted merely by the layer of the original gelatine dyed on the whole of its surface without superposition or deficiency, the primary colours alternating with a perfect regularity. The homogeneous coloured layer

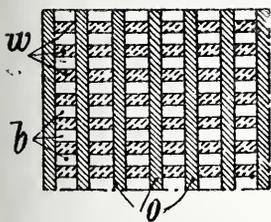


Fig. 8.

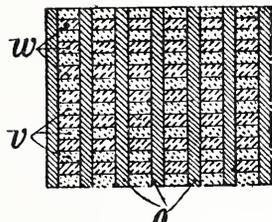


Fig. 9.

thus obtained is then preserved by means of a colourless and neutral impermeable layer. The screen is then ready for receiving the sensitive emulsion. Louis Dufay, Villa Jean Simonne, Rue Andre, Chantilly, France.

PRINTING MACHINE. No. 27,047, 1908 (December 12, 1908).—The invention relates to automatic apparatus for taking prints from photographic negatives, etc., and consists of an improved construction in which the necessarily close superposition of the printing paper over the negative is automatically secured at or about the same time that the actinic light is automatically admitted to the case containing the negative; also the duration of exposure can be automatically regulated and determined.

The apparatus comprises a cam arrangement for controlling and varying the length of exposure, for which, and the other features of the apparatus, the full specification and five diagrams require to be consulted. Louis Brochery, 15, Rue David d'Angers, Dunkirk, France.

The following complete specifications, etc., are open to public inspection, before acceptance, under the Patents Act, 1901:—

APPARATUS.—No. 21,217. Apparatus for taking pictures either automatically or by hand. Debric.

Analecta.

Extracts from our weekly and monthly contemporaries.

Mounting Slides.

No lantern slide should be bound up (writes Mr. T. Orton Murray, in "Photography and Focus" for October 5) until it has been examined in the lantern to make sure that it is right. The examination should also be used to show whether the slide needs spotting. Some spots which are noticeable when the slide is held in the hand may not be very conspicuous on the sheet, and it is as well not to do any more spotting than is absolutely necessary. A dark spot in a deep shadow may go unnoticed, just as will light ones in a light portion; and when the subject is very much broken up spots are often quite unobtrusive, and are best left alone. The best instrument for filling up clear spots will be found to be a mapping pen, as its point is more easily directed to the exact place to which the colour is to be applied than is the tip of a brush. A little water-colour should be mixed up until it is as good a match with the tone of the slide as can be managed, always remembering that the matching must be done by looking through and not on to both slide and pigment. The merest trace of colour will be found to be sufficient, and the aim must be to apply sufficient with a single touch of the pen point to obliterate the spot. Any attempt to move the pen about will in all probability damage the film.

New Books.

"An Atlas of Absorption Spectra." By C. E. Kenneth Mees, D.Sc. (London: Longmans, Green and Co.; and Croydon: Wratten and Wainwright, Ltd.) Price 6s.

In this volume, which represents the measurements of over 150 dyes made in the research laboratory of Messrs. Wratten and Wainwright, Dr. Mees has provided experimenters with a most valuable work of reference. The best book giving data as to spectral absorption has hitherto been that of Uhler and Wood, which does not contain many of the dyes of importance in modern orthochromatic, and in any case pays no regard, as a rule, to absorption in the ultra-violet. The records supplied by Dr. Mees consist in each case of a photograph of the absorption spectrum taken by the wedge method, a brief account of which is really the only reading matter proper in the atlas. In the index of dyes particulars are given of the strength of solution in which the dye was examined, of the commercial source of the dye, and a note as to its chemical character, acid or basic. Finally a rough numerical idea is appended as to its stability towards light. Thus it will be seen that the data available will be of the greatest use to the student or to anyone who has to employ dyes in mixture for absorption of light. The half-tone reproductions of the spectrum photographs are excellently printed.

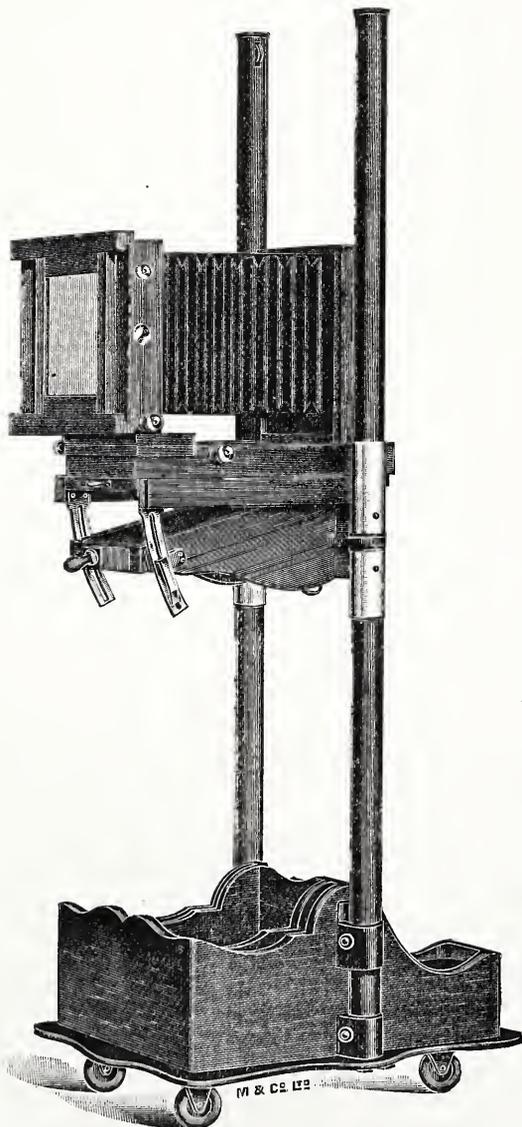
ENLARGEMENTS FROM SMALL NEGATIVES.—The current issue (No. 100) of the "Photo-Miniature" deals with this seasonable topic. The author, Mr. Walter Zimmermann, writes in an eminently practical way on the use of simple apparatus—he explains how to make one or two convenient fitments—and on the most advisable methods of making enlarged prints and negatives. An appendix by Fedora E. D. Brown gives details of making enlargements on Velox and other gaslight papers. As always, what our up-to-date contemporary has to say is concise and to the point. It is published in England by Dawbarn and Ward, 6, Farringdon Avenue, London, E.C.; in the United States by Tennant and Ward, 122, East 25th Street, New York.

THE GLASGOW SOUTHERN PHOTOGRAPHIC ASSOCIATION has enlarged and improved its club premises at 169, Eglinton Street, so that three enlarging rooms and two developing rooms are now at the disposal of members.

New Apparatus, &c.

The "Hana" Studio Stand. Sold by Marion and Co., Limited, 22 and 23, Soho Square, London, W.

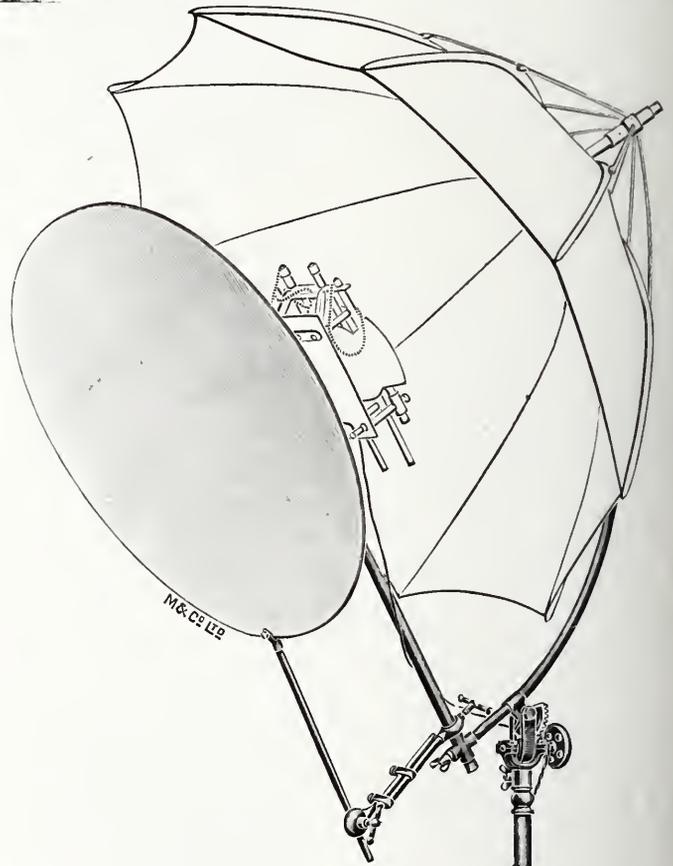
Professional photographers, who have craved a studio stand which should permit of the very widest range of up and down movement, and at the same time allow of the rapid manipulation of the camera with the minimum physical exertion, should be satisfied with the new stand placed on the market by Messrs. Marion, from the designs of Mr. Hana, the well-known photographer of Bedford Street, Strand. The stand consists of a pair of upright parallel hollow tubes, rigidly bolted to a base stoutly constructed in polished wood. Between the tubes a platform travels up and down vertically, its course being controlled by the two tubular pieces moving on the upright pillars. The platform is attached to these two pieces in such a way that the photographer standing at the back of the camera can tilt it at any desired angle. The whole combined weight of platform and camera mounted upon it is counterbalanced by weights moving in the tubular support, a thin wire cable, tested to a weight of 200lbs., connecting



the platform with the counterweight. As a result of this, the force required to raise or lower the camera is infinitesimal, whilst the length of the pair of supports allows of the camera being placed as high as 7ft. and as low as 2ft. above the ground. After placing at any point the camera is instantly clamped by a species of band-brake, which is operated by a single pull of its lever. Similarly, the angle at which the platform is tilted is fixed by turning down the handle seen on the right of the drawing. The support of the camera in each case is of the most rigid description. It should be added that the counterbalancing weight can be removed at the base of the tubes and removed or added to as may be necessary, or, if

more convenient, the exact balancing can be struck simply by placing a small weight, or even a box of plates, on the camera platform. The stand is made to take studio cameras up to 12in. by 12in., and costs complete, £8.

ARTIFICIAL LIGHT EQUIPMENT.—In a new catalogue which Messrs. Marion and Co., 22-23, Soho Square, London, W., have just issued, exclusively of the electrical lamps of all types supplied by their special department under the direction of Mr. Boardman, full particulars are given of all the types of arc lamp (open and enclosed), mercury-vapour light, and the necessary accessories in each case. The list contains also some very good reproductions of photographs

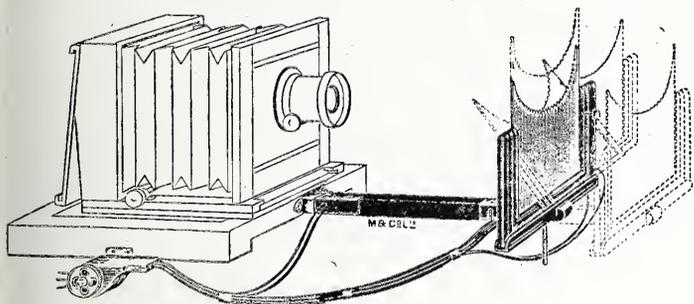


in leading studios from negatives taken with commercial lamps. We may mention that, as shown in the drawing, the diffusing screen for the studio arc lamp is now attached to the rod supporting the arcs so that it is much more readily manipulated. The diffuser (32in. in diameter) is fitted easily. It is adjustable in every direction, and greatly assists the operator in lighting. One advantage in this form of diffuser is that it takes up no floor-space. It can be fitted to all existing outfits without alteration of any kind. Strongly made in bronzed metal and well finished. The price is 21s.

The "Good" Studio Vignetter. Made by Marion and Co., Limited, 22 and 23, Soho Square, London, W.

This ingenious piece of apparatus provides a new and very facile means of working the vignetting mask which is used at the time of photographing the sitter. In place of rigid metal adjustments which are liable to stick, and in any case do not give a great range of movement, the vignetter is operated by a modification of the Bowden flexible wire connection. As shown in the drawing, the vignetting mask is mounted in a frame which travels upon a bar of square section attached to the front of the camera baseboard. The travel of the vignetter—as also its adjustment up or down, sideways, and in a swing direction—is done by means of pressure only on any one of four levers all placed together in a single mount. This may be attached to one side of the camera, as illustrated, or may be placed practically in any convenient position, the mechanism operating the vignetter irrespective of the length or force of the connections. The operator can thus modify the action of the vignetter whilst watching the effect upon the screen, in which connection it may be mentioned that the vignetter is pivoted along an axis opposite to the lens &

hat, when tilted, the displacement does not alter the level of the serrated edge. This useful apparatus is sent out with the arm in



two pieces and complete with screws for putting together. The whole attachment is fitted to the camera in a few minutes. The price of the "Good" Vignetter is £2 5s.

New Materials, &c.

"CHALLENGE" ART MOUNTS.—A series of art mounting papers has just been placed on the market by the "Challenge" Works, Macclesfield, England, in a series of 1s. packets, the 8 by 6 size containing forty-eight pieces, the 10 by 8 thirty-six and the 12 by 10 twenty-four. The papers, which are of a very agreeable matt somewhat mottled surface, are mostly cool greens, greys, and browns, with one or two papers of somewhat stronger colour. The series should be appreciated by the now numerous professional photographers who adopt individual mounting of their prints.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

MONDAY, OCTOBER 11.

City of London and Cripple Gate Photographic Society. "A Week in Holland with a Pocket Camera." E. J. Mortimer.
 Marylebone Camera Club. "Ramble in the Ardennes." H. G. Bailey.
 South London Photographic Society. "Home Portraiture." F. W. Memory.

TUESDAY, OCTOBER 12.

Ginning Park Co-operative Camera Club (Govan). Opening of Winter Session.
 Hackney Photographic Society. "Saints, Benedictines, Goths, and Vandals." E. W. Harvey Piper.
 Leeds Photographic Society. Social Evening.
 Glasgow Southern Photographic Association. Demonstration: "Autotype Carbon Process." "Multiple Gum Printing." R. Ure.
 Southall-Norwood Camera Club. "Autotype Carbon." Demonstration.

WEDNESDAY, OCTOBER 13.

Roydon Camera Club. "The Carbon Process." A. C. Braham.
 Edinburgh Photographic Society. Lantern Section, Member's Slides. "British Architecture—Saxon and Norman." R. Berry.
 Preston (Lune Street) Brotherhood Camera Club. "Autotype Carbon." Demonstration.
 Balham Camera Club. "Lantern Slide Making." J. S. Child.

THURSDAY, OCTOBER 14.

Leek Photographic Society. "Beautiful Manxland." R. Hill.
 C.C. School, Bolt Court, E.C. "The Arts of Engraving." William Strang, A.R.A.
 Watford Camera Club. Lantern Slide Trials.
 Liverpool Amateur Photographic Association. "To the Algerian Sahara." J. Carlton Stitt, J.P.
 Landsworth Photographic Society. Demonstration: "Bromide Toning." A. E. Cope.
 London and Provincial Photographic Association. "Autotype Carbon." Demonstration.
 South Norwood Photographic Society. "Autotype Carbon." Demonstration.

Commercial & Legal Intelligence.

LEGAL NOTICES.—John Scott, carrying on business as E. Holt, photographer and postcard publisher, 50, Hollowgate, Rotherham, has been adjudicated bankrupt. The receiving order was made on the debtor's petition.

CATALOGUES AND TRADE NOTICES.

FOREIGN ROSS LISTS.—Our readers in countries speaking the Spanish and Italian languages should make a note of the fact that catalogues of their optical and camera goods have now been issued by Messrs. Ross, Ltd., in these tongues, and may be obtained free on application to 3, North Side, Clapham Common, London, S.W.

MESSRS. BOWES' PRICE-LIST.—Messrs. E. W. Bowes and Co., of 122, Becklow Road, Shepherd's Bush, London, W., one of the enlarging firms who base their business first on the good quality of their work, and whose printing and enlarging, as we know from years' experience of it, is consistently of high standard, have just issued their catalogue for the winter season. They give the prices for all description of work for professional photographers, inclusive of carbon prints on ivory and artistic mounting in styles for exhibition purposes by the dry process. The list is one which we can advise every portrait photographer to have at hand.

Dews and Notes.

WHY THEY ARE PHOTOGRAPHED.—"Got a boat?" she brusquely demanded of a Detroit photographer as she walked in the other day.

"Yess'm."

"And a fish pole?"

"Yess'm."

"And a painted ocean for a background?"

"Yess'm."

"Look like Cape May?"

"It does."

"Can you get a good-looking young man to sit on the boat with me?"

"I can."

"Then I want six photos."

"Yess'm. Do you go to the seashore this summer?"

"Naw! Dad's busted in business and we've got to take a cheap board on a farm. I want the photos just the same, you know. Want 'em to send to a girl friend who is sick and can't get anywhere this summer. She'll think I'm down there all right."

"Sort of an illusion, eh?"

"Sort o' revenge, rather. We were down there last season and she stole my summer young man back. Hurry up with the feller, and tell him he can sit with one arm around me and his moustache touching my ear?"—"Detroit Free Press."

ATTRACTIVE WINDOW DISPLAY OF CAMERAS.—Since quoting the note from "Advertising," on page 768 last week, we have learnt that the window in question was that of the City Sale and Exchange in Fleet Street, the staff of which establishment deserve credit for the employment of this method of calling attention to the "points" of a camera.

CORRECTION.—An error was made in reviewing Messrs. Butcher's "Lanternist's Pocket Book" last week. This publication is not sent gratis, as stated, but is supplied at a price of sixpence.

R.P.S. LECTURES.—The following lectures will be delivered at the New Gallery, at 8 p.m. :—

Saturday, October 9.—"The Photography of Sport," by Adolphe Abrahams, B.A.

Monday, October 11.—"Holy Days and Fête Days in Spain," by R. Falconer Jameson.

Thursday, October 14.—"Pictures from Portugal," by George E. Thompson.

Saturday, October 16.—"London Through the Eyes of Gossip Pepsy," by A. H. Blake, M.A.

HACKNEY PHOTOGRAPHIC SOCIETY.—The last day for the receipt of entries in the Society's annual exhibition is October 25.

THE GLASGOW PHOTOGRAPHIC ART CIRCLE is holding an exhibition (closes to-morrow, October 9) of the pictorial work of G. L. A. Blair. The pictures, to the number of forty, are arranged in the rooms of the Glasgow Southern Photographic Association, 169, Egtinton Street, Glasgow.

THE AFFILIATION.—The Affiliation of Photographic Societies held their annual gathering at the Royal Photographic Society's Exhibi-

tion, New Gallery, on Friday evening, September 24. Fifty-one societies were represented by nearly four hundred members, again evidencing the popularity of the "Red Book" night. The Chairman of the Executive Committee, Mr. P. Bale Rider, after extending a hearty welcome, went on to outline the spirit of mutual assistance underlying the work of the Affiliation. He pointed out that while the London societies, from their geographical position, were brought into closer touch with the Affiliation than was the case with the provincial societies; it was also true that the societies up and down the country had received no little benefit from their attachment to the Affiliation, and he hoped that the forthcoming "Monthly Circular" would increase still more the benefits resulting from inter-communication one society with another. It was gratifying to find the work of the Affiliation appreciated in Australia and New Zealand, and it gave him pleasure to report that colonial societies were again on the active list, lectures and slides being despatched to them at regular intervals. The Chairman showed that the tendency to break up into little societies was something to be carefully guarded against, for it often led to a dissipation of energy. Societies should bear in mind the value of conservation of energy, and to this end it was extremely desirable to cultivate inter-club meetings. These local gatherings, he said, might again be combined into larger areas or federations, and thus the whole of the federations might form the groundwork of affiliation with the Royal Photographic Society. The scheme was a big one, and one that would take time to carry out, but he thought it should be the ultimate goal of the Affiliation. The Chairman stated that the information received in connection with the Consular Scheme was being tabulated, and would shortly be ready for use. He then presented the plaques and certificates awarded in the recent slide competition. The 1909 competition slides were then shown upon the screen, Mr. W. R. Bland personally reading the critical notes he had written upon them. Mr. Bland struck a distinctly new note. His frank criticisms may, as he put it, tread upon some people's corns, but must eventually effect more good than the "butter and jam" variety of criticism, unfortunately so common. A vote of thanks to Mr. Bland for the great trouble he had taken was proposed by Mr. C. F. Inston, seconded by Mr. F. J. Mortimer, and passed with acclamation. The vote of thanks to the Royal Photographic Society for their courtesy in again placing the New Gallery at the disposal of the Affiliation, was moved by Mr. A. H. Blake, and seconded by the Rev. F. C. Lambert. It was carried unanimously.

The prints and slides entered in the competition in connection with the affiliation outing to Epping were shown at a meeting held at the rooms of the Royal Photographic Society on Friday, October 1. Awards were made by popular vote, and went to (1) E. Alwyn Biscoe; (2) A. G. Buckham; (3) J. C. Nunn. The award for the best lantern slide went to H. Creighton Beckett. Mr. F. J. Mortimer kindly undertook to write critical notes on the prints, and these were read by Mr. P. Bale Rider. Mr. Rider remarked that it would be a pity to disband such an interesting set of prints, and eventually it was agreed, with the permission of the authors, to circulate the whole collection, together with Mr. Mortimer's criticisms, among the affiliated societies. In proposing a vote of thanks to Mr. Mortimer for the trouble he had taken, the Rev. F. C. Lambert said he knew the difficulty of securing pictures while with a crowd of workers, and he thought the results achieved on the occasion of the affiliation outing to Epping were a gratifying success. Mr. Mortimer's criticisms were full of helpful hints, and should prove of great assistance to the affiliated societies. Dr. Evershed seconded the vote of thanks, which was carried with acclamation. Dr. Walshe Owen moved a vote of thanks to the Royal Photographic Society for the use of the room in which to hold the meeting. Mr. A. H. Miles seconded, and the vote was passed unanimously.

PHOTOGRAPHY AS AN AID TO THE CONFECTIONER.—At a recent meeting of the Liverpool Bakery Students' Society, Mr. T. Curtis (the secretary) gave a lecture on "Photography as an Aid to the Artistic Confectioner." In the course of his remarks he said that during the last few years he had photographed many cakes, chiefly of an ornamental character. He had also photographed ornamental sugar, nougat, and gum-paste work, as well as chocolate plaquet and eggs. This had led him to think "Would not a collection of such photographs materially aid the confectioner in his artistic

work?" There were many decorative pieces of work executed by the confectioner, which usually passed from him to the shop or packing department. He never had the opportunity of seeing it again. If such work was photographed the makers would have a life-long record which would enable them to note the advancement in their artistic abilities as time went on. The bad and good points of their work could be easily noted, and they would in consequence be better able to remedy the failures and improve upon good work. To shops which had not sufficient accommodation for a show-room the photographic album was a valuable substitute. In many shops, when a customer ordered any special work of the kind, there were no means of showing the designs beforehand, and the customer had thus to leave the matter entirely in the confectioner's hands, a condition of things which rendered the former very liable to disappointment.

Correspondence.

- *• *We do not undertake responsibility for the opinions expressed by our correspondents.*
- *• *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

ENGINEER'S SENSITISING COMPANY, LIMITED.

To the Editors.

Gentlemen,—Our attention has been called to a paragraph on page 768 of your issue of 1st inst. in which it is stated that the above company is formed to acquire our business. Will you be good enough in your next issue to state that the Engineer's Sensitising Company, Limited, only acquires that part of our business which deals with the manufacture of sensitised papers and linen.—Yours faithfully,

For Norton and Gregory, Ltd.,

G. CARTMAEL, Director.

Castle Lane, Buckingham Gate, London, S.W.

A CURIOUS CASE OF COLOURS FADING.

To the Editors.

Gentlemen,—Referring to the letter on the above subject in your issue of October 1, I would suggest that the "fading" of the colours on bromide prints is probably due to the hygroscopic nature of the gelatine surface. In damp weather the gelatine takes up a certain amount of moisture from the air, so rendering the water-colours more or less soluble; in this state they would tend sooner or later to be absorbed into the film. If this theory be correct, hardening the print with formalin (or our old friend—and enemy—alum) would cure the trouble. It would be worth while trying the following experiment:—Cut a bromide print into two halves, treat one half only with formalin, mount the two halves side by side, colour in the usual way, and note the result.—Yours, etc.,

Pontypridd,

ALBERT O. FORREST.

October 4, 1909.

A CAUTION TO ASSISTANTS.

To the Editors.

Gentlemen,—I fully agree with the letter in your issue of Oct. 1 signed "Out-of-Work." A man who has been trained to high-class work and had experience with the best class firms should never go to the cheap class work unless he wishes to stay there. I would advise parents not to foster any desire on the part of their children to enter the ranks of professional photography. And to assistant who are not yet too old or who may have any influence to help them I would say, get out of it as quickly as you can. I have worked for some of the best class firms and obtained good salaries, also plenty of harsh and unjust treatment. My experience teaches me that the number of gentlemen employers in the profession are few and far between. Specimens are kept, even when stamps and addressed labels, etc., are enclosed. Only last week I wired to a man who had had my specimens six days to return them at once. They arrived two days after, and I lost a chance of a berth through his unbusinesslike action (to put it very mildly). During the last three weeks I have been requested by eleven firms to send particulars and photograph of self. Up to the present not one has been returned, and my stamps have been retained also. I hope they have framed my photograph. A great many of the well-known men seem

think it an honour for one to work for them. A bare living salary is a purely secondary consideration. One well-known West End man offered me an engagement, and said to me: "Look what my reference will be worth to you." I was to appear in a frock-coat suit, and to receive the remuneration of 21s. per week, paid when he thought or was forced to. For there are plenty of men who don't pay regularly, especially to lady assistants. At present I am like the writer of last week's letter, out of work, but I am young at it yet, only three weeks (not by Elinor Glyn). My last sovereign went to a pal who had just got a berth, but had not the wherewithal to get there, and when I get one that pal will help me. Photographs are still a luxury, and unless one has money and can afford to be always at the risk of being out of work, then don't try and get a living at this luxury. Leave photography severely alone. It's good advice by one who, if the chance comes to earn a living in some other way, will never want to handle a camera again.

A SERIOUS OUT-OF-WORK.

Answers to Correspondents.

All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.

For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

J. Usherwood, 25, Fisher Street, Workington, Cumberland. Three Photographs taken of the Boiler Explosion at Distington Iron Work, near Workington, September 19, 1909.

Harker, 63, Market Street, Longton, Staffordshire. Photograph of the Very Rev. Dean Stringfellow.

J. Ferras, Lawhead View, Markinch, Fife, N.B. Three Photographs for Reproduction as Pictorial Postcards: Balgownie Woods, Markinch; Balgownie House, Markinch; On the Leven, Markinch.

HOW NOT TO ASK A QUERY.—Can you enlighten me on the cause of yellow stains on prints both on the film and back?—G. S. S.

If you were to mention the kind of paper you are using, or to send examples of the defective prints, we might be able to help. Apparently you credit us with supernatural powers of divination.

"OIL" PORTRAITS.—I see in this week's "Journal" a mention of Mr. F. C. Tilney as prepared to make portraits in the oil-pigment process from photographers' originals. I hope you will do yourself, and possibly other professional photographers, the favour of informing where Mr. Tilney can be addressed.—MINOTAUR.

It is usually against our rules to give the addresses of private individuals, but as that of Mr. Tilney occurs in the current catalogue of the R.P.S. Exhibition, there is no reason why we should not give it—it is "Walden," Red Lion Street, Cheam, Surrey.

SALE OF MATERIALS.—Could you inform me, through the "Journal," whether I can legally sell plates, papers, and bottles of fixing and fixing and developer, to local amateurs, as I could dispose of a fair amount? Also what I cannot sell, without a licence, that is sold photographically, which, of course, would include all poisons, I suppose?—SOLUTION.

You are at liberty to sell any materials except solutions, powders, etc., containing a scheduled poison. For these you must be a registered pharmacist, but if you steer clear of mercury intensifiers and any preparation likely to contain potass. cyanide you will be quite safe.

SNOW ON THE STUDIO.—I am thinking of putting a light upstairs in another building to which I expect to move. The roof is a flat. The building is on a corner, and I should put the light on the street, giving me a north light. Now, we have a good deal of snow in the winter, and though I may clear the bulk of it off after a storm, still a little will remain, and, gradually melting

from the heat inside, will form icicles. If I made the window by removing coping running round side of flat roof, and put the window in, having the glass of upper window coming as close as frame will allow to side-light, and partly overhanging the pavement beneath, I am afraid icicles forming at the edge of the glass might be dangerous for passers-by. 1. Would it be all right as regards light were I to put the top light inside of the coping? This would, of course, leave a rather large space between the top and side light, but the coping would prevent the snow falling into the street. A single slant might perhaps be all right, as it would be too sloping for the snow to stay on it. The operating-room will be about 15ft. or 16ft. wide. 2. Would this be all right for a single slant light, as I understand this kind of light needs a wider room than the top and side light? By answering these questions you will much oblige.—CANADA.

The sketch does not make the thing at all clear. 1. So far as we can judge from it, we should say that what you suggest doing will be about the best. 2. A single slant would also do for a studio of the width stated, and would appear to offer some advantage in your case.

GOLD CHLORIDE.—We have been making gold chloride from worn-out necklets, and have employed the method mentioned in the issue of September 10. On the first occasion we were successful, but on dissolving an 18-carat gold ring were surprised to find that the gold would not precipitate when the sulphate of iron was added. We have made no mistake in the manipulation, and any information you could give us would be a favour.—A. A.

We cannot account for the gold not precipitating, except by assuming that the ring was not gold at all, particularly as you get on all right with other old gold. You might try diluting the solution more before adding the sulphate of iron.

RESIDUES.—Can ammonium sulphide be used instead of potass. sulphide in precipitating silver from used hypo baths, and does it make any difference to the value of the precipitate? I have plenty of the former in hand, and should like to use it up in this way if possible.—A. E. J.

Yes, it may be used, but care must be taken not to use more than is necessary to precipitate the silver, or some of the sulphide may be re-dissolved and thereby lost. There is no difference in the value of the precipitate, but you are more likely to lose silver when using the ammonia sulphide.

STUDIO QUERY.—I am building a studio, 35 x 20. (1) What height ought the walls to be? (2) What height to ridge? (3) How many feet of glass would you advise? (4) It is facing the west. Do you consider this a drawback?—SCOT.

(1) By walls we presume you mean the side lights, in which case 7ft. 6in. or 8ft. (2) About 15ft. (3) About 6ft. at either end may be opaque. 12ft. or 13ft. of glass will be sufficient. (4) No. Not if you have a good arrangement of blinds or curtains. A west light requires a little more skill in lighting the sitters than does a north one.

CORRUGATED WRAPPERS.—Could you, through the JOURNAL, give me names of manufacturers who supply corrugated paper and boards, also postal tubes for packing enlargements? I hear there is a firm supplying packing boards same as those used in some tea chests—three layers of wood put at cross grains. Being very light, should think them the best medium for big enlargements. Address would be appreciated.—O. B.

Try Corruganza Manufacturing Co., Summers Town, S.W., Eburite Paper Co., Dane Street, High Holborn, W.C., but we cannot say whether either supply the particular material you require.

BEAUMONT.—Practically all your queries are answered by referring you to the "Kinematograph Journal," published (1d. weekly) by E. T. Heron and Co., Tottenham Street, London, W.

SPOTS ON NEGATIVE.—The enclosed is a portion of a valued negative by an amateur, pyro-soda, — plate. Can you tell me the cause of the numberless minute spots, yellow by transmitted light, silvery blue by reflected, and give remedy, if any? The negative was made two or three years ago and packed away in box. This is the only one of same batch of plates treated in the same way at the same time on which the spots have appeared.—SPOTTY.

It is impossible to tell you the exact cause of the spots, but

seeing that each shows a series of concentric rings it is evident that it has spread outwards from a central nucleus, which may have been either a speck of chemical dust or a fungus spore. In any case, we fear that no remedy is possible save that of re-touching.

A BUSINESS MATTER.—I should feel glad if you will give me a little advice on the following matter:—A customer brought me an old glass photograph to be copied, so I took it to Mr. ——'s studio to have a half-plate negative made. It was all right when I left it with them. When I go this morning they bring down the original with all the faces rubbed off, and said it was like that when I brought it, and that they could not copy it, and got quite cheeky about it. I told them that they had rubbed it off, and they said it could not be rubbed off at all, but I rubbed a corner and proved it would come off. I asked him what he would do in the matter, and he told me to get off his premises, so I told him I should see further into it; and he said, "Do what you like," so he took the photos out of my hand and told me to sue him, he would keep the original for evidence. What would you advise me to do? I have had dozens of negatives made here before and they have been all right. It is the only photo my customer has, the person himself being dead, which, of course, makes it valuable, beside me losing my order.—T. CHICK.

Evidently the picture has been ruined by being carelessly handled by somebody. Your only remedy is to sue Mr. —— in the County Court for its value and the damages you have sustained by the loss of the order. These old pictures should not be entrusted to people who do not understand them. In such hands they frequently come to grief. We do not answer queries by post.

VALUE OF GOODWILL.—Will you kindly inform us, through your journal, what is the usual means of determining the goodwill value of a photographic business?—E. ROFF.

The value of the goodwill of a photographic business is generally based upon the net annual profits, whatever they may be. About from two to three years, according to the length of lease and the opposition there may be in the neighbourhood. These are important factors in the valuation of a business.

DAGUERRETYPE.—Would you kindly give me, through the medium of the BRITISH JOURNAL OF PHOTOGRAPHY, some idea of the working of the process known as "Daguerreotype"; also, could you let me know of a book dealing with same?—T. W.

In the Daguerreotype process a silver, or silvered copper, plate is exposed to iodine vapour in admixture with bromine, and a film of sensitive iodide and bromide formed on the surface. The plate is exposed in the camera in this state, and the latent image developed by exposing the plate in a box to the vapour of mercury. There is no modern handbook to the process since it ceased to be used commercially about the year 1860. Any text book of photography of about that period will give you full working instructions. If you cannot pick up one locally you had better try E. George and Sons, 151, Whitechapel Road, E.

COPYRIGHT.—A orders and pays for some photographs of his child to B, a local photographer. B sells the negative after without permission, to C, a postcard publishing firm, who reproduce it on coloured postcards. Postcards are on sale, photo is not yet registered. What can A do to claim his rights?—A. G. W.

He can at once register his copyright in the photograph, when he can stop any further use of the negative, i.e., prevent reproductions of the photograph being made in any form. It is probable also that he might be justified in taking action against the photographer for breach of contract. The latter had no right to sell the negative.

AMYL ACETATE.—I have occasion to make constant use of celluloid varnish, and I find that the smell of the amyl acetate becomes very nauseating. I have been told that there is a method by which this smell may be, if not altogether removed, considerably reduced without injury to the qualities of the amyl acetate. Can you enlighten me upon the matter? If so I shall be grateful.—VARNISHER.

If you purchase a highly purified form of amyl acetate you will find very much less odour, but the solvent will still have, of course, its characteristic smell of essence of Jargonelle pear.

SCOTS WHA HAE.—The address of Messrs. Holmes Bros. is 41, Oxford Street, Manchester.

FADED PRINT.—Would you please give me formula and directions for restoring faded albumen print?—C. J.

There is no really successful way of restoring a faded albumen print. If you put the print in a weak solution of bichloride of mercury that will remove the yellowness, but it will not restore any detail that has faded away. Still, it will improve the picture somewhat.

PUZZLED.—We should say the card is printed on bromide or gas-light paper at the same time as the lettering, the two being made up together on the one negative. This is done by the method given at the foot of page 791 in the "Almanac."

GRATEFUL.—1. A north-east light is a very good one to work with, and we see no objection to it. 2. The length of the main building will do, but we would suggest that the extension be 8ft. instead of 6ft., for the convenience in working. The extension may be at either end, but preferably the more easterly. 3. We are surprised that the lens you have, if it is by the maker named, does not fulfil your requirements both for cabinet and 1/1 portraits. All the lenses in the list you send are good, but you must not expect any cabinet lens to cover a whole plate. The last name on it might possibly do so, but any lens of 10 $\frac{3}{4}$ in. focus, although it may cover the size, will not yield pleasing perspective if used for whole-plate portraits.

BOOKER AND SULLIVAN, of 67 and 69, Chancery Lane, W.C. engineering and commercial photographers, have opened a branch for portraiture. For this purpose they have taken premises at 58, Pall Mall, S.W., exactly opposite Marlborough House, where sittings will be under the direct supervision of one of the partners.

THE LINKED RING AT HOME.—That most delightful of photographic functions, the conversazione held by the members of the Linked Ring during the season of the Photographic Salon, took place on Tuesday evening last in the Gallery of the Society of Painters in Water Colours. Mr. Craigie, in welcoming the guests explained that during the period of the 1908 Salon the presence in the gallery of the Autochrome stands did not leave space for the holding of the usual conversazione, but the Linked Ring welcomed its guests still more heartily after a year's enforced absence. As a company of *entrepreneurs* the Linked Ring proved again worthy of its traditions. The singing, piano-playing, and "other performances," included contributions from Mr. Walter Emanuel, Geoffrey L'Epine, Walter Churcher, whose "Commercial Value of Art" never seems to lose its freshness, Mr. Fred Rome, Charles Pond, and a vocal trio consisting of Messrs. Reginald Craigie, H. R. Elkin, and W. A. Vincent, not to mention the admirable sleight-of-hand of Dr. Byrd-Page. A late hour arrived when, on behalf of the visitors, Mr. J. C. S. Mumby proposed a hearty vote of thanks to the members of the Linked Ring for their hospitality. Mr. Craigie and Mr. Alex. Keightley, in responding, expressed the pleasure which the members feel in having their guests with them. A further vote of thanks to those who had contributed to the evening's entertainment, followed by the singing of "Auld Lang Syne," brought still another Smoker to its close.

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SUMMARY.

Mr. Bernard Shaw is announced to "improvise on the subject of photography" at the Photographic Salon, 5A, Pall Mall East, on Monday evening next, at 8 p.m.

The things—such as money and reputation—to be gained or lost by resorting to the coupon system of obtaining business are dealt with in an article by Mr. L. Haweis, the first portion of which appears on page 797.

Some of the points of contention between masters and apprentices are the subject of an editorial article on page 796, in which is pointed out the advantage of training in a technical school as a supplement to practice in a business establishment.

In a recent lengthy address before the Museums' Association Sir Martin Conway laid stress upon the extent to which the collection of photographs is neglected. Collections of photographs fully covering a given branch of knowledge would be of inestimable value to students, but little interest in work of this kind can be discovered among either private collectors or public institutions. (P. 799.)

It is hoped that the new Camera Club will be opened in the West-end of London early in the New Year. (P. 793.)

In an article on page 795 directions are given for the most readily applied methods of restoring engravings. Work such as this, which is sometimes pressed upon the photographer, should not be undertaken until after some experience with worthless originals.

A patented method of securing grain in photo-engraved plates, the protection of the eyes from arc-light, the conditions necessary for successful collotype work, are some of the topics treated under "Photo-Mechanical Notes," on page 804.

An unsuspected cause of pinholes on films exposed in a camera of the folding focal-plane type is the subject of an editorial note on page 794.

Those taking up the use of roll-film should bear in mind that most operations, such as development, bleaching, etc., need to be somewhat longer than when employing glass plates. (P. 794.)

In using Canada balsam for cementing lenses, prisms, or other glass apparatus, dry heat for a short period will produce a firm joint, where long standing, at the ordinary temperature would be insufficient. (P. 794.)

EX CATHEDRA.

Work-Room Benches.

Much better work would be done in many establishments if a little more attention were given to the work benches. Too often any dirty corner is considered good enough for making bromide prints or mounting them, or for toning P.O.P. The soft wood of a table top or a bench becomes impregnated with various solutions, and efflorescence is quite common as the wood dries. This may be prevented in various ways. A bench top of hard wood, such as mahogany, teak or oak, into which boiled oil is frequently rubbed, is, of course, excellent, but at the same time somewhat expensive to provide and requiring constant oiling if to be kept in good order. When the bench is made of good clean deal boards and is quite level an excellent covering material is to be found in a hard linoleum. The soft varieties of this substance, somewhat akin to cork carpet, are not of any use, but a stout, hard, well-seasoned linoleum costing three or four shillings a yard should be chosen. It is easy to obtain this sort of thing in pieces quite large enough at the annual sale in a good furnishing warehouse, and such remnants are usually well seasoned. The inlaid Greenwich linoleum is usually very hard, though a plain brown or green looks better. It should be tacked down all round the edges with gimp pins, and can be wiped over with a cloth and left perfectly clean in a moment.

* * *

A Camera Club for London.

Very little having been heard of late as to the steps which are being taken to refound a camera club in the West End of London, attention may be drawn to the announcement made by Mr. Craigie last week at the Salon smoker that premises for the club are being secured in that still unspoiled corner of Old London, John Street, Adelphi, near to the house of the Society of Arts. Those who have the arrangements in hand hope that the club will be opened early in the New Year. We have no precise details before us as to the facilities which will be at the disposal of members, but we have no doubt that intending members will receive all the facts available on application to Mr. Reginald Craigie, at 5A, Pall Mall East.

* * *

Spots on Prints.

From time to time we have sent us batches of prints which are more or less covered with spots, and we are asked to say whether the fault is with the paper or the mounts. As a matter of fact, it most usually is with the manipulation, but it is not a very simple matter to say decisively when the carelessness has occurred. Some of these spots are white, bleached spots, while others are reddish-brown, brown, or nearly black. In cases where the bleached spots occur they will be found as a rule on silver prints only, that is on prints in which the image is formed by the use of silver salts, such

as-P.O.P., platinum toned C.C., and, of course, bromide and gaslight prints. Such spots are often traceable to dust from coke stoves, the ashes of the stove being raked out in the morning before the prints, mounted possibly the night before, have become quite dry. During the autumn the nights are often misty and the atmosphere laden with moisture, and drying is slow. Slow drying alone is sufficient to produce spots on C.C. prints, and after mounting such prints should be dried as quickly as possible—say within a couple of hours. The brown or reddish-brown spots may occur on any kind of print, and are undoubtedly due to minute particles of a developing salt, particularly amidol, settling on the damp prints. Chemicals should never be weighed out in the room in which prints are manipulated.

* * *

Stock Solutions.

The use of stock solutions as a method of saving labour and ensuring rapid work is not so largely adopted as it might be in the majority of businesses. Take, for instance, such substances as alum, hypo, and potassium oxalate, used extensively in the carbon, silver and platinum printing processes, and consider the usual method of preparing the solutions. A handful of the salt is taken and placed in a dish, into which a pint or so of water is poured. The dish is rocked until solution is complete, or nearly complete. Time is wasted, the strength of the solution is inexact, and, in the case of hypo, the temperature of the solution is too low for satisfactory fixation. Large stoneware jars may be obtained for at most a few pence, and in many cases are already to hand, having arrived with carbonate or sulphite of sodium in them. One of these jars holding a gallon or a couple of gallons may be filled up with the solution, saturated, or almost 10 per cent. strength in the case of alum, 25 per cent. strength for hypo, and 25 per cent. for potassium oxalate. The jar should be closed with a sound bung covered with parchmented paper. These stock solutions may be prepared at odd moments, as opportunity offers, and are always ready for use. Labels will, of course, be attached, and they may be sized with gelatine and varnished with oil varnish so that they will not drop off if the jars are stood in a damp corner.

* * *

Pseudo Daguerreotypes.

Among the numerous questions which are addressed to us we sometimes receive one that we find it impossible to answer, and that barely admits even the suggestion of a possibility. A week or two ago we had such a query that we had to give up, after consulting several experts. An Englishman travelling in Germany handed some exposures on ordinary fast dry plates to a German photographer, for the purpose of development, and, much to his surprise, he received back what were to all appearances a set of Daguerreotype positives on glass. Seen by reflected light, the effect was as nearly as possible that of a Daguerreotype, the high-lights being represented by pure white silver and the shadows by a highly polished black reflecting surface. By transmitted light only a mess of green and red stains was visible, and the plates were quite useless for printing purposes. The question was, what had the German photographer done with them? The negatives baffled us completely at the time, but since then we have been experimenting with a method of combined development and fixation, and several times noticed an effect somewhat similar to that produced by the German, but only on the margins of the plates. In these experiments this effect disappeared on applying a supplementary fixing-bath, so it at once occurred to us that it might be as well to try the effect of plain hypo on the pseudo Daguerreotypes. We had one put into an ordinary fixing-bath, and very soon afterwards a quite ordinary but very much under-

exposed negative was taken out of it. The bright silver and the red stain, and all the rest of the mysterious effects, had disappeared completely, and the inference was that the German photographer had also been experimenting with a combined developer and fixer upon the exposed plates supplied by his customer. The fact that such a thing has presumably been done will doubtless serve as a warning to other travellers. One striking feature of the results was the enormous amount of detail shown by the pseudo Daguerreotypes in places where the cleaned negative shows practically no detail at all.

* * *

Films v. Plates.

Though the modern film is of such fine quality that just as good results can be obtained with it as with plates, yet there is still much prejudice against it in some quarters. Many try it once or twice, and because the results are unsatisfactory they reject films altogether. It is, of course, undeniable that a glass negative is a more convenient thing to handle still, films have so many advantages that it is a pity they should be condemned without due reason. We believe that the sole cause of the trouble many find in dealing with them is the fact that, for some not very obvious reason, they yield more slowly to chemical treatment than do plates. They take longer to develop, and very much longer to bleach and re-develop, hence many spoil them by under-development, and afterwards fail in the endeavour to intensify them. We have had scores of films sent to us that, according to the owners, would neither bleach nor intensify, and yet they invariably yielded in our hands. We have known films to take ten minutes to bleach when a plate yielded in a minute, but we have never known one that would not yield to the same treatment as a plate if given sufficient time. In reduction this slowness of action is also very marked, and in that operation it is a very considerable advantage, as it is not so easy to spoil the result by over-reduction. Why films should yield to various solutions more slowly than plates is not apparent, but if the fact be recognised half the troubles so often met with will disappear.

* * *

Pinholes and Film Packs.

It is not infrequently alleged that exposures made with film packs show a quite superfluous crop of pinholes. We met with the same trouble ourselves when we first made use of the film pack, but in our case the cause was very speedily apparent. All the trouble was due to the fact that we used a folding camera, and sometimes closed the camera before inserting the shutter of the pack adapter. As nothing could touch the film and the camera was perfectly light tight, it did not at first seem to be of any great moment whether we replaced the shutter after each exposure or not, but then the mere act of opening or closing the camera creates a great air disturbance inside it, and stirs up every particle of dust inside. On adopting the precaution of replacing the shutter after each exposure, the trouble ceased, and this fact leads us to suggest that a hinged shutter that cannot be drawn completely out would be somewhat of an advantage with film packs. It is less trouble to replace than the loose shutter, while the fact that it is a little in the way of the hands when changing films will induce the habit of replacing it every time.

* * *

Cementing with Balsam.

A little time ago we had the task of fitting up a piece of apparatus which required the inclusion of a train of right angled prisms cemented together. After a good many failures, we succeeded in accomplishing the task perfectly, but we found quite a number of methods of spoiling the result before success was attained. Our previous exper-

ence of balsaming was confined to the preparation of microscopical objects, and when we attempted the cementing of several heavy prisms we found the conditions very different. A good many people seem to have the idea that if two pieces of glass are placed together with balsam between and left under pressure they will in course of time become firmly cemented. Possibly they may do so if the time is long enough; but generally we are not prepared to wait for months before attempting to handle the combination, and in our case we found a month under pressure quite useless. It is absolutely necessary to set the balsam with the aid of heat, and the trouble is that the surfaces are apt to slip when the heat is applied if the pressure is not exactly uniform, while beautiful fern patterns appear as the result of the slipping. Further than this, there is danger of over-heating the balsam and turning it yellow, while in some cases the glasses may crack. Our method was to apply plain balsam softened by heat to the warmed and well-cleaned glass surfaces. We then clamped the whole together and placed it in a cold-air oven, the temperature of which was then slowly raised to 200 deg. F., at which temperature it was kept for an hour. The gas was then turned out and the oven allowed to slowly cool down. When cold, the prisms were found to be quite rigidly cemented together, and the whole combination would stand any amount of rough handling. The same method can be applied to lenses, which are somewhat easier to deal with, as they can be more readily clamped together by simply winding with string. Prisms require to be enclosed in a frame made to shape, and arranged to bring pressure to bear in several directions, so as to avoid all tendency to slip. Failure is generally due in the case of prisms to uneven pressure, and it is advisable to equalise it on the different surfaces with soft pads of thick paper. When finished, all superfluous balsam that has exuded from the edges is cleaned off with a pad of cotton wool dipped in purified (not methylated) spirit, awkward corners being cleaned out with a brush used instead of the wool.

* * *

On the Titles of Photographs. A writer in the "Globe" draws attention to the absurd titles that many photographers attach to their efforts, quoting as examples a picture of a yacht on the port tack which was labelled "On the starboard tack," and a sea-beach scene called "On the sands at Brighton"! These are somewhat outrageous examples of blundering, but many photographers are trapped in much more subtle ways. For instance, many, labouring under some strange delusion, persist in naming an obvious figure study as "Spring" or "Summer," or perhaps "Ceres" or "Apollo," according to the sex, but quite regardless of the application. Somehow it is often forgotten that the title of a picture when once adopted becomes part of the picture, which must live up to it to satisfy the observer. If there is any trace of a ridiculous incongruity that picture is spoilt completely. Another blunder that is frequently seen nowadays is the labelling of photographs as "decorative." We meet with "decorative portrait" or "Decorative landscape" only too often, but never by any chance is the decorative quality very apparent. How the principles of decorative art can be observed in photography is somewhat of a mystery, and it has not yet been solved by the efforts we have seen. The use of the expression "decorative" only serves to draw attention to the decorative deficiencies of the result, and surely it is safest to leave the discovery of defects to the critic, and not necessary to point them out in the title.

* * *

Blackening Brass. The paper on "The Surface Protection of Metals," by Mr. H. S. Ryland, which was reprinted in our last issue, gave some useful formulæ for blackening metals, but it omitted one for brass that is

very commonly used for photographic apparatus, and can be carried out with perfect ease by the amateur workman. It is the one we invariably employ, but it must be admitted that it only gives a black finish, not a dead black surface. Still, it minimises reflections, and also renders the outside camera fittings very inconspicuous. The first operation is to clean the brass very thoroughly with a smooth file or with fine emery or glass paper. Scraping with a knife is also effectual, and if carefully done gives a nice finish. When clean, the metal must not be touched by the fingers, but be held with a piece of wire or pliers. It is then made hot over a Bunsen burner or any smokeless flame, and when too hot to touch is immersed suddenly in a saturated solution of copper nitrate that has been made distinctly acid by the addition of nitric acid. This, of course, rapidly cools it, and when cold it is taken out of the solution, and the superfluous liquid allowed to drain off. It is then heated again over the flame, when it rapidly turns to a bright green colour. The heating is continued until this green changes to a very dead black, which appears in the form of a powder dusted over the surface. As a rule, it is desirable at this stage to repeat the process, and when for the second time the black stage is reached we can proceed to finish it off. This finishing consists simply of a vigorous brushing with an old toothbrush which has first been lightly rubbed on a cake of blacklead. We soon arrive at a black, smooth finish, with only a very slight trace of polish. The article may be left like this, or we can, of course, apply a lacquer if desired, but for outside fittings we prefer to give no more polish than results from a brisk rubbing with a slightly oily rag. This finish will last a long time, and stand a great deal of wear, while it always looks well.



CLEANING OR RESTORING ENGRAVINGS:

PROFESSIONAL photographers are frequently called upon to copy old engravings. In many instances these old prints are in a very dirty and discoloured condition; often they are spotted with mildew through, perhaps, hanging for a lengthened period against a damp wall. Of course, when in this state it is difficult, or impossible, to obtain satisfactory reproductions, and we have had inquiries from time to time as to the means by which the stains can be removed or the print restored. The advice usually given has been that the work of restoration should be handed over to one who is an expert in restoring paintings and engravings. This advice we again repeat, particularly when the engraving is a valuable one, as it may be utterly spoilt in the hands of a novice. Nevertheless, we will here give a few of the methods employed in restoring engravings. In the first place, it may be explained that many of the plate papers on which engravings are printed are very much like blotting-paper when they are saturated with water, and are almost as tender to handle. It may also be mentioned that when the impression is on an India paper, the print will probably come away from the plate paper during the operations, because it is not really cemented to it; and when it is off it is equally as tender to deal with as the plate paper.

Before, however, saying anything with reference to the methods of bleaching prints we may mention that in some instances a great deal may be done in the way of cleaning without wetting the print at all. We are speaking of mere surface dirt. In this case the print is carefully dusted with a brush, and is then rubbed over lightly with a piece of the crumb of stale bread, or a piece of clean india-rubber. Care must be taken to remove all dust before using the bread or rubber, otherwise the dust will be rubbed into the paper, and perhaps make matters worse.

than they were before. In using either the rubber or the bread, it should be applied lightly, so as not to raise the fibre of the paper more than can be helped.

As all methods of chemically cleaning prints depend upon the bleaching action of chlorine, it follows that the process has a tendency to soften the paper, hence great care must be taken in handling the print while it is in a wet condition. The following is one method of restoring engravings:—The print is put into a shallow dish and water poured over it until it is thoroughly saturated. The water is then poured off and a much-diluted solution of chloride of lime poured on. The formula for this is:—

Chlorinated lime (bleaching powder)...	1 part.
Distilled water	10 parts.

After trituration shake well in a bottle during three hours, then strain. Of this liquor, one part is added to thirty-nine of water. Usually the stains, unless very bad, will disappear in this preparation in a very short time. If they do not, the undiluted liquor is poured on. If the stains are very obstinate and do not yield, a few drops of very dilute nitro-hydrochloric acid are added. There are no stains that will not succumb to this treatment. As soon as the print is clean, it must be carefully washed with successive changes of water to get rid of the chlorine, for it goes without saying that if any remained it would eventually rot the paper. The print is now placed in a very weak solution of isinglass and dried between blotting-paper. This will strengthen the paper. When dry, the print is ironed with an ordinary laundry-iron with a piece of smooth paper between the iron and the print. This will restore the gloss of the paper.

Another method, which we may quote from "Cooley's Cyclopædia of Practical Recipes," is as follows:—Place the engraving on a smooth board, and cover it with finely powdered and very clean salt. Next squeeze lemon juice upon the salt so as to dissolve a considerable proportion of it. Now elevate one end of the board, so that it may form an angle of 45 or 50 degrees. Next pour on the engraving boiling water from a kettle until all the salt and lemon juice are washed off. The engraving will then be perfectly clean and free from stains. Care must be taken to dry it on the board or on some smooth, flat surface very gradually.

Still another method that has worked well in our hands is, perhaps, a little simpler than either of the above. It has the further advantage that it has somewhat less tendency to rot the paper, and for this reason it may be the better appeal to some. It is as follows:—The print, after being thoroughly dusted to remove any surface dirt, is put into a photographic dish. Water is then poured in so as to completely saturate the paper. After a few minutes' soaking, the water is closely drained off. Next a dilute solution of hypochlorite of soda is poured into the dish, which is then well rocked. The formula for the solution is:—

Chlorinated lime (bleaching powder) ...	4 oz.
Water	60 oz.
Carbonate of soda	8 oz.
Water	20 oz.

The lime should be mixed with the water and well shaken up in a bottle, and after resting a few hours for the sediment to settle down, the clear portion is decanted off. The solution of carbonate of soda is then added, and will precipitate the carbonate of lime formed, leaving the hypochlorite of soda in solution. This latter is then filtered for use. One part of this solution is diluted with three or four parts of water. At this strength the stains, unless very bad, will disappear within a short time. If they

do not, more of the stock solution must be added, and in very bad cases it may be used without dilution. If they do not then go, a little of a solution of oxalic acid may be added, but that is seldom required. The print must then be well washed. As just said, no trace of the chlorine must be left in the paper. If the paper is too tender to bear much washing, a very dilute solution of hyposulphite of soda may be used as an anti-chlor., the print being afterwards rinsed in one or two changes of water. The print is then dried between sheets of clean blotting-paper under pressure to keep it flat.

If the impression itself is on India paper, it will probably have become detached, in which case it must be remounted on the plate paper. This may be done with flour or starch paste, and the prints, when dry, should be rolled or hot-pressed to restore the gloss of the paper. Frequently print restorers mount the restored print on cardboard, and then roll them. After an engraving has been bleached it will be very white, and have lost the slight yellow tint that it had acquired by age—the mellowness so much admired by connoisseurs. When this is the case, it can to an extent be restored by immersing the picture in a weak infusion of coffee, though we hardly imagine that the treatment will be approved by an expert in old prints.

In the case of an engraving damaged by grease stains the latter are not removed by the methods of bleaching above described. They should be got rid of beforehand so that the bleaching agent has free and even action. This is not always an easy matter. Benzole is, perhaps, the best thing to use. The stain is moistened with the benzole, which, after a minute or two's soaking, is blotted off with clean white blotting-paper. This treatment repeated several times, or until all the grease is entirely removed, which may be judged of by looking through the paper before a strong light.

In the foregoing we have described the methods more generally employed in cleaning or restoring discoloured or stained engravings; but we would, in conclusion, add a word of caution to those who attempt to carry them out for the first time, which is that before doing so they should experiment with some prints of no value until some proficiency has been acquired in the work; otherwise they may, possibly, irretrievably ruin a valuable engraving. Old prints, suitable for the experiments, are often to be met with at second-hand bookstalls for a mere trifle.

PHOTOGRAPHERS AND APPRENTICESHIP.

FROM time to time we receive letters from irate parents with reference to the alleged indifferent training their sons are receiving at the hands of the professional photographer with whom they have been apprenticed. We also receive letters from irate employers regarding the alleged unreasonable attitude of parents of apprentices. The question is one which is frequently burning, and, like everything else, it is a question which has two sides. Nine out of ten of the difficulties arise out of the failure—which is, unfortunately, a very common one—to settle something of the matter from the other person's standpoint. Thus, on the one hand, the youth's parents expect him to be somewhat indulged because he is an apprentice, and not a paid hand; they expect him to have a day off now and then if he wants a holiday, and at the same time they expect him to make rapid progress in learning his business, and to have special facilities for acquiring the higher branches without going through too much of the drudgery of routine. Boys are not drilled and disciplined at school as they were fifty years ago, and if a boy is an

only son he is often in a parlous state for making his way in the world. It would do many modern boys and their parents good to read the indentures of apprenticeship of sixty or eighty years ago.

On the other hand, the master is usually ready to jump at the chance of getting some cheap labour, and the lump sum down in the shape of a premium is too often an inducement to accept a lad whom his perception tells him is quite unsuitable. In some cases it is to be feared the small premium appears so desirable that it and the apprentice are accepted without any definite thought being given to the fact that a certain amount of work must be done in training the youth, and that the sum fixed is a quite inadequate recompense.

There are two difficulties standing in the way of securing adequate sums as premiums with apprentices. The first is that most people believe that there is nothing to learn in photography. Some young schoolgirl that they know has bought a film camera and has taken some quite beautiful portraits with it, and they hastily assume that what can be done once can be done every time. The professional photographer, in fact, has a grievance against the dealers, manufacturers, and amateur journals, who all set out to prove to the beginner and his or her friends that "it is quite simple." We know it is simple up to a certain point, but the professional who would earn his living by the work must get far beyond that point.

The second difficulty is that the prospects which photography has to offer are not sufficiently good to tempt into the ranks many of the better educated lads, the sons of parents who can afford to pay for adequate training. It would indeed appear that the day of apprenticeship with an adequate premium has gone by, never to return. The fact must be faced, and if apprentices are wanted, boys will have to be taken who will work, and work hard, accepting moderate wages by way of return for their training. By working hard we do not mean working for long hours, and that, unfortunately, is too often the employer's idea of hard work. From 9 to 6 or from 8 to 5 is a day quite long enough for a boy of sixteen or seventeen, with, of course, one half holiday a week. The dinner hour should be from 12 to 1 or from 1 to 2, and the half holiday should commence with the dinner hour and be a full half holiday.

Obviously, when the basis of apprenticeship is such, the

youth cannot expect much definite instruction, though we think he should be taught something more than the printing of P.O.P. or bromide postcards. But at this juncture the technical schools come to the aid of both employer and apprentice. In London and in many of the large towns evening classes are held for workers in the photographic trades, and we have reason to know are highly appreciated by those who have availed themselves of their aid. Such classes are advertised from time to time in our columns, and at this season of the year the various winter sessions are just commencing. It rests with the apprentice to avail himself of the opportunities provided for him; but we take this occasion to urge upon the employer the necessity for his co-operation. Many lads are kept working for much longer hours than those we have mentioned above. While we know that in rushes of business it is sometimes necessary for a little overtime to be worked, we would urge that employers might acquaint themselves with the evenings on which their apprentices—and assistants also—are attending classes, and see that as far as possible they leave business in time to get a comfortable meal and to their class in time and without undue hurry. A little consideration will generally be appreciated, and will have the effect of making the class more helpful to the worker and indirectly of improving the quality and quantity of output.

Some employers, we fear, hold the somewhat narrow view that improvement means sooner or later a demand for increased pay, and so discourage effort. But if a youth is worth his salt he is bound to improve. The point too often lost sight of is that the master's work improves as the employee's ability increases.

A further step in technical instruction is now being taken, for we notice in the current prospectus of the Polytechnic School of Photography, Regent Street, W., that arrangements can be made for apprentices and other assistants to attend the day classes for half a day a week, and it is very justly pointed out by Mr. Howard Farmer that the improvement in their work resulting from systematic instruction will be very marked. Undoubtedly technical instruction supplements in a very satisfactory way ordinary workshop practice, and hand-in-hand the two should be productive of the best type of assistant. We may hope that assistants anxious to take advantage of this instruction will have the help of their employers, who, as we have said, have equally to gain.

THE COUPON SYSTEM AS APPLIED TO PROFESSIONAL PHOTOGRAPHY.

THE coupon or agent system as applied to professional photography is so universally practised nowadays—here* as elsewhere—that the man who owns a skylight is hardly to be found who has not at least a nodding acquaintance of the principles which go to make up this signally modern method of creating trade. Yet how few of us, of even those of us who practise the method systematically, realise the power, for good and ill, they control! Their knowledge is frequently bounded by the condition of their bank-book; the "proof of the pudding," they will tell you, "is in the eating," but although the proverb conveniently ends with the allusion to mastication, the true analogy carries as far as the digestion and general health of the body photographic. No food is proper that necessitates either a violent gnashing of teeth or its assimilation, or results in an unpleasant after-taste. Non hic piscis omnium," this being so, some inquiry into the conditions which the system encourages, or is liable to induce, may bring home to many of us the danger of a practice so easily, so frequently, and so unworthily abused.

The ticket system of business is certainly one into which almost

any amount of double-dealing can be introduced; but it is also true that, conducted properly and responsibly, it has proved itself a boon alike to photographer and customer. But the method, taken as a whole, is one of wheels within wheels, and is complicated with every conceivable variation of the relations existing between photographer, agent, and client. Nor is this quite all, since the stress is not only along the direct line of business, but also laterally through every channel of reception-room substitution and bluff, of misrepresentation and invention on the part of the agent, and on the part of the client of a desire that calls for more than is reasonably legitimate, or of the spirit that prompts the possibility of getting something for nothing. The fraud may be introduced at any point, but the fraud that starts from the studio is rarer than that promulgated by the agent. We know this. But what many of us do not know, and may never know, is "what the agent told the customer."

At the outset it must be clearly understood that the agent system is suitable only for the gallery that wants business. This sounds like a truism; but although the natural assumption is that every studio wants business, or more business, not every

* British Columbia.

studio will accept business at the price entailed by the agent system. So much fraud has been perpetrated in its name that in many quarters the fact that a certain studio was putting out coupons would be quite sufficient to deter a visit to that studio, with or without a coupon. And this is apt to be the case precisely among that class of customer, the great well-to-do middle-class, it is most desirable to attract. The very best people, on the other hand—and who, by the way, are by no means the very best payers—are quite unapproachable by the ordinary house-to-house canvasser; consequently, the gallery they would be likely to patronise may be ruled out of the expediency of such a system by the impossibility of practising it. The servant who opens the door, however, is a real possibility, and probably a far better payer than the mistress who summons him or her by pressing an electric button. Also, the class of business canvassed is generally a cheap one, or one that appears cheap. There are oral as well as optical illusions (of which more anon) practised by the ticket man which not a studio, high or low, in the five continents, is not at times compelled to resort to in the way of business. The receptionist must dance to the tune of the customer, whose demands, if unconscionable and extortionate, must be met with weapons in kind, wielded, of course, with the most polished and diplomatic skill. As long as legitimate bounds are not overstepped no exception can be taken to this. The good receptionist knows these bounds, and will not overstep them. What these bounds are will be more or less succinctly defined by the proprietor of the studio himself, and these bounds will not be overstepped by the employees except at the price of dismissal. But that which binds the hired receptionist and operator does not bind the canvasser for business. His employment is of a different nature. He has neither salary nor supervision, in the ordinary way, nor prestige for curb. His remuneration is made up by his collections; he is out to sell tickets, and, if he chooses, at anyone's cost but his own. And because his responsibility is largely nil, an unscrupulous agent carries with him to every house the good name of your firm, which is less to him than the quarter (*anglice*, shilling) it is his prime object to entice from the pocket of the prospective customer, to whom you, as proprietor of the studio mentioned, will finally have to answer for every phrase which may or may not have been used to your cost or to your advantage.

It may be urged that the agent should not be allowed to collect his salary, that he should be paid a weekly or monthly wage, or be on commission. But hardly any competent agent will accept a commission payable on completion of orders. Also, by the usual system the photographer is not necessarily out of pocket in the event of laziness or sickness. It has also been shown in practice that people who come lightly by coupons rarely, if ever, use them. Gratis coupons offering special terms by paid agents are a failure. The whole virtue of the system is to induce the prospective customer to part with a piece of money he or she will not willingly forgo the value of. If her payment means anything, it means that she wants photographs. Other things equal, that is all the reputable photographer wants; the agent is welcome to the quarter. So it remains for you to employ only agents who will not misrepresent you. This is even more important than that the wording of the coupon the agent carries should be clear and generous. Most purchasers of coupons have neither the time to read, nor the capacity on the spur of the moment to grasp the meaning of the ticket they accept from the agent. No wording unaccompanied by talk will sell a ticket; on the contrary, a clever agent will sell any sort of ticket. Talk sells, money talks. Therefore the agent must be well selected, for he holds you in the hollow of his hand.

Speaking in this way, and arriving in the course of conversation at the above conclusions, I ventured to put the question to a brother:

"Is the agent system really worth the risk?" The reply came quick:

"No, but there must be no risk."

"How do you insure that?" I asked. My American friend smiled all over his shrewd face, and merely remarked that he supposed he had been lucky.

But there is one bond which may bind the agent and photographer, a slender one, but where it exists it is effectual. The agent, after all, has to make a living; he can do his best by working in with photographers in general, and the only recommendations of any value he can carry are letters proclaiming that his services have been faithful and are consequently in demand. It is needless to say that, failing your own inquiries, your own business acumen must inform you on the question of forgery. There is nothing more than this to be said on the choice of a suitable agent. It is "up to" you.

Agents fall conveniently into two classes, those who are out to sell tickets for their own benefit only, and those who will sell as much for the benefit of the studio as for themselves. It is clear that, as their remuneration is dependent on their sale of tickets, to sell with discrimination implies loss of hard cash, to no possible end except their own pecuniary impoverishment and the good opinion of the proprietor of the gallery for whom they are working. It follows also that this latter class is a *rara avis*, and only exists at all owing to its habit of working for the same studios frequently and often at regular intervals. No agent of this class is ever out of work except by choice.

As a matter of fact, not one agent in a thousand sells tickets "on the straight." As talk is his business, trickery enters largely into it. It is so easy to twist a phrase sufficiently to sell a ticket, and leave the studio-man to settle the matter later—by twisting another phrase. Are they not both after the dollars, and has not the photographer more to gain than the agent? Should he not have his share of the talk? The very best agent I ever employed declared that he would not sell a ticket which rendered talk in the studio unnecessary. His reasons were obscure and selfish. He was out to sell tickets, it was not his business to carry reception-room talk afield, and so forth. He also confessed that, after a bad day, he would sell tickets "any old way," to get his fare back or pay an hotel bill. In other words, he would mortgage your good name at the first obstacle in his way rather than suffer any personal inconvenience, deserved or otherwise.

To the making of offers there is no end, but, in spite of this coupons, and the terms they propound, like agents, fall conveniently into two classes, namely, those that cheapen the work of the studio, and those that do not. The following is an instance of a ticket that cheapens:—

TICKET A

GREAT ADVERTISING OFFER
BY THE
REMBRANDT STUDIOS
(ADDRESS).

IN order to introduce to our numerous Patrons the Latest and Most Charming Parisian Style of Portraiture in Photography, we are now offering these Exquisitely Designed Vignettes at a price now within the reach of all. A glance at our specimens will convince that this is

THE GREATEST OFFER EVER ATTEMPTED

consistent with first-class work by any artist, no matter where located,

REGULAR \$6.00 LORD STRATHCONA CABINETS FOR ONLY \$1.75.

By paying my representative 50c., for which this contract is a receipt, and the balance of

ONLY \$1.25 AT STUDIO

we will make the holder hereof

SIX

of our High-grade EMPRESS PHOTOS, same as sample shown by advertiser. Accept our offer, and we will surely do your pictures in future.

No contract sold at Studio. Groups and copies extra.	PRIVILEGE OF EXTENSION ON APPLICATION TO STUDIO ONLY	Good for Ninety Days from Date,1909.
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And here is the script of another ticket which does not cheapen:—

TICKET B.

THE
GRANVILLE GALLERY OF PHOTOGRAPHY.
(Address.)

NO CONTRACT SOLD AT STUDIO.	PRICE 50 CENTS. Only 100 of these Certificates Issued.	GROUPS AND COPIES EXTRA.
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Good for Thirty Days from date of Sale 1909
Extension of time on application at Studio.

That we may become thoroughly acquainted, and place a sample of our very best work in your home, we are making this
SPECIAL SPRING OFFER.
Do not miss this exceptional opportunity.
It can never be repeated.
TWO OF OUR BEAUTIFUL LEIGHTON ALLIGATOR AND SPIDER-WEB TISSUED FOLDERS

FREE.	Ordinary Price \$15.00 per doz.	FREE.
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We make this exceptionally handsome and limited offer for the simple reason previously stated, and trust that no one will allow this privilege to pass by as **ONLY ONE CALL WILL BE MADE.**

N.B.—If customer desires full dozen we will make the balance of ten pictures for half price, viz:—\$7.50

PAY OUR REPRESENTATIVE 50 CENTS ONLY.
ONLY ONE TICKET ACCEPTED FROM EACH PERSON.

This Certificate also entitles the holder to a similar reduction on all other high-grade work as shown at Studio.
(Appointments only.)

Now, practically every person solicited by the agent knows perfectly well that neither is the agent out for his health, nor is the photographer a public-minded philanthropist. The assumption is that an increase of business such as these, or any similar sort of ticket, will induce, is going to pay the photographer to do a special line of his work at apparently starvation prices. So what is the trick behind the ticket?

That is the attitude of the generality of customers. In the way of business every coupon put out—such is their unenviable reputation nowadays—is suspect. But it is also a fact that every coupon put out that is a “seller” must be clearly and generously worded. If the terms were strictly adhered to on both sides—that is, if all classes were more than human—no cause for complaint could possibly arise. But it is so easy to juggle the straightest-looking ticket that, provided the customer does not find it out, it is prevalently supposed to be business to ignore the verities.

The mildest instance I can think of in this connection is to mount postcards in substitution for cabinets. There is hardly a client who would believe he had not been cheated “up to the eyes” if the print ever became detached from the mount and so betrayed its character. The customer would be wrong and right at the same time. He would be wrong, as it would be easy to prove that the value of the picture was not in the stock but in the work, where, in fact, it should be. He would be right, because the photographer is not justified in providing his customer with an article which certain circumstances, however unforeseen, would have the effect, however erroneously, of cheapening. At best it would be a fine point to argue, and “there’s the rub.” No business man argues. Argument causes friction, and no known amount of iodide will compensate for friction in the reception room.

This is the obverse of the medal. The reverse is easily illustrated by means of a brief analysis of the two fictitious tickets referred to above.

L. HAWES.

(To be continued.)

SOME PRACTICAL NOTES ABOUT OLD LENSES.

I HAVE noticed of late that many replies have been given in the “Answers to Correspondents column” as to the value of some one or other old form of photographic lens. Frequently the old lenses, with regard to which the questions were put, may really be very good and useful instruments from a practical point of view, although, as has been often remarked, they have little or no market value at the present time. Many people nowadays seem to be under the impression that unless a lens is of the very latest construction—say an anastigmat—it is of little or no use. But if we look back to the time anterior to their introduction we shall see that pictures were taken with the lenses then in use that are every whit as good—whether landscapes, portraits, or anything else—as any taken at the present time.

Old Landscape Lenses.

As one who is quite familiar with all the older forms of lenses a few practical notes on the subject may be of interest to those who may have some of the earlier ones in their possession, or may, possibly, become purchasers of them, for they are often to be met with for a very small figure. For example, a friend of mine, a year or two ago, bought an old “A Ross” landscape lens of about 3½in. diameter and 18in. focus, for something under half a sovereign. The mount was very shabby, it is true, but the lens itself was all right. It was probably made in the early fifties. Now there is no lens now made that is so good for pure landscape work as this very early form—it is far superior to the half of a R.R. lens, which is often used for this class of work, inasmuch as it will work with a larger aper-

ture than the latter. The only thing against it is that it is somewhat cumbersome. As issued by the maker the largest aperture is about *f*/15, but if that be opened out to *f*/11—or even a little larger—it will still give fairly good definition, and it then becomes a useful tool for outdoor groups.

An old form of lens that is now and then seen in pawnbrokers’ windows is the orthoscopic, orthographic, or caloscopic. These are practically the same though under different names. This form of lens was introduced by Voigtländer more than fifty years ago, and a useful lens it is to-day for some purposes. It has a fairly flat field and even illumination. Its aperture is about *f*/10 or *f*/12, and with that it gives a sharp image over a tolerably large field. There is one property of the orthoscopic lens which it may be well to mention here: it gives a larger image with less extension of the camera than other lenses inasmuch as the back combination is a dispersive one; in fact, this instrument is a weak telephotographic lens.

The Dallmeyer triplet lens is another instrument that is often to be met with at a low price, and an exceedingly good one it is, particularly for copying purposes. It is also a useful one for such things as outdoor groups and the like. It gives very fine definition over a moderately large field with the full opening, which is about *f*/10, so that it is not a very slow lens, though a little slower than the R.R.

Early Portrait Lenses.

In the above notes I have dealt with the principal forms of lenses that are sometimes to be bought for a small sum. Although they are now looked upon as obsolete ones they are

still very useful things in the hands of the practical photographer. I now come to the portrait lens, to which I have noticed so many queries have applied. It does not follow that because a portrait lens may have been made forty or more years ago that it is not really a useful lens for portraits at the present time, though it may not be equal to those of more modern construction. Many of these old lenses have a chemical focus; indeed, all the earliest ones of Voigtländer were of this type, and most of the early portrait lenses of the Continental makers were more or less exact copies of Voigtländer's. They also do not work to focus. As an instance, I call to mind that some time after the C.D.V. picture became the fashionable portrait, I bought, secondhand, a bi-lens camera of the half-plate size, fitted with a pair of quarter-plate lenses of French make. I tried the apparatus before purchasing by taking some portraits with it, and found the lenses excellent ones. I worked with the apparatus for many months before I found—and then only by accident—that the lenses did not work to focus. Then I discovered that the glass of the focussing screen had been set out of register with the dark slide to the exact distance between the chemical and visual foci of the lenses. This case is merely quoted to show that lenses that do not work to focus may be excellent ones if the necessary allowance be made for that, and when the conditions of work remain the same.

Most of the old portrait lenses that did not work to focus had a scale engraved on the sliding tube of the mount, which showed the distance it had to be racked out after the image had been sharply focussed on the screen. When a lens is seen with such a scale on the mount it may at once be taken for granted that it does not work to focus.

If one comes across one of the old portrait lenses bearing such names as Lerebours et Secretan, Jamin, Maugey, Hermagis, and the like, it may fairly be assumed that they are tolerably good instruments for the time they were made, as these opticians were the leading ones in Paris at that period. Many of the early French lenses bear the names of English dealers,

but they are French all the same. As a rule they are not free from spherical aberration, hence with the full aperture they do not give microscopical definition, and for that reason they are frequently said to possess great "depth of focus," which makes them very useful tools for portraiture. There is, however, one thing against them that it may be as well to refer to; they usually have a much rounder field than have modern portrait lenses, therefore they will not give the head, feet, and centre of a standing figure so sharp as the latter does. This disadvantage, it is true, may, however, to a great extent be remedied by stopping down. Flatness of field, it may be mentioned, was not the desideratum when these early lenses were made that it is now, for until the C.D.V. picture was introduced full-length portraits were seldom taken.

Sometimes if these ancient lenses have a diameter of three and a quarter inches they are advertised as cabinet lenses, but from what has just been said they really are not, and, therefore, should not be classed as such, as they will not take a full-length portrait sharp in all parts without considerable stopping down.

In conclusion, I may say that it does not follow that a theoretically perfect lens is necessarily the best photographic tool. That is evidenced by the patent portrait lens of Dallmeyer. This lens, when in its normal state, is as perfect, theoretically, as it is possible to make a portrait lens of large aperture. But when a certain degree of diffusion of focus—i.e., spherical aberration, is introduced (for doing which there is now a most convenient device) it becomes a more generally useful tool, though theoretically it is a less perfect optical instrument. Although I have said above that many of the early lenses that are often to be met with for a "mere song" may be exceedingly useful ones in practice, I would counsel everyone not to buy one without previously trying the lens for the purposes for which it is to be employed, for there is not the same general uniformity in them that there is in lenses of the present-day construction.

WM. MICHELL.

ON GENERAL AND LOCAL PHOTOGRAPHS IN MUSEUMS.

(A Paper by Sir Martin Conway, M.A., read at the Maidstone Conference of the Museums Association.)

WHY not collect photographs? The question might provoke a retort, why collect anything? But as a matter of experience we know that there are many people who must collect—people who are born collectors, and who for the most part begin by gathering postage stamps. Indeed, a few years ago the postage stamp collector might have been called a type of a class; nowadays, however, people collect all sorts of things, as magazines published in their interest amply demonstrate. They collect buttons, tobacco pipes, the shoes and gloves of celebrities, and so on up to snuff boxes, ancient manuscripts, and, finally, pictures. And in so doing they follow some natural instinct, as deep perhaps as that which leads a dog to bury bones, or a jackdaw to assemble all kinds of miscellaneous objects for no apparent purpose. The instinct of collection being then admitted as part of the natural equipment of many persons, it is evident that it may be either usefully or uselessly employed. But to collect any given kind of object is not a thing that can be undertaken without some sort of apparatus and the co-operation of other people. The reason why so many collect postage stamps is because the apparatus for collecting is so elaborate and so efficient. It is not that the objects themselves are of any special interest that attracts the collector, but it is rather because his hobby, once adopted, forms a link between him and numerous other persons already interested in the matter, and because he finds ready to his hand suitable collecting books and an entire literature devoted to the subject, journals that appear periodically relating to it, catalogues provided by dealers with prices current, auction sales at repeated intervals, and yet more perhaps because his collection, of whatever size or character it may have assumed, always possesses some market value, so that the money

spent upon it is not absolutely thrown away at any time the hobby ceases to attract him.

The Difficulties of the Collector.

But if instead of collecting postage stamps a man were to select, let me say, playing cards, he would find no such assistance prepared for him. He would have to do all the work of collection himself. New cards he could, of course, easily buy, but supposing, for instance, that he wished to represent all the kinds of cards supplied to passengers by the various shipping companies of the world, with the names and devices of the companies on their backs, there is no shop to which he could go to purchase them, there is no list that would enable him at once to discover what companies issued such cards, and what did not; there are no blank books ready printed for him to gum the cards into; there is no periodical publication that would announce to him the appearance of new issues; and, in fact, the whole work of the collection would have to be done by the man in question for himself. Obviously under such conditions the collection would advance slowly, and there would be no means of telling how far it was complete or whether the particular objects it contained were common or rare, whilst the hobby would be a purely personal one, probably shared in by no one else, the cost of making the collection would be relatively large, and the value of the collection when made would be almost nothing. Hence, if the assembling of any kind of object is to be made the purpose of a collector's energies, what he will first desire is, not to stand alone as a collector of that kind of object—he will want to be one of several, one of a sufficiently large clientèle to be worth catering for by some trade organisation

competition must necessarily arise under those conditions, and prices consequently advance, but, nevertheless, each individual collector will profit by the fact that his collection will thus have a value which, if no competition existed, it would not have.

The Interest and Value of Collections.

It will perhaps be admitted that there is a greater intrinsic interest in some kinds of collectable things than in other kinds. The intrinsic interest, for instance, of autographs is certainly greater than that of postage stamps. The intrinsic interest of pictures is greater than that of autographs. Tobacco pipes can scarcely be claimed as very interesting objects in themselves, however much an assembling of them together may result in a certain interest attaching to the collection. I claim that the intrinsic interest of a collection of photographs may obviously be very great. Of course, a collection is not the same thing as a mere multiplication of objects of a certain sort. Five thousand different postage stamps loose in a bag is not a collection of postage stamps; it is only when they are sorted, identified, geographically distributed, chronologically arranged, that they become a collection or are worthy of attention. It is the same thing with photographs. To sweep together five or ten thousand photographs of all sorts and kinds, place them in any order into a set of books with their subjects unidentified, their dates unknown, would not be to collect photographs. The output of photographs at the present day is enormous, and for the most part the prints made in any one year have become scattered and for the most part destroyed in the course of the following decade. The result is that records of priceless value are being lost almost as rapidly as they are made. It is certain, for instance, that photographs were taken of the great herds of bison that not so long ago ranged over the American prairies, but so far as I can discover not one of these photographs is preserved in any of the institutions where one might expect to find it. The herds have disappeared, and nothing but the literary record of them seems to have remained. Again, the great buildings of Paris were no doubt photographed before 1871, in which year many of them were destroyed and others terribly mutilated; yet you may search Paris all over and, as far as I have been able to discover, you will not find any photographs offered for sale representing the façade of Notre Dame and the splendid sculptures upon it in their unutilized condition. The ancient cathedrals of France have suffered a terrible injury of recent years at the hands of so-called restorers. Probably all of them were photographed before their respective restorations, yet it is the photographs of the restored buildings that are offered for sale, and it is almost impossible to obtain copies of negatives made before the restorations. A single individual can do but little in the way of hunting up negatives of past date. I myself spent a couple of days in Perigueux trying to acquire photographs of the church of St. Front before its recent practical rebuilding, but what I could accomplish was the discovery that negatives do, in fact, exist, or recently existed, but that where they were was doubtful, and that the ordinary travelling public was only supplied with photographs of the new building and asked for no other. Now if photographs were systematically collected by any considerable number of people, it would be the business of someone to hunt up such negatives of former days, or at least to find old prints and produce them as well as possible, and he would make a living by so doing. Dealers' catalogues would indicate where such prints might be purchased, and a collector of architectural photographs would find the path smoothed for him. No one, of course, could collect photographs of all sorts and kinds. He would have to select one class of subject and confine himself more or less exclusively to that. Of late years natural history subjects have been photographed with extraordinary success; birds on their nests, tigers in the forests, and wild life generally in its undisturbed surroundings. What could be more interesting than a properly classified collection of such representations of the animal world? What could be more stimulating to a youngster than to begin his collecting career with the images of live animals of all countries and climates, and how much more valuable information he would derive in making such a collection would be than that which is yielded by a collection of postage stamps. Of course, where a boy now obtains thousands of postage stamps, his collection of animal photographs would scarcely number hundreds, and these things are not costly to buy if they are bought as opportunity arises; they can be cut out of magazines sometimes by dozens, and out of the illustrated papers; they are found in the catalogues

of zoological gardens, and they are often purchasable for small sums at the ordinary photographers' shops. As scattered sheets they have little value; but once arranged in an orderly fashion, different kinds of animals properly grouped together, divided from one another, a collection of that sort would immediately derive great interest.

Collections of Various Subjects.

What is true of animals is true also of scenery. How many thousands of photographs of modern scenery, for instance, exist? For the most part people buy them as a kind of illustration of their own lives—places they have been in, views they have beheld, mountains they have climbed. But it would be easy and at least interesting to collect types of mountain scenery representative of the material, for instance, of which the mountains are built—granite mountains, sandstone mountains, and the like. Or the mountains of different parts of the world, manifesting the different effects of the climate upon them; of the vegetation they support, and the special phenomena they show. There certainly exists one collector of volcanic views, but I believe he has actually to take all the photographs himself, though probably almost every view he takes had already been taken by someone else if he could know where to go for it. A man might make photographs of desert scenery the subject of a collection if he happened to feel that way inclined, or of the Arctic and Antarctic regions; or views in the city or cities in which he is particularly interested. He might collect photographs connected with any given sport, and if he brought them orderly together and identified each by an explanatory statement, his collection as it increased in numbers would be found interesting by numbers of people not primarily interested in the sport in question.

The nation officially collects the national portraits; possibly there may be some people who make a hobby of the collection of the portraits of the prominent people of their day. For such, indeed, the apparatus does exist provided that they avail themselves of current issues, but if anyone were to begin now and attempt to make a complete collection of the prominent people of the Victorian era he would find the quest an exceedingly difficult one. I suppose photographs of Lord Beaconsfield are still purchasable, but I imagine that it would be a matter of, at all events, some slight difficulty to buy photographs of Lord Palmerston. Yet the day must come when such representations of persons of historic interest will have a definite money value, to put the thing on its lowest plane. And so it will be with the views of buildings that have ceased to exist, of streets that have been rebuilt, and of the vanished past generally. To collect these things is indeed to tend to make them valuable. And, more than that, the collector performs a definitely useful function by saving from destruction objects that would otherwise have perished. How many postage stamps of thirty years ago would be preserved to-day if there had been no postage stamp collectors? The collector is essentially the preserver. If what he collects is of small intrinsic interest, it is unfortunate, but if what he collects has an intrinsic interest, and one that grows as the years pass by, he performs a function of real value in any intelligent society. It is not the case that no one collects photographs at the present time. Multitudes of people buy them, of course, but that is not collecting. Yet some people actually collect; and institutions—especially in the United States—are beginning to pay attention to this important subject. The French Government, rather late in the day perhaps, has made the photographic record of the ancient buildings of France a public undertaking; and there are photographic collections illustrative of French architecture in most of the centres of France where they are likely to have educational value. Far more elaborate are the architectural collections in many of the American Universities, whilst in Germany the matter is even more thoroughly and scientifically taken in hand. The ordinary English private collector—if collector he can be called—confines himself to such photographs as illustrate his own life. If he took care of them and pasted them, as they came into his possession one after another, into a series of books, so that the places he visited and the friends he enjoyed were recorded in the order in which they passed across the field of view of his life, the ultimate assemblage would be extraordinarily interesting; but the fact that he generally buys his photographs, or has them given to him mounted upon cards, and that as a rule he sticks them up on his walls or tables as though they were artistic objects and could perform the functions of pictures, leads to their early destruction or removal to some chaotic receptacle where they get

mixed and jumbled together, and where dirt collects upon them, so that presently they are consigned to the fire as valueless. This, in fact, is an instance of the difference between a collection and an assemblage. Everyone assembles photographs—few people collect them. It is the rarest thing, indeed I do not ever remember to have seen, a collection of photographs chronologically illustrative of a man's life. And how interesting such a collection would be. The first thing it would contain would be a series of photographs of himself from his earliest years down to the present time, each dated and each in its proper place amongst such contemporary photographs of his friends, the places he lived in, the places he visited, as would naturally come into the possession of every one of us. But the last thing an individual keeps is a photograph of himself. No one else can possibly be likely to own a series from childhood to age of photographs of any given individual. The result is that it is the rarest possible thing to find a tolerably complete series of the photographs of anybody in different stages of his life, and such a series would be extremely interesting, entirely apart from any interest we might have in the particular person represented.

A Photographic Record of Art.

The commonest kind of collection of photographs and the least interesting is a series illustrative of a particular journey through the parts of the world ordinarily visited by tourists. The only link that connects them is the person who made the journey, and that is of the feeblest. Views of cities and of scenery acquire an interest only when assembled according to some principle concerned with the things they represent.

Not all subjects lend themselves with equal facility to photography. Some can be reproduced almost perfectly, others lose almost all their charm when seen through the medium of a camera. Wide views of natural scenery are generally of little attraction to persons who have not beheld the prospects themselves. On the other hand a black and white drawing may be reproduced by photography with almost faultless exactitude, so that the photograph possesses almost every quality possessed by the original. Architecture can be better photographed than painted, bas-relief better than sculpture in the round, and so on. In a general way, however, it may be broadly asserted that articles of human manufacture lend themselves more readily to reproduction by photographic processes than do natural objects. If a man has the inclination thereto, he is doubtless best rewarded by collecting photographs of works of art. The field of activity open to him there is of almost boundless dimensions, as those who have attempted to work in it have quickly discovered. It would require a great national institution and the co-operation of a considerable number of specialists and many assistants to bring together and organise a representative collection of all the art of all the world, from the time of prehistoric man down to the present day. I have sometimes amused myself by endeavouring to draw up a scheme for such a museum, and roughly to estimate what the cost of it would be. Perhaps the history of Italian painting in the 14th, 15th, and 16th centuries might be represented with fair completeness by the photographs of some 20,000 pictures. Add to these the drawings of artists of the same period, contemporary sculpture, the buildings erected in Italy at the same time seen from without and from within, the mosaic decorations, the engravings, the goldsmiths' work, the medals and plaquettes, the manuscript miniatures—and it will easily be seen that half a million photographs might be devoted to this one country for these three centuries alone. At least an equal number would be required for the rest of Europe. Oriental art at the same period was prolific and important; so that we may say that the age of the Renaissance alone would require a million photographs properly to record it. If each of these photographs were mounted upon a thin card, 100 of them in a suitable box would measure some 27ins. in thickness; this would mean 10,000 boxes, and they would occupy over 2,000ft. of shelf room. Or if the boxes were built upon five rows of shelves, they would occupy over 400ft. of wall space. The cost of such a collection, if all the photographs were purchasable at the usual rate averaging about one shilling apiece, would be £50,000, and it would cost another £20,000 to mount them. And the shelves to contain them would cost not less than £500. But to arrange any such quantity of photographs would require the assistance of a number of experts. Each photograph would have to be identified and inscribed and placed, which would involve no inconsiderable amount of research

and, at all events, exhaustive reference to current art history literature. Perhaps an expert might arrange an average of fifty photographs a day, which would be 20,000 days' work for the whole collection. A suitable man could not be hired under £300 a year, and certainly could not be expected to work so much as 300 days. So that to put his remuneration at £1 a day is to under-state the cost. We have therefore to add £50,000 to the cost of arrangement. Thus it will be seen that a fairly complete representation of a single period of artistic production would be a very costly affair.

The Need of Assemblage and Classification.

If a single period of three centuries would thus involve so considerable an expense and such large accommodation for a fairly complete collection of representative photographs, it will easily be seen how great an institution would be necessary to accommodate a photographic index to the art of the world. Such an index would naturally include not merely the works of fine art but representatives at all events of whatever product of human handicraft had come down from remote ages. It certainly would not refuse the likenesses of Viking ships or Egyptian utensils, still less the implements of prehistoric man. The collection when complete, with its cross arrangement of geographical distribution in one direction and chronological sequence in the other, would thoroughly represent all formative human activity in every period and in all regions of the earth. No one will deny the utility and importance of such a collection, and it is easy to see how powerful an instrument it would be for the furtherance of research of every historical kind. Some day, let us hope, the sporadic energies of various institutions may be concentrated somewhere to the production of such a collection as this. In the meantime, however, all we can reasonably hope for is that those institutions which do make the collection and preservation of photographs one of their functions, will pay more attention to arrangement and classification than at present they do. Only too frequently photographs of important objects are published as stray illustrations in books, or attain a momentary accessibility in the pages of some magazine which disappears from the market almost as quickly as it appeared. The photographs thus distributed are of little use; it is necessary to bring together those which belong together. To make a list of references to perhaps forty books in which are to be found scattered reproductions of the works of a single individual is of little use. The only thing to be done is ruthlessly to extract plates from the books to which they belong, and to group them all together with references written on each to the work and to the page from which they were taken. Moreover, for an organic collection of this kind, it is essential that, by cutting and folding, all prints be reduced to one maximum size. The work of a single school, still more those of a single individual, must be rigidly grouped together in a single box or series of boxes standing side by side on a row of shelves. In the case of a painter, for instance, let us say Raphael, his pictures and his drawings will need to be chronologically arranged, entirely regardless of size; and the only accessible photograph of a given work is larger than the standard box, it must be cut and folded to go into it in its right place. Otherwise chaos must necessarily follow.

By pursuing this system consistently, there will necessarily come into existence a library of books from which plates have been abstracted which must remain organically attached to the collection of photographs. And this library, as the collection increases will grow to considerable dimensions.

And here let me take occasion to protest against the bad habit which is far too common with publishers of illustrated magazine. This is the careless and unnecessary frequency with which processes of photographs of different objects are printed back to back on the same leaf, so that if you cut one of them out the other is necessarily carried off with it to the same ultimate receptacle. If illustrations were always printed, as for instance in "The Burlington Magazine," on separate leaves and only on one side, they would be far more valuable to the purchaser as being more easily capable of proper classification. Moreover, the text of the articles would remain complete for future reference after the illustrations had been grouped in the index box. Magazine editors in general, indeed, fail to realise the condition to which the multiplication of printed issues has brought students in the present day. There is hardly a subject on which you may not find some article of interest in one of the hundred periodical publications. Few people, as a matter of fact

nowadays bind and keep the whole series of any periodical. And it is folly to suppose that a person interested, let us say, in some natural history subject, will keep on his shelves volumes of periodicals of general interest which may chance to contain one or two articles bearing on his special subject. Most of us now have acquired the habit of tearing magazines to pieces and taking out such pages as may be of permanent interest to us, whilst throwing away the rest. The ideal magazine, therefore, would now consist of a number of separable pamphlets, and though, of course, no magazine could in practice be so printed that by cutting a string the various articles would fall asunder from one another, there is no reason whatever why it should not be the rule with every magazine that all articles should commence on a right-hand page *au recto*, and that if necessary a blank page should be left at the end of any one article so that the next might be similarly commenced on a right-hand page. The blanks thus left would in fact be a saving of expense both in copy and type-setting to the magazine publisher, whilst the utility of the magazine to the buyer would thereby be greatly increased. At present it not unfrequently happens in the ordinary contrariety of things that a man wants to preserve two consecutive articles on different subjects in both of which he is interested; and if he is a methodical person he would have to keep one of them in one place with others on the same subject, and the other in another place. But he will almost invariably find that the end of the first article and the beginning of the second occupy different sides of the same leaf, and that one or the other must of necessity be mutilated when they are divided. This, however, is a digression which does not primarily concern the collector of photographs. For him the great consideration is that two illustrations should not be printed back to back.

The Trials of the Private Collector.

It will probably be a long time before any great public institution of the kind I have been outlining is actually formed. Needless to say, Governments will not be moved to spend money for such an object, whilst the private wealthy donor does not care to give money for an institution of a novel sort. Museums full of objects of great intrinsic value appeal to the pocket of wealthy men; they will give money to universities, laboratories, and even to libraries, but I doubt whether any millionaire would be attracted to spending his millions upon the purchase of such an apparently valueless object as photographs. Few museums of sculpture are so interesting as would be a great collection of casts of all the important sculptures in all the world. Yet, with the exception of the cast collection in the Trocadero in Paris, which is devoted almost entirely to mediæval and Renaissance French sculpture, there does not exist anywhere in the world a really great collection of casts. One might have thought that to form and house such a collection would appeal to the generosity of some man of great wealth, but it has never done so. Small illustrative historical collections of casts have been made by different educational institutions, but there is no really great collection anywhere in the world. To house it would require a building

at least as large as the Crystal Palace. One wonders sometimes what better use for the Crystal Palace itself could be found than to contain the finest collection of casts that could be brought together. But if casts do not in fact appeal to the millionaire, how much less likely is it that he will be appealed to by photographs. Not till the small private collectors increase in numbers and make their purchasing power felt will the necessary organisation be created to make photograph collecting relatively easy and safe. When it is certain that at least 200 copies of a photograph will be sold, it is possible to print it at once cheaply and in a permanent form; but when only here and there a purchaser may be hoped for at intervals of a series of years to buy copies of some particular photograph, it does not pay the photographer to print it by any except the ordinary relatively perishable processes. Nowadays you can buy readily enough reproductions of the principal pictures and other important objects in the galleries and museums of Europe. But the moment you desire to obtain representations of minor objects or of important objects in private collections, your difficulties as a collector begin. I have recently been endeavouring to make a complete collection of reproductions of the works of Albert Dürer. The first steps are easy enough. One can buy the four great volumes of Dr. Lippman's reproductions of his drawings; the five or six portfolios of photographs of his paintings published by some Nuremberg firm; Amand Durand's reproductions of all his engravings, and other easily accessible reproductions of his four books of woodcuts. But these together by no means complete the list of his known works. There are a few other paintings, one for instance at Odessa, which I believe has never been photographed at all, and one or two more scattered about the world. More important are the drawings not covered by Dr. Lippman's publication and the stray woodcut sheets not included in the four books. Some of these drawings and woodcuts can be obtained by buying the Dürer Society's publications, but the purchaser of them will find himself immediately loaded up with duplicates of many prints, woodcuts, drawings and pictures of which he already possesses reproductions. If he subscribes to the many series of reproductions of drawings in the different galleries such as the British Museum, Berlin Museum, Munich, etc., which have been and are being issued at frequent intervals, he will again obtain a further set of duplicates. And the more persistent his efforts to complete the works of some one individual artist, the more numerous will become the duplicates and triplicates that pour in upon him.

Now if the collector of photographs were as well catered for as is the collector of postage stamps, he would have opportunities provided for him for the exchange of such duplicates, which no doubt would be gladly acquired by some collector at work elsewhere. At present he has no means of obtaining anything for them, while they grow to represent a very considerable fraction of the whole expense of his collection. In my own case, for example, the duplicates that have poured in upon me begin to be counted probably by thousands, and not one of them has been intentionally purchased.

MARTIN CONWAY.

(To be continued.)

NEW APPARATUS FOR MEASUREMENTS OF GELATINE.

(A Paper in "Photographische Korrespondenz.")

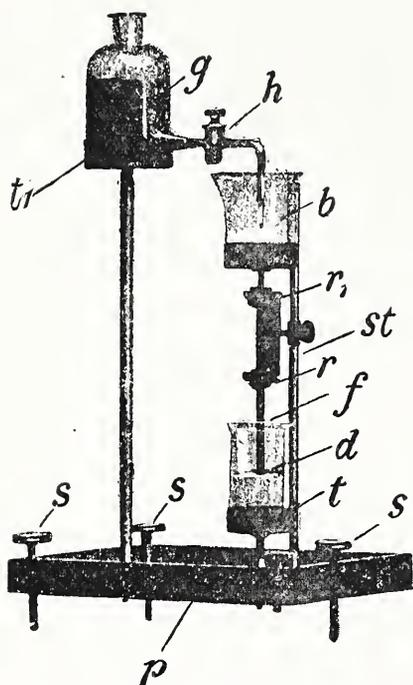
KNOWLEDGE of the physical, as well as of the chemical, properties of gelatine is of importance to the emulsion maker. Among these properties are particularly to be mentioned the degree of absorption of water by the gelatine, as also the melting and solidifying points of the jelly and its degree of solidity or strength. The measurement of the absorptive powers of the gelatine towards water is very simply done by weighing out 10 gms. of gelatine, allowing it to stand twelve hours in water at 60 deg. F., pouring off the water, and, after removal of the water which mechanically adheres, weighing the swollen gelatine. The removal of the adhering water is best done by a centrifugal. The swollen gelatine is then made up into a 10 per cent. solution, this being done by placing it in a tared beaker and adding water until the total weight is 100 gms. It is then heated up on a water bath until a solution is obtained. Of this half is employed

for the measurement of the melting and solidifying points, and the other half for ascertaining the solidity.

The determination of the melting point is best done by the method used by J. J. Pohl for fats. A small particle of the jelly is caused to adhere to the side of the bulb of a thermometer graduated into $\frac{1}{2}$ -degrees, which is hung vertically in a glass tube. The latter is heated in an air bath until the jelly melts and collects as drops on the lowest point of the thermometer bulb. For ascertaining the solidifying point the thermometer is placed horizontally and turned on its axis until the drops of solution no longer keep on the lowest point of the bulb, but begin to be carried round. The solidifying point may also be taken by melting about 50 gms. of the jelly in a small beaker on the water bath, placing the beaker in cold water, and stirring round with a thermometer until solidification commences.

For ascertaining the viscosity, the process recommended by Lipowitz is used. This consists in ascertaining the load which it is necessary to apply in order to force a stamp into the solidified gelatine. For this purpose the writer has employed a simple form of

apparatus in which a stamp of shape  is attached to a rod communicating above with a funnel. The stamp is allowed to rest on the surface of a jelly contained in a small beaker, and small shot



allowed to enter the funnel until rupture of the jelly takes place. This apparatus gives, with one and the same gelatine, very notably different results, a fact which led me to seek the cause of error. As I noticed that the friction of the rod used in Lipowitz's apparatus caused a variation in the results I made this rod of square section, and substituted for the bag connection two pairs of rollers with their axes at right angles and resting on two opposite surfaces of the conducting rod. In this way the friction was reduced to practically nothing as long as the rod remained normal to the surface of the jelly, and whilst the load was uniformly distributed in the funnel. It is not easy, however, in adding a shot to secure this latter condition, and I therefore substituted for the shot ordinary mercury, which was delivered into the funnel by the bottle and tap shown in the drawing. The whole apparatus, which is made by the firm of W. Rohrbeck, 59, Kärtner Strasse, Vienna, consists of a solid iron plate, provided with raised edges and placed horizontally by means of the set groove, *s*. On this plate is a small movable table, *t*, which serves to hold the beaker containing the jelly to be measured. The stamping rod, *d*, is made in a solid piece with the conducting rod, *f*. This latter is provided with a frictionless extension by means of the two pairs of rollers, *r* and *r*, which are fixed to the upright rod, *s* *t*. The mercury is contained in the reservoir, *g*, and is allowed to enter the funnel by the tap, *h*, in a stream of any desired fineness. For use the apparatus is levelled and the jelly first liquefied on the water bath and then poured into the beaker to a depth of about 4 to 5 cm., requiring about 50 gms., and here it is left for 12 to 24 hours at ordinary temperature. It is then brought to a temperature of 60 deg. F. in a water bath placed on the table, *t*, and the stamping rod brought over the central point of its surface. By opening the tap, *h*, a very thin stream of mercury is allowed to enter the funnel, *b*, the flow of mercury being cut off the moment the end of the rod effects disruption of the jelly. The weight of the rod, etc., is ascertained once and for all, and it is therefore only necessary for each experiment to ascertain the weight of the mercury in order to have the total weight acting on the jelly. To save measuring the mercury the latter may be run into a tube graduated into ccs., and the film multiplied by the specific gravity—namely, 13.56: correctly

used the apparatus gives results in exact concordance. The numbers obtained in this way for different descriptions of gelatine exhibit a considerable range. Good examples of hard emulsion gelatine have a solidity number of from 800 to 1,500 gms. The degree of absorption of water in the gelatines which I have examined amounted to, at least, five times the weight of the gelatine employed.

E. VALENTA.

Photo-Mechanical Notes.

Dragon's Blood.

We have received from the Star Engravers' Supply Company, of New York, a sample of dragon's blood and circulars relating thereto, in which it is claimed that the dragon's blood is 99.9 per cent. pure. This ranks it with the very finest of fine chemicals, and, whatever the demands of the etcher are, we should not have imagined them to be so exacting as that. There is also a claim that with such a blood the etching will be straight down, whereas with impure powders the etching is terraced or "shouldered." Well, all the writer can say is, that he has etched hundreds of plates with all sorts of powders, none of them of 99.9 per cent. purity, and yet he has succeeded in getting straight-down edges to his lines with all of them, the fact being that the bad shoulder is entirely a question of the way the work is done, and could quite easily be obtained with the pure blood. In England, too, great pains have been taken to purify the blood, but for some reason or other the etchers have not been so successful with it as with the commoner sorts; not but what it is desirable to have a standard article and not have powders which are constantly varying as, the circular rightly states, they do now. The point whether it is most advantageous to have the utmost purity or whether some dilution is not actually better, is not yet settled. In the meantime, the efforts of the Star Engravers' Supply Company to supply a definite article regularly deserve recognition, even if all their claims about it are a little doubtful.

Standard Rubber.

The same company also market a pure and easily soluble rubber for use by photo-engravers to make stripping solution and rubber substratum. Again, a material has been chosen that badly wanted standardising, as every engraver knows to his cost, and if the Star Company have succeeded in this we can only hope they have English agents for their rubber.

Lenses for Colour Work.

Our American correspondent also asks us about this, and in reply we can only state, as we have frequently done before, that most good lenses are quite suitable for three-colour work. If he wants to know the lens that is most favoured by the houses in Europe doing the greatest amount of colour reproduction, it is the Zeiss Apochromatic Tessar. He must not forget that, however good the lens is, its performance will be spoiled unless the filter used in connection with it is also first-class.

Gum Grain for Photo-Engraved Plates.

ACCORDING to a recent patent specification, No. 17,480, 1908, drawn up by R. and R. D. Bain, of 126, Queen's Gate, South Kensington London, S.W., a grain is produced on a photo-engraved plate by means of a vegetable gum containing the substance bassorin, and rendered sensitive to light by means of a bichromate salt.

This film, or coating, which is sensitive to light, is composed of bichromate of ammonia, bicarbonate of ammonia, chrome alum, fish glue, gum arabic, and any vegetable gum containing bassorin such as is contained in gums pertaining to genus *astragalus*, or any other gum containing amyloidal substances or starch or similar compounds, such as cerasin, arabin, tragacanthin or pectin, having an indifferent chemical nature and capable of swelling in water, being more or less soluble in the same. For example, a solution made of gum arabic oxydised with (about 1 per cent.) chrome alum, 20 per cent.; fish glue, 20 per cent.; vegetable gum, containing bassorin

per cent.; bichromate of ammonia, neutralised with (2½ per cent.) carbonate of ammonia, 40 per cent., gives very practical results.

The temperature and concentration of the ingredients of the film coating being primary factors in the achievement of the results desired, care should be taken during the preparation of the solution that the temperature is not less than 105 deg. F. or more than 140 deg. F.

The coating, in liquid form, is placed upon a metal surface, or any other suitable material capable of being etched.

As soon as the plate or other object to be etched has been properly dried, it is (without further treatment, except lining and backing by known means) ready to be used for printing.

The original is photographed without the use of a half-tone screen, any screen, and the negative or positive, as the case may be, is printed direct upon the prepared plate. It is not necessary, after the copy is taken upon the plate, to prepare such plate or other object for the etching bath by any further treatment, except backing and lining with shellac varnish or the like by known means.

Electric Light and Eyesight.

In a recent number of "Process Work" a question was asked as to how to avoid the agonising pain caused by looking at the arc lights, and several correspondents have given their advice. Most are of opinion it is caused by the ultra-violet light, but only one recommends the use of glasses which absorb this light. M. Calmels, of Paris, has just put on the market yellow glasses for this purpose, which absorb all the ultra-violet. It is certain that blue glasses, which are often advised, are not of much use, but it is doubtful if the damage is not caused by the intense brilliancy of the light, as well as by the ultra-violet. Thus the correct glasses would seem to be smoked yellow, the colour to absorb the ultra-violet and the yellow to reduce the intensity of the light. This view is borne out by the experience of Dr. Cook on his journey to the North Pole, as the following quotation from his narrative in the "New York Herald" shows:—"Though the heat of the sun was barely felt, its rays began to pierce the eye with painful effects. The bright light reflected from the spotless surface of storm-driven snows could not be endured even by the Eskimos without some protection. Amber-coloured goggles, which we had made at Annotok from the glass of the photographic supplies, now proved a priceless discovery. They effectually removed one of the greatest torments of Arctic travel. Darkened or smoky glasses, blue glasses, and ordinary automobile goggles had all been tried with indifferent results."

Collotype.

There is probably more work, and that of a higher quality, done by this beautiful process than ever. We have recently seen some collotypes, which were so rich and well printed, and of such an extremely fine grain, as to be almost indistinguishable from carbon prints. There are also the fine coloured collotypes which are becoming more frequent in the print sellers' windows, and colour collotype is now being used for book illustration, as in the "Florence" series published by Messrs. Chatto and Windus. It is a pity that most of the best of this work is done abroad, though we have seen some fine coloured collotype done here for the British Museum which could not be better.

It is true that collotype is an uncertain process, because gelatine enters into it, but then gelatine is probably an equal source of annoyance to dry-plate makers, yet English dry-plates are the best in the world. The reason probably is that dry-plate makers have standardised their conditions, while collotype printers are apt to let things take their chance and simply bewail the climate. Many of the conditions could be standardised. For example, electric light might always be used for the exposure, as it is in nearly all other branches of reproduction work, including the "photography by the mile." Houses doing this find it pays them better to do ordinary copying with electric light rather than daylight. This plan would probably need some alteration of the formula for the coating mixture, the amount of bichromate used for daylight being excessive for printing by the enclosed arc; but a few experiments would easily determine the correct proportion to get exactly the right effect of contrast with the light, and thenceforth there should be no difficulty in exposure. The plates themselves ought to be baked at a standard temperature, and how many collotype ovens are fitted with an automatic heat

regulator. Not one that we know; yet surely this should be the simplest attachment to a gas supply. Though the printing machines appear to be as good as can be wished, and there is no complaint of the skill of the printers, it is in printing the edition that the greatest waste occurs, a defect for which our climate is held responsible, and earns the deepest anathemas. But why does not the collotype printer make his own atmosphere for the printing-room? When he has determined the exact amount of moisture necessary to enable the plates to be printed with ease, would it not be possible to instruct a ventilating engineer to arrange some method of forcing air of exactly this degree of warmth and moisture into the printing-room, and no other, drawing it off as frequently as may be necessary and supplying fresh? If these details were attended to, and the process standardised in other ways, there should be no more difficulty with collotype than with any other process, and an English firm should be able to do collotype prints for less money and in less time than the foreign competitor.

PHOTO-MECHANICAL PATENTS.

The following patent has been applied for:—

REPRODUCING DRAWINGS.—No. 22,417. Improvements in the process of reproducing drawings by line, zincography, or photo-etching, photo-lithography, or similar processes. John Wellesley Ross, 173, Fleet Street, London.

Exhibitions.

PHOTOGRAPHS BY MR. G. L. A. BLAIR.

THE Glasgow Photographic Art Circle exists for the express purpose of promoting photography as an art; that is the end and object of its being. There are those, a rapidly decreasing number, who would have us believe that the profession and art of photography are wide as the poles asunder, but this Art Circle is a standing contradiction of such a doctrine. Perhaps its principal propaganda whereby it makes known to the public the presence of art in photography is in its one-man shows. These naturally are the product of its more prominent workers. It is notable that both one-man shows promoted by the circle should be the work of professionals. Last year's was the work of Mr. J. M. Whitehead, of Alva. This year Mr. Geo. L. A. Blair supplies the exhibits. In this connection it occurs to us that the Edinburgh society have also shown activity in the way of one-man shows. Last year they had Mr. Wm. Crooke and Mr. J. Craig-Annan, and this year they are to have the work of Mr. F. P. Moffat—professionals all.

But to our subject. The exhibition under review is housed in the rooms of the Glasgow Southern Photographic Association, 169, Eglinton Street, Glasgow. It is tastefully displayed in panels around the walls, while a welcome touch of colour is given by the flower-laden table in the centre of the room.

The exhibition consists of forty pictures, many of them well known, such as "Lead, Kindly Light," the most discussed picture at the Scottish Salon at Paisley; "February"; "While London Sleeps," a very popular night picture of the Embankment; an effective portrait of "J. M. Whitehead," and a fine series of Dutch pictures.

The new picture that is the subject of discussion is "The Sun Worshipper." Here "G. L. A." wanders into the ideal, as he did in "Lead, Kindly Light." The picture represents an early Briton paying his devotions to the rising sun. The conception is frankly idealistic, and, as many photographers hold the realm of the ideal is forbidden ground for the man behind the camera, much argument has been spent on this subject, and it is safe to prophesy that it will form a never-ending theme of debate: in fact, the echoes of the discussions on "Lead, Kindly Light" (exhibited three years ago) have not yet died away.

"Twilight" represents a "gaslight" view of a city's square. "The Rowan Tree" is also new, but rather disappointing. "Winter" carries out its title well. While no doubt the exhibition would have been strengthened by the exclusion of some of the pictures, still it

is telling proof of the art tendencies of one of our younger professionals.

At the opening there was quite a gathering of the prominent photographers in the West, who criticised the exhibits with all heartiness and praised and blamed with delightful impartiality. Another point that falls to be noted was that on the opening night ten pictures were sold—ten out of a total of forty. Twenty-five per cent. of an exhibition sold on the opening day should surely constitute a record.

FORTHCOMING EXHIBITIONS.

- September 10 to October 23.—The Photographic Salon. Sec. Reginald Craigie, 5A, Pall Mall East, London, S.W.
 September 23 to October 30.—Royal Photographic Society. Sec. J. McIntosh, 35, Russell Square, London, W.C.
 October 21 to 23.—Rotherham Photographic Society. Secs., H. C. Hemingway, Tooker Road, Rotherham, and F. Sargeant, 17, Aldred Street, Rotherham.
 October 27 to 28.—Watford Camera Club. Entries close October 21. Sec., W. J. Edmonds, 3, The Parade, Watford.
 November 10 to 13.—Hackney Photographic Society. Sec., Walter Selfe, 24, Pembury Road, Clapton, London, N.E.
 November 10 to 13.—Cambridge and District Photographic Club. Entries close October 28. Sec., T. J. Sowdon, Sunny Side, Guest Road, Cambridge.
 November 23 to 26.—Southampton Camera Club. Sec., S. G. Kimber, Oakdene, Highfield, Southampton.
 November 29 to December 2.—Lancaster Photographic Society. Entries close November 20. Sec., Thomas Holt, 4, Parliament Street, Lancaster.
 December 31, 1909, to January 8, 1910.—Wishaw Photographic Association. Entries close December 18. Sec., R. Telfer, 139, Glasgow Road, Wishaw, N.B.
 1910.
 April 5 to 9.—Sheffield Photographic Society. Secs., J. A. George and J. R. Wigfull, 14, Parade Chambers, Sheffield.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following patents have been applied for from September 27 to October 2:—

- CINEMATOGRAPHS.—No. 22,244. New or improved cinematograph or like apparatus and process in the production of pictures. John William Bracewell, 54, Colne Road, Burnley.
 CAMERAS.—No. 22,263. Improvements in and connected with photographic cameras and photographic apparatus. Warren Bodon Smith, 66, College Street, Chelsea, London.
 PLATE-HOLDER.—No. 22,274. Photographic plate or film-holder. Frank Whitney, Birkbeck Bank Chambers, Southampton Buildings, London.
 PRINTING FRAMES.—No. 22,310. Improvements in photographic printing frames. Benjamin Napoleon, 4, South Street, Finsbury, London.
 PRINTING FRAMES.—No. 22,311. Improvements in automatic printing frames. George S. Edwards, 323, High Holborn, London.
 PHOTO-TELEGRAPHY.—No. 22,457. Photo-printing telegraph. Donald Murray, 3, Lombard Court, London.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

- ADJUSTABLE TRIPOD HEAD.—No. 18,995, 1908 (September 10, 1908).
 —The head or plate of the tripod stand is provided with a screwed pin which engages with the internal thread 7, of an attachment, or

socket piece, 5. The socket, 6, of this piece takes a ball, 9, the outer side of this ball being attached to the camera by the screw, 10. The parts are held together and adjusted by means of a union, 14, provided with a shoulder and closing over the ball, 9.

Of the drawings Fig. 1 is a view, partly in elevation and partly in section, of the device showing union screwed home on ball.

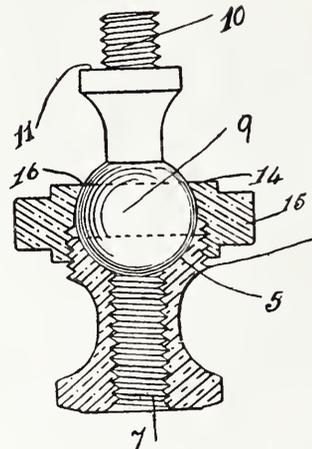


Fig. 1.

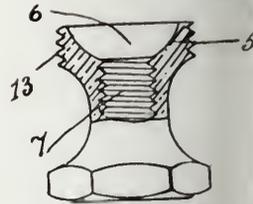


Fig. 2.

Fig. 2 is a view of the socket portion partly in section.

Fig. 3 is a view of the ball portion, showing screwed stalk fitting into base of camera, and

Fig. 4 is a plan and section of screwed union for taking on the socket portion.

The camera is adjusted upon its stand, supported by legs by means of the adjustment device, consisting of a socket portion provided with an open mouth 6, and tapped screwed hole 7, to take on to a screwed stud or pin 8 on the camera stand. Taking into the mouth of this socket portion and working thereon is the ball end 9 of a screwed stalk 10, provided with shoulder 11, by screwing into the base 12 of the camera.

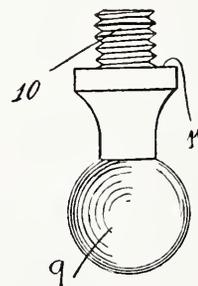


Fig. 3.

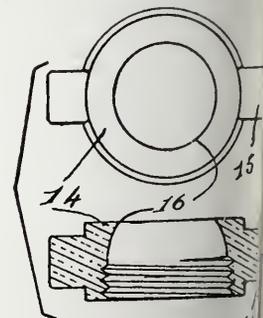


Fig. 4.

Taking on to the outside screwed portion 13 of the socket, so as to partly enclose the ball, is an internally threaded union 14, provided with finger pieces 15, and retaining rim or shoulder 16, preventing displacement of ball. The screwing or unscrewing of this union on its socket permits the ball to move more or less freely within its socket and the camera on which it is mounted to be adjusted in any direction to the required extent. William P. Willcox, 99, Bradford Street, Birmingham.

VACUUM HEAT CUT-OFF FOR CINEMATOGRAPHS.—No. 147, (January 4, 1909). According to the invention a cell or case, exhausted to a vacuum, is interposed between the source of light and the object or objects to be illuminated.

For convenience the exhausted chamber may be constructed of glass and placed behind the condensers, if any are used, but the apparatus may be made of various other substances, wholly in part, and placed in any other position. Percy Sheard, Duxley Villa, Droitwich, Worcestershire.

New Trade Names.

FEROL.—No. 313,810. Chemical substances used in manufacturing photography, or philosophical research and anti-corrosives.

Alexander, Fergusson and Co., Ltd., the Glasgow Lead and Colour Works, Ruchill Street, Maryhill, Glasgow, Scotland, merchants and manufacturers. June 9, 1909.

VARPAINTO.—No. 316,211. Chemical substances used in manufactures, photography, or philosophical research and anti-corrosives Aspinall's Enamel, Ltd., 1, Goodwood Road, New Cross, London, S.E., manufacturers. September 9, 1909.

Dew Apparatus, &c.

The "Cirkut" Panoramic Cameras. Made by Kodak, Ltd., 57 to 61, Clerkenwell Road, London, E.C.

Under this name the Kodak Co. have introduced a quite new type

agents, and others desiring to present a complete and attractive photograph of a scene which cannot otherwise be shown in a single photograph. While hitherto the photographers who have been called upon to do this class of work have had to resort to tedious methods involving the use of a number of glass negatives and processes of combination printing to secure a single photograph, the use of the "Cirkut" camera makes the production of a photograph—even of one including the whole horizon of 360 deg.—as easy a matter as the taking of a single negative with a stand camera.

For in the "Cirkut" a special tripod is provided, round the circumference of which a metal rack is fitted and guides the rotary course of the camera. The camera itself, or the "Cirkut" attachment, which is also sold for use with the Kodak "Century" camera, is provided with clockwork motive power, the pinion gearing with the rack on the tripod head. Two brakes are provided so that the speed of rotation can be modified. The camera, therefore, as soon as



Copyright by the Notman Photo Company, Boston U.S.A.

This and the following illustration are reproductions of the print from one single film negative made with the Cirkut camera. The effect of the panoramic photograph may be seen by placing the reproductions end to end.



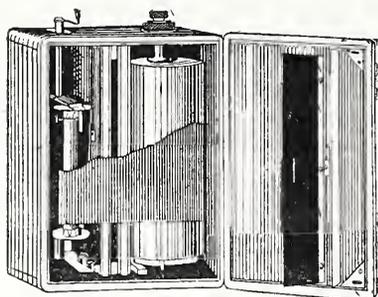
Copyright by the Notman Photo Company, Boston, U.S.A.

of panoramic camera, designed, it need hardly be said, for roll film, at serving for the widest range of panoramic photography. The "Cirkut" has not been designed for, nor is it offered to, the amateur photographer, who would take panoramic pictures as a form of entertainment. The apparatus is intended for the most exacting descriptions of expert and commercial photography, and it is not too much to say that from this point of view it is an instrument which occupies a place by itself among photographic equipments. It supplies the means of producing photographs for which there has been in the past a very considerable demand among certain classes of customers, such as railway companies, municipal authorities, estate

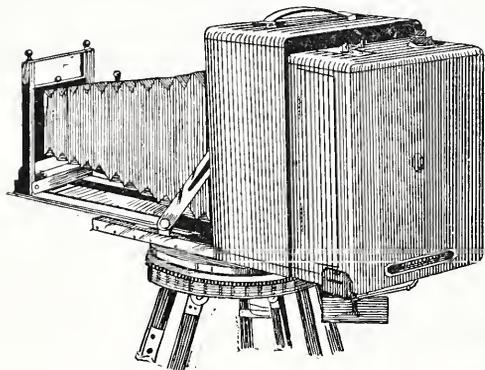
affixed to the tripod head, is pointed to the subject, and the rotation of the instrument started by pressure on a release. The mechanism of the instrument shows the length of film which is being used for the exposure, and further perforates the film on the completion of exposure, so that the operator when removing it from the apparatus knows exactly which portion to develop.

The exposure which each narrow section of film receives as it moves in relation to the lens is about 1-10th sec., a fact which may suggest to some that in the case of street scenes and other subjects where there are rapidly moving objects this speed will be quite inadequate to secure freedom from blur. It should therefore be

pointed out that from the circumstances of the case the "Cirkut" camera has to be placed at a considerable distance from the subject being photographed, and on that account the effect of moving objects is of less importance. When we say that the large panoramic photographs taken with the "Cirkut" of such scenes of incessant traffic as Piccadilly Circus and the Place de l'Opéra are practically free



from any blurring due to the movements of vehicles, it will be understood that the scope of the "Cirkut" camera is not restricted on this account. The two illustrations represent first the roll-holder of the camera, whilst the second shows the "Cirkut" attachment to one of the Kodak Company's "Century" cameras. In addition to the apparatus for making the negatives the company also supply



long box printing-frames taking film up to 10ft. in length for taking off the prints.

For all those engaged in photography for advertising and commercial illustration the apparatus is certainly one which may be expected to pay for itself within a short time, since the results obtained with it are not to be compared with those secured either by a wide-angle lens or by the tedious processes of double printing.

The Watkins Focal-Plane Meter. Made by the Watkins Meter Co., Hereford.

This meter approaches the exposure of the plate from a different standpoint from that which has hitherto been the case with exposure meters. It places first in importance the rendering of a moving object sharply (i.e., without fuzziness due to movement during exposure) in the negative. In other words, it aims to guide the photographer first in this respect and places the full exposure of the plate in a minor category. It will thus be seen that the meter appeals particularly to those who on many occasions have to get a photograph the sharpness of which is of more consideration than the correctness of the tone-values, a condition which, as we know from daily inspection, prevails in a very large proportion of press photography. Thus the reverse side of the meter states the maximum exposures which can be given for various classes of moving object when using a 5-inch lens at a distance of fifty feet from the object, which latter is supposed to be moving diagonally across the lens axis. When the object is crossing the lens axis at right angles or when a 10-inch lens is being used the speed of the shutter must be doubled (half the exposure). The light is tested in the ordinary way, and the actinometer number on the metal rim turned to the plate speed number on the central paper dial. On now looking at the diaphragm scale there will be seen opposite the stop number the exposure which may be considered the minimum for each.

With the focal-plane meter the exposure indicated is half that given by the Bee meter, the assumption being that working conditions will usually not allow of the full exposure which is necessary for the plate. We think that hand-camera workers will welcome this ready means of showing them without any calculations the limits within which they may safely work, or, at times, that certain exposures are quite inadequate for a satisfactory negative. It should be pointed out the name "Focal-Plane" given to the meter is selected for the reason that the speeds of a focal-plane shutter are usually more accurately expressed than those of diaphragm shutters; at the same time the meter may be used with diaphragm and other shutters, some allowance being made for the somewhat lesser efficiency of these varieties of shutter. The price of the meter is 2s. 6d.

Steel Castors for Furniture. Made by the Invisible Castor Company, 40, Trinity Square, London, E.C.

Under the name of "Domes of Silence" the Invisible Castor Supply Company are placing on the market, through retail ironmongers, a series of hard steel domes of the form shown in the drawings. These are affixed to the base of furniture simply by



hammering them in gently with a hammer, or in the case of a heavy article of furniture by the weight alone. The castors provide a very rigid series of supports for a table, studio stand, or other accessory, and at the same time greatly assist the moving of such



articles over a wooden or carpeted floor. On this account we believe that photographers will be interested in having their attention called to the very moderate prices at which they are sold—viz. 6d. per set of four, or 24s. for 48 sets. The second illustration shows the way in which the castor is affixed.

CATALOGUES AND TRADE NOTICES.

SHEW CAMERAS.—Messrs. J. F. Shew and Co., 88, Newman Street, London, W., have just issued a new 120-page list of their special manufactures in the shape of the excellent "Xit" and other cameras, as well as of selected lenses, shutters, finders, and other apparatus. The list, which is very fully illustrated, is sent free.

EDWARDS' PLATES AND LETO PAPERS.—A new "Leto" price-list for the season 1909-1910 supplies a convenient reference to the standard varieties of self-toning, gaslight, and other papers, as well as to the plates and other specialties formerly made by Messrs. B. J. Edwards and Co. The list (thirty pages) is obtainable free from the Leto Company, Roman Wall House, Crutched Friars, London, E.C.

JUPITER STUDIO LAMPS.—Messrs. John J. Griffin and Sons have just prepared a catalogue of these specially designed studio electric lamps. They offer to send it free to any professional photographer. As the catalogue records the experience of a number of high-class studios with the lamps, and reproduces some of the very excellent results obtained, it should be worth any photographer's while to obtain and study it.

New Materials, &c.

CROWN CHRISTMAS MOUNTS.—The Crown Manufactory, Rotherham, send us a selection of their folder and other mounts bearing mottoes for the Christmas season, among which we find a number of very pleasing styles, both in colour and design. The "Classique" mounts (paste-on) for prints $2\frac{3}{8} \times 3\frac{3}{8}$ is of "natural surface" cream board, with gold lettering. The price is 1s. 6d. per dozen. Other mounts, mostly folding, which we would select for mention are Nos. 73, 325, 173, and 61. The Crown Manufactory also issue calendar mounts for stock sizes of prints at prices from 1s. per dozen.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

SATURDAY, OCTOBER 16.

Kinning Park Co-operative Camera Club (Govan). Outing to Nitshill.

MONDAY, OCTOBER 18.

South London Photographic Society. "Critique on the 1903 Affiliation Competition Prints." Walter J. Morgan, R.B.A. Monthly Competition—(Lantern Slides).

Stafford Photographic Society. "Around Cardigan Bay." Herbert A. E. Hey.

TUESDAY, OCTOBER 19.

Glasgow Southern Photographic Association. "Pictorial Quality." Peter Mitchell.

Hackney Photographic Society. "Outdoor Portraiture without Retouching." S. Woodhouse.

Leeds Photographic Society. "The Autochrome Plate." Thos. K. Grant.

Manchester Amateur Photographic Society. "Intensification and Reduction." H. Wade.

WEDNESDAY, OCTOBER 20.

Sale Photographic Society. Discussion.

Borough Polytechnic Photographic Society. Summer Outings' Print Competition.

Balham Camera Club. Members' Night.

Croydon Camera Club. "Photography as an Aid to Astronomical Research." Chas. W. Raffety, F.R.A.S.

THURSDAY, OCTOBER 21.

Watford Camera Club. Criticism of July Portfolio.

Rodley, Farsley, Calverley, and Bramley Photographic Society. "Flowers." Mr. Atkinson.

L.C.C. School, Bolt Court, E.C. Holbein's "Dance of Death" Woodcuts. Emery Walker.

Leek Photographic Society. Whist Drive.

Handsworth Photographic Society. Annual Exhibition.

Liverpool Amateur Photographic Association. "Modern Photographic Chemicals." F. C. Hart.

Optical Society. "The Theory of Vision and Colour Perception." Dr. F. W. Edridge Green.

CROYDON CAMERA CLUB.—The President, Mr. J. M. Sellors, opened the session with a demonstration of his method of working "Bromoil," published lately in a contemporary. Recognising, apparently, that a section of his audience were hardly bromoil enthusiasts, and that the subject had been previously dealt with, he kindly intimated that no offence would be taken if such members went to sleep, or disported themselves as their fancy dictated. The suggestion was gratefully and immediately taken advantage of, and the demonstration proceeded amidst a hum of conversation entirely foreign to the topic of the evening. A member in the centre of one group gave a thrilling account of a motor-car chase of a hare, started on a main road and paced for over three miles at thirty-eight miles an hour. A sharp bend in the road resulted in the pursued being thrown into the ditch owing to its inability to turn, whilst the car proceeded on its way. The incident was not recorded photographically. Another group discussed quack nostrums, with particular reference to a recent book, "Secret Remedies." A doctor present warned his hearers that two plus two did not necessarily make four, in a medicinal sense. Assuming one drug to have a potency of a in a certain direction, and to be partaken of at night, another drug of similar tendencies of value b to be taken in the morning, then the combined effect would approximately be represented by the formula $(a + b)^2$.

During the consideration of these and other momentous questions, Mr. Sellors, amidst a select number of artistic workers, had completed several bromoil prints of good technical quality, full of that vivid atmospheric charm peculiar to the process, if to nothing else. Mr. F. J. Terry, on behalf of all, thanked the President for one of

the best lectures he had never listened to; the club was to be congratulated upon the remarkable success of its opening night.

ROTHERHAM PHOTOGRAPHIC SOCIETY.—The annual meeting of the Rotherham Photographic Society was held in the Society's room, Frederick Street, on Tuesday, October 5. Mr. W. Firth presided in the absence of Mr. C. H. Moss, J.P., who had been called away to London. There was a good attendance. The Hon. Secretary (Mr. H. C. Memmingway) presented the annual report, which recorded a year's progress without any special phenomenal achievement. The membership was about 100. In the previous twelve months the programme had been more varied and more largely contributed to by members themselves, and this feature, as far as possible, was to be continued. The Mayor's appeal for the Hospital Fund was taken up by the members, and resulted in a contribution of £17 8s. 5d., of which £11 7s. were the proceeds of the lecture generously given by the late Mr. A. Muir Wilson. The annual exhibition was a success. Various improvements had been effected in regard to the room, and others were now in contemplation. The report asked for greater interest on the part of members in regard to lantern-slide production and record work, by which was meant photographs of old buildings, streets, and customs. It concluded with an allusion to the fact that the Society was now entering on its twenty-first year, and it would be a question a little later on of how the "majority" would be celebrated.

Mr. F. Oldham (the Treasurer) read the financial statement. The annual exhibition last year yielded a profit of £16 0s. 1d., which had been added to the general fund. The balance remaining in hand was £40 0s. 5½d. The report was approved, on the proposition of Mr. Froggatt, seconded by Mr. H. A. Hill.

The election of officers resulted as follows:—President, C. H. Moss, J.P.; Vice-presidents, J. Leadbeater, W. Firth, and J. W. Stamp; Council, J. Allport, J. M. FitzClark, H. A. Hill, and F. W. Thomlinson; Hon. Treasurer, F. Oldham, 2, College Street; Hon. Auditor, R. Chislett; Hon. Secretary, H. C. Memmingway, Tooker Road, Rotherham; Assistant Hon. Secretary, F. Sargeant. Mr. Hemmingway and Mr. J. M. FitzClark were appointed to represent the Society on the Royal Photographic Society Affiliation Committee. Amongst the votes of thanks were the recognition of the services of Mr. C. H. Moss and Mr. H. C. Hemmingway.

HEREFORDSHIRE PHOTOGRAPHIC SOCIETY.—At the annual meeting of this society, on Monday evening, Mr. Walter Pilley was unanimously re-elected president. Mr. W. Williams resigned the secretaryship, and Mr. F. C. Pritchard, who formerly held the position, was elected, with Mr. A. J. Manning as assistant. Mr. Walter Marchant again undertook the post of treasurer. The accounts showed a small balance in hand, and the members number about 100. Mr. Alfred Watkins urged the members to go in more for lantern-slide making during the coming winter. On Tuesday evening Mr. Steadman, representing Messrs. Houghtons, gave an interesting demonstration with the new "Ensyna" paper.

Commercial & Legal Intelligence.

NEW COMPANIES.

H. E. BELLAMY, LTD.—Capital, £2,000, in £1 shares (500 Preference). Objects: To take over the business of photographic, lantern, microscopic, and general scientific apparatus, instrument and implement manufacturers, carried on by H. E. Bellamy and Co. at Stanley Works, Factory Lane, Harpurhey, Manchester. Private company. The first directors (to number not less than two nor more than ten) are: H. E. Bellamy, A. H. Bellamy, T. Clough, and T. H. Halsall. Registered office, Stanley Mills, Factory Lane, Harpurhey, Manchester.

"LONDON." By Alvin Langdon Coburn. Messrs. Duckworth and Co. have published a large volume of plate reproductions of Mr. Coburn's photographs, an introduction to which is written by Mr. Hilaire Belloc.

News and Notes.

THE WARWICK TRADING CO., LTD., have been afforded facilities that will enable them to take a series of pictures of the first aviation meeting in England, which takes place at Blackpool on the 18th of this month. The length of the series will probably be about 400 feet, and the price will be, as usual, 4d. per foot nett.

THE HALIFAX PHOTOGRAPHIC COMPANY advise us that they have received an order, with remittance, for P.O.P. cards from Mr. J. E. Huntrods, who, however, has omitted to state the name of the town in which he lives. If this note should meet Mr. Huntrod's eye perhaps he will rectify the omission and send the Halifax Company his full address, when the goods will be despatched to him by return post.

LANCASTER PHOTOGRAPHIC SOCIETY.—The eighth annual exhibition of this society will be held in the Friends' Hall, Fenton Street, from November 29 to December 2 (inclusive). There will be three open classes for framed prints, lantern slides, and framed colour work (prints or transparencies) respectively, in each of which silver plaques will be placed at the disposal of the judge, Dr. C. Thurston Holland, for award. Entries close November 20, on or before which date entry forms duly filled up and accompanied by the necessary fees should be sent to the secretary, Mr. Thomas Holt, 4, Parliament Street, Lancaster, from whom the entry forms can now be obtained.

CAMBRIDGE AND DISTRICT PHOTOGRAPHIC CLUB.—This club will hold its fifth annual exhibition in the Guildhall and School of Art from November 10 to 13, inclusive, when the work of judging will be performed by Mr. F. J. Mortimer. In the open classes, one of which is set apart for Autochromes or other colour transparencies, specially designed bronze plaques will be placed at the judge's disposal for award. There is also one class open to members of those societies comprising the Midland Photographic Federation. Entry forms are now ready and may be obtained from the secretary, Mr. T. J. Sowdon, Sunny Side, Guest Road, Cambridge, to whom the forms, duly filled up and accompanied by the necessary entry fees, should be returned not later than October 28.

R.P.S. LECTURES.—The following lectures will be delivered at the New Gallery, at 8 p.m. :—

Saturday, October 16.—“London Through the Eyes of Gossip Pepys,” by A. H. Blake, M.A.

Monday, October 18.—“Wild Birds and their Ways” (Second Series), by W. Bickerton, F.Z.S.

Thursday, October 21.—“The Home Life of some familiar Wild Birds,” by W. Farren.

Saturday, October 23.—“The Romance of Plant Life,” by F. Martin-Duncan.

THE TERRITORIAL STUDIO, Umtata, Tembuland, S.A.—Mr. E. W. Eland advises us that he has recently taken over the above studio, which was occupied by Mr. W. G. E. Robinson up to the time of the latter's death last year.

PAGEANT PHOTOGRAPHS.—An exhibition has been opened at Messrs. W. H. Smith's Milsom Street depot of pageant photographic enlargements by the official photographers to the pageant, Messrs. Lewis Bros., of Seymour Street. The photographic successes of the official “picture takers” of the Bath Pageant have been obvious enough in the Pageant souvenir, and in the postcard reproductions, and need no comment, and the enlargements which they have now prepared of the beautiful pictures they took are worthy of the subjects portrayed. Chief among a series of 70 or 80 is a magnificent picture of the final scene, with Mr. Lascelles on the Temple steps and 3,000 performers acclaiming his triumph. This has a measurement of about 60 by 40, and is a wonderful picture, everyone's features being clearly distinguishable.

INDECENT POSTCARDS.—At Marlborough Street, before Mr. Mead, William Schmidt, newsagent and tobacconist, of High Street, St. Giles's, was summoned for exhibiting improper postcards in his shop window and to show cause why 125 of them found at the premises should not be destroyed. Mr. H. Muskett prosecuted for the Commissioner of Police. Mr. Mead sentenced Schmidt to six weeks'

imprisonment with hard labour, and ordered the cards objected to to be destroyed.

BOROUGH POLYTECHNIC PHOTOGRAPHIC SOCIETY.—The members of the Borough Polytechnic Photographic Society and friends spent a very enjoyable afternoon on Sunday, September 26, when, under the able leadership of Mr. A. H. Blake, M.A., they visited some parts of London of historical interest. The ramble commenced at the Horse Guards, and from thence to Charing Cross, down the Strand, where several places of interest were pointed out, to the York Steps, the Dark Arches, Adelphi, to Garrick's house. Fleet Street, where the old trade signs were noted, Alsatia, Johnson's house, Lincoln's Inn, Staple Inn, Giltspur Street, Smithfield, Clota-fair, and Bartholomew Close were among the places visited, and at six o'clock the party made their way to London Bridge Railway Approach, where tea was partaken of.

MR. SHAW TO LECTURE AT THE SALON.—Mr. G. Bernard Shaw will “Improvise on the Subject of Photography” in the Pall Mall Gallery on Monday next, the 18th inst., at 8 p.m.

BIRDS AND BEASTS, LTD.—According to the “Daily Mirror,” Mr. Cherry Kearton, whose wonderful photographs of bird life have won him a world-wide reputation, has been converted into a limited liability company. The company is called the Cherry Kearton Company, Ltd., and its nominal capital is £4,500, divided into 2,000 preference shares of £1 each and 2,500 ordinary shares of £1 each. The general public, however, will not have an opportunity of becoming shareholders in the company, as all the money has been subscribed by Mr. Kearton and his friends. The object of the company is mainly to buy all photographs of bird and animal life taken by Mr. Kearton, and to show them all over the country at living picture entertainments. Mr. Kearton is now in East Africa, taking a series of moving pictures depicting the life of wild animals of the forest and jungle, and from accounts already received from him in London the photographs will be not only of great value to students of natural history, but also of deep interest to the general public.

KOH-I-NOOR HOUSE.—Owing to the ever-increasing demand for their celebrated productions, the well-known house of Messrs. L. and C. Hardtmuth have decided to erect a building, worthy of its magnitude of their business, in Kingsway. This fine erection will be commenced shortly from the designs of Mr. J. S. Gibson, of 5, Old Bond Street, the builder being Mr. Jas. Carmichael, of Wandsworth. It is superfluous to add that Messrs. L. and C. Hardtmuth are the world-renowned manufacturers of pencils, including the celebrated Koh-i-Noor pencils, besides being the sole European representatives for Waterman's Ideal fountain pens. The building will bear the appropriate title of “Koh-i-Noor House.”

A SET OF LANTERN SLIDES, together with notes dealing with some of the most beautiful parts of North and Mid Wales, may be had on loan by anyone desirous of giving lantern lectures on Wales, on application to the General Manager, Cambrian Railways, Oswestry. To prevent disappointment, early application should be made for a set to be booked, stating whether coloured or uncoloured slides are preferred.

THE CINEMATOGRAPH BILL.—The text of the Cinematograph Bill, as amended in Committee, has now been issued. The following is the text of the principal provisions of the Bill :—

1. An exhibition of pictures or other optical effects by means of a cinematograph or other similar apparatus, for the purposes of which inflammable films are used, shall not be given unless the regulations made by the Secretary of State for securing safety are complied with, or, save as otherwise expressly provided by this Act, elsewhere than in premises licensed for the purpose in accordance with the provisions of this Act.

2. (1) A County Council may grant licences to such persons as they think fit to use the premises specified in the licence for the purposes aforesaid on such terms and conditions and under such restrictions as, subject to regulations of the Secretary of State, the Council may by the respective licences determine. (2) A licence shall be in force for one year or for such shorter period as the Council on the grant of the licence may determine, unless the licence has been previously revoked as hereinafter provided. (3) A County Council may transfer any licence granted by them to such other person as they think fit. (4) An applicant for a licence or transfer of a licence shall give not

than seven days' notice in writing to the County Council and to the chief officer of police of the police area in which the premises are situated of his intention to apply for a licence or transfer: Provided that it shall not be necessary to give any notice where the application is for the renewal of an existing licence held by the applicant for the same premises. (5) There shall be paid in respect of the grant, renewal, or transfer of a licence such fees as the County Council may determine, not exceeding in the case of a grant or renewal for one year £1, and in the case of a grant or renewal for any less period 5s. for every month for which it is granted or renewed, so, however, that the aggregate of the fees payable in any year shall not exceed £1, or in the case of a transfer 5s.

3. If the owner of the cinematograph or other apparatus use the apparatus, or allows it to be used, or if the occupier of any premises owned those premises to be used, in contravention of the provisions of this Act or the regulation made thereunder, or of which any licence relating to the premises has been granted under this Act, he shall be liable on summary conviction to a fine not exceeding £20, and in the case of a continuing offence to a further penalty of £5 for each day during which the offence continues, and the licence (if any) shall be liable to be revoked by the County Council.

4. A constable or any officer appointed for the purpose by a County Council may at all reasonable times enter any premises, whether licensed or not, in which he has reason to believe that such an exhibition as aforesaid is being or is about to be given, with a view to ascertaining whether the provisions of this Act have been complied with. The Act (if passed) will come into operation on January 1, 1910.

Correspondence.

We do not undertake responsibility for the opinions expressed by our correspondents.

Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

THE VALUE OF GOODWILL.

To the Editors.

Gentlemen,—As this week is the second time that a reply has been given to the above query lately, I feel that it would be only fair to call attention to a slight error in the answer, which not only would be calculated to mislead an intending purchaser, but also gives the advertiser "shark" a better opportunity of getting a much larger price for his "business" than he otherwise would do if dealing with a person who understood what he was about. The mistake lies in the statement that the goodwill is based upon the *net annual profits*, which is fair enough in fact, but as the net profits must necessarily be the profits after all deductions for outgoings are made, those deductions should include the *salary of a manager*, or, what amounts to the same thing, the cost of living of the proprietor in the event of his looking after the business himself. This will often not only bring the returns shown well below the apparent amount given, but in most cases show that the affair is being run at an absolute loss when perhaps £200 or £300 is claimed to be correct. Accountants and valuers are well enough acquainted with this item, but perhaps if it is made more public it may be the means of saving some few experienced people from sinking the whole of their available capital in the hope of the "magnificent" undertakings so frequently advertised as "magnificent bargains," and which seem to be selling to the gullible amateur at the present time like "hot cakes."—I remain, yours
 Sincerely,
 BUSINESS MAN.
 October 8, 1909.

AMYL ACETATE.

To the Editors.

Gentlemen,—"Varnisher" will find that the disagreeable smell of amylic acetate is completely neutralised by the addition of a small proportion of common oil of lavender. When the amount is exactly adjusted the mixture smells of neither the one nor the other. No harm is done to the varnish.
 E. J. MILLS, F.R.S.

Answers to Correspondents.

- * All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- * Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- * Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
- * For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

- J. P. Quinn, 52B, Grand Parade, Harringay, London. Photograph entitled: "North Pole Burlesque."
- T. H. Bamford, 45, Montagu Street, Kettering. Photograph of a Freak Potato (resembling an Animal) grown at Kettering.
- E. A. Rheinlander, St. Leonards, Rodney Road, New Malden, S.W. Photograph of the Pastor and Deacons of New Malden Congregational Church.
- G. A. Dean, 14, High Street, Rugby, Warwickshire. Photograph of Rugby School and New Speech Room.
- T. Humphries, 19, Guildford Road, Fratton, Portsmouth. Two Photographs of the Newly Appointed Vicar of Goole, Yorkshire, the Rev. C. F. Garbett, M.A.
- J. A. Stelling, "Modena," 60, Peckham Road, London, S.E. Photograph of the Rev. J. T. Briscoe.
- M. Lautenberg, 56, Waterloo Road, Widnes. Photograph of a Bird's-eye View of West Bank, Widnes.

F. SMITH and others.—In our next.

SULPHITE OF SODA.—(1) With reference to your interesting article on the above, I should be much indebted to you if you would inform me, through your "Correspondence Column," whether it matters what particular acid one uses as a preservative. I employ sulphuric acid in my fixing bath, and should prefer to adhere to one throughout. (2) Is the bottle with an oil seal and a glass tube a good means of preserving a stock solution? One cannot shake it as one does the ordinary bottle, so one may draw off all the sulphite at the beginning and be left with very weak stuff. (3) "Das Photographieren," which I bought on the strength of a review in the "B.J.," recommends camphor as the best of all methods. You simply drop in a piece, which floats on the top, and acts as a sort of charm. Does English experience corroborate this mystery?—
 J. ROW FOGO.

(1) Acid sulphite was stated in the article, by which we meant acid sulphite (or bisulphite) of soda, or potassium metabisulphite. One dram of the metabisulphite to every ounce of sulphite of soda is an excellent preservative. (2) Certainly it is a good way of keeping any stock solution from contact with air, but we have not actually tried it with sulphite. Oxidation by contact with air is, however, not the only cause of deterioration with sulphite, as we have known some samples to deteriorate badly in solution when well sealed up. (3) We know nothing of this method of preservation, but if effectual it is a very simple one.

GRATEFUL.—We should choose No. 4 (better if of 12in. focus), No. 6, or No. 5.

H. R. ROBERTS.—We do not know of such a thing on the market. We advise you to write Messrs. Marion, who are specialising in this class of apparatus, and could no doubt supply you.

PERCY LONDON.—From R. J. Moss and Co., 98-99, Snow Hill, Birmingham.

OMNICOLORE PLATES.—Will you kindly let me know the formula of the reversing solution recommended for Jougla's "Omnicolore" plates, as mentioned in the "B.J. Colour Photography Supplement" for October 1, page 74?—E. F. GUITON.

The formula is:—

Potass or soda bichromate	8 gms.
Sulphuric acid	12 ccs.
Water to make	1000 ccs.

QUICK PRINTING.—Can you tell me the method employed in turning out bromide postcards quickly while you wait? Is it the developer? If so, would you kindly state formula? Is there a process of dry developing that would suit?—M. S.

The usual method is to print from the wet negative, with a thin piece of celluloid laid on the film. The bromide print itself is developed by a quick-acting solution, such as metol-hydroquinone, fixed in strong hypo, and rinsed and dried in spirit. We know of no "dry" developer which could be used.

FOCAL-PLANE IN REFLEX.—I should be glad to know if a reflex camera with shutter release is as efficient as a focal-plane shutter; or to be sure I make myself understood, would you get a negative as well exposed with a shutter release with, say, 1-50 of a sec. as with a focal-plane shutter 1-50, other things (stop, etc.) being equal.—REFLEX.

Provided that the shutter blind is at the same distance from the plate in the two cases, there is no difference. The mirror is out of the way before exposure commences.

F. R. P. AUSTIN.—Address the Tress Company, 4, Rathbone Place, London, W.

DISSOLVING DYE.—I wish to combine fast scarlet dye with collodion by adding the dye to the liquid collodion. This is to make screens. I have dissolved the dye in alcohol and added to the collodion, but cannot get the combination sufficiently intense or deep enough. Can you suggest a way?—E. Y. E. N.

If you cannot get enough of what you call fast scarlet dye, you will have to use another kind, and, without knowing what you want it for, we cannot well suggest a dye. If you want a tri-colour red filter, you might find "Rapid Filter Red," spirit soluble, satisfactory. This you can get from Fuerst Bros.

DYES FOR COLOUR PHOTOGRAPHY.—I have been reading an article by H. Q. on "Reproduction of Screen-plate Transparencies in Paper" in your number of October 1, and am much interested in same. Can you tell me where the dyes therein mentioned can be procured?—G. W. WELLS.

We advise you to try Messrs. Fuerst Bros., 17, Philpot Lane, London, E.C.

ACID FIXING BATH.—Some time ago Messrs. Lumière published a formula for an acid fixing and hardening bath, which contained, in addition to hypo, bisulphite lye and chrome alum. I have mislaid the formula, and cannot find it in any of my books of reference (it is not in last year's "Almanac"). Will you please give it to me, with directions as to mixing?—CATHAY.

The formula for the bath appears in the "Almanac" for 1907, p. 759. It is:—

Hypo	3 ounces.
Soda bisulphite lye	100-150 minims.
Chrome alum	50 grains.
Water	20 ounces.

2. So far as our experience goes, it is quite safe when used as directed.

JAMES HOMER.—It is possible the paper is at fault, but developer made up with water highly charged with air would give the same the spots, and is very probably the cause of the evil recurring irregularly. You cannot have a better toning process than the sulphide or thiomolybdate. You will find formulæ for the former in the "Almanac," page 809. The latter you may obtain from H. Edmund and Co., Ezra Street, Columbia Road, E.

CARBON PRINTS.—1. Could you kindly inform me as to the cause of white marks like dabs with the finger, and also little fine white lines on double transfer carbons, appearing when developed on flexible support? I have tried a new bath, and taken great care not to touch anything with the fingers, also new supports, and using less waxing solution. 2. I should also like to know the method of obtaining the best possible vignettes for small carbon prints in double transfer. I should be very pleased to have some advice on these subjects, as I have had a lot of trouble with them.—CARBON.

1. We cannot account for the marks, unless they are really caused by finger-marks on the tissue. The white lines may possibly be due to the tissue having been dusted with an unclean brush. If you had sent us two or three prints as samples of the trouble we should have been in a better position to assist you. 2. Small vignettted carbon prints, by the double-transfer method, are not easy to obtain. The vignetting mask for the work should not be so abrupt as is permissible with silver prints. It helps matters somewhat if, after the print is taken from the frame, it

is exposed to the light for a very brief time, but not sufficient long to produce a tint that is not removable in the developer. You will find the single transfer method simpler and better vignettes.

MATT VARNISH.—Would you oblige by giving me a good formula for matt varnishing negatives for working up on glass side of the negative?—S. JENKINS.

Sandarac	90 grs.
Mastic	20 grs.
Echer (.720)	2 ozs.

Dissolve the two resins in the ether and then add benzole 1 ½ oz. The more benzole the coarser the matt.

T. OSMAN.—If the negative sent is a fair sample of your general work it is by no means a thing to be surprised at that you cannot get on well with the platinotype process. From such a thin and veiled negative it is quite impossible to get good and brilliant platinum prints. For that process tolerably vigorous ones must be employed in order to obtain good results.

X. Y. Z.—The pictures sent are very good photographs. If you publish them you would be sailing very close to Lord Campbell Act. You may call them artists' studies, but they are too coarse and vulgar for that. They are bordering on the indecent, and I doubt if any respectable stationer or print seller would show them in his window. If you wish to publish artists' studies they must be very different things from those you enclose. Calling such pictures "Artists' Studies" will not relieve you from possible trouble.

"KRISTAL" LANTERN-SLIDE COMPETITION.—The Leto Photo Materials Company, Limited, announce a competition, open to all amateur photographers, for sets of four slides taken on Edwards' "Kristal" plates. Thirty cash prizes are offered, the first three being £5 3s., £2 2s., and £1 1s. respectively, with two of 10s. 6d. each and fifteen consolation prizes of 5s. each. The winning slides will become the property of the Leto Company, who reserve the right of reproducing them; unsuccessful slides will be returned if accompanied by a stamped addressed wrapper (not loose stamps) for that purpose. The competition closes on December 31, 1909, on or before which date all slides, accompanied by the necessary coupon and packed in the original box in which they were purchased, must reach the office of the Leto Company, Round Wall House, 1, Crutched Friars, London, E.C., marked "Kristal Competition."

THE ANTARCTIC EXHIBITION.—The very interesting exhibition of the equipment and collections of Lieutenant Shackleton and his fellow-explorers of the *Nimrod*, which has been held in Savoy for the past few weeks, will be remembered by photographers for the really excellent photographs shown of the scenes and incidents of the dash "farthest south." The photographic outfit was provided by Messrs. Newman and Guardia, and the majority of the photographic results were obtained with the "N. and G." cameras, two of the "Special B" patterns of which are shown in working order after the long journey to within 100 miles of the South Pole.

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SUMMARY.

A most entertaining evening was spent at the Photographic Salon on Monday last, when Mr. G. Bernard Shaw "extemporised" on photography, or rather on art in photography. (P. 814.)

The publishers of "Photograms of the Year" are to be congratulated on issuing this annual review of pictorial photography whilst the exhibitions are in full swing. (P. 826.)

In addition to the Royal and Salon two photographic exhibitions are now open in London: That of members' photographs at the Lyceum Club and pictures by American workers at the "Amateur Photographer." (P. 824.)

The conclusion of Mr. L. Haweis's article on the coupon system in professional photography affords further instances of the possibility of lowering prices as a whole by resorting to the coupon method. (P. 816.)

A very strong case for the red-sensitive plate in portrait photography is put by Mr. R. J. Wallace, who very clearly points out that the sitter is a coloured object, and that, therefore, the most satisfactory method of obtaining a good negative is by means of a colour-sensitive plate and adjusted filter. Mr. Wallace states the difficulties in the way, but describes colour-correct photography as the "coming factor in portrait work." (P. 818.)

A writer in "Photo-Notes" describes some recent experiences indicating the advantage of keeping ordinary gaslight paper in a perfectly dry state. (P. 833.)

Professor R. Namias has experimented with boric acid in the diamidophenol developer, a combination which he recommends on account of its greater sensitiveness to restraint by bromide, as also of its lesser degree of sensitiveness to temperature. (P. 820.) An editorial note on the paper appears on page 814.

In the conclusion of his paper on the collection of photographs, Sir Martin Conway lamented the fact of the non-existence of a trade in second-hand photographs. (P. 821.)

The description of the new form of mount of the Dallmeyer portrait lens is given under "Patent News" on page 825.

Process cameras and multi-colour machine-printed photographs are among the topics dealt with under "Photo-Mechanical Notes." (P. 824.)

EX CATHEDRA.

Halation in Night Photography.

A necessary feature of the "night photograph" is the presence of the street and other lamps, by the light of which the photograph is taken, and the fact that these lights face the camera renders halation a very important matter to guard against. Backed plates are, of course, essential, but backing will not, as a rule, eliminate all blur around the lights. This fact, however, does not necessarily prove that the backing is ineffective, for in many cases the effect remaining is not halation, properly so called, at all. That is to say it is not an effect due to reflections or any other phenomena in the plate, but a true record of an actually existing fact. The air at night is seldom free from mist, and hence around each light there is a certain amount of visible light scatters that should be recorded in a true photograph. This is one of the phenomena of nature that often escapes the observation of the untrained eye, though artists are quite familiar with it, and while the effect may appear unnatural to the photographer, its truth will become apparent even to him if he examines in a stereoscope a stereoscopic slide of the scene. The idea that the lights should be sharply defined dots in the photograph is altogether a mistaken one, and when the lights do take this form it is simply an indication that the exposure was too short to record the blur properly. Such effects of under-exposure are often seen in photographs of illuminations, such as those at the White City. A very short exposure will show nothing but lines of sharply defined dots, without halos and with hardly any trace of the buildings upon which the lights are fixed. A correct exposure will show the lines of the buildings and also the light scatter around each lamp, and if this scatter is very pronounced the dots will merge into lines of light. Such an effect is probably quite true to facts, and halation may play no part in it, though many photographers will actually try for the under-exposed and untrue effect. The worst defect in night photography is not halation, but reversal, the effect of which is that the light itself sometimes shows as a black spot in the centre of a luminous globe. Backing diminishes the chances of this to a certain extent, but when the light is very bright, as in the case of an arc lamp, it is best to avoid a direct view of the light altogether. True halation can be distinguished by the appearance of a bright ring of light surrounding the lamp and at a little distance from it. This ring will have a sharp inner margin by which we may distinguish it from an actual halo ring due to mist.

* * *

Halation in Interiors.

In interior photography very erroneous ideas often prevail with regard to halation, just as they do in the case of night photographs. There seems to be a prevalent idea that the tracery and bars

of a window should in all cases be shown perfectly defined and in sharp contrast, however brightly the window may be illuminated, and if this effect is not obtained after taking the precaution of properly backing the plate, then the backing is presumed to be a failure. It does not, however, follow that this idea is correct, for if the sun is shining on the window it is impossible that the bars should appear sharp to an observer, and if they are made to so appear in a photograph the effect is unnatural. The effect that the photographer has perhaps laboriously retouched out was in all probability quite a natural and true one, though want of observation prevented him from seeing it at the time of taking the photograph.

* * *

A Fermentation Method of Developing Carbon Prints.

According to a recent German patent (No. 213,772, of July 19, 1908), taken out by Dr. L. Jacobsohn, of Charlottenburg, it has been found that the exposed and unexposed parts of a bichromated gelatine film exhibit differences in respect to the action of digestive ferments, such as bodies of the pepsin class. The exposed portions are not digested or rendered soluble by the pepsin, whilst the unexposed portions are fully acted upon. The fact is made the basis of a method of development. For example, if a pigment film be sensitised with a 3 per cent. bichromate solution exposed with its non-sensitive side behind a negative, placed in 1 per cent. pepsin solution, containing also $1\frac{1}{2}$ per cent. of hydrochloric acid, the print will become fully developed in three hours at a temperature of 80 deg. Fahr. Owing, it is said, to the longer time of development, finer details are obtained in the half tones, whilst it is further claimed for this method of development that it affords good results in cases of considerable over-exposure of the print.

* * *

Portraits of Men.

If we have to thank the "individual" portrait photographers for one thing more than others, it is their demonstrations of the success which can be made of full-length and three-quarter length portraits of men, despite the opinion very commonly expressed that the severity of the lines of masculine clothing forces the photographer to portray only the head and shoulders of his male sitters. And this has been done in many of the portraits which have been shown of late without recourse to attiring the sitter in a cloak of the Inverness type, which some have advocated in reaction from the almost geometrical cut of modern clothes. Flowing lines are readily obtained by this artifice, but in nine cases out of ten the sitter will appear to his friends strangely clad, and the photograph suffers as a likeness. The ordinary overcoat of thin, clinging cloth, such as that used for rainproof overwear, may, however, be requisitioned with equal success, and in several studios of late we have noticed the skilful use made of these garments in producing portraits of men which, apart from lighting and likeness, had very pleasing qualities of composition.

* * *

Boric Acid and Amidol.

The paper by Professor Namias on the action of boric acid with diamidophenol suggests that in over-exposure the addition of the acid may be useful, as it apparently gives the bromide greater restraining power. We cannot, however, agree with all the remarks made upon the action of acid sulphite with amidol, or even with those concerning the action of amidol alone. For instance, it is stated that amidol tends to give weak images, and that this tendency is increased by the

addition of acid sulphite. Any developer can be made to give a weak image under certain conditions, but amidol will give as strong an image as can be desired if the formula is adapted to that purpose. Indeed, one of the things that renders amidol such a favourite developer for bromide paper is the strong, rich black that it so readily gives. The remarks with regard to the effects of acid sulphite almost amount to a condemnation of the popular acid amidol developer, yet so far as our experience goes this formula is in no way behind the plain amidol and sulphite one in respect of giving good blacks. It is a matter of common knowledge that the blacks are spoilt with any of the usual amidol formulæ if over-much bromide is used, hence it is difficult to take full advantage of the action of bromide in cases of over-exposure. If this difficulty disappears with Professor Namias's boric acid formula it is a distinct gain, but this can readily be admitted without throwing doubt on the well-tried formulæ in common use, and so generally successful with correct exposures.

MR. G. B. SHAW ON THE LINKS.

A MOST entertaining evening was spent last Monday at the Photographic Salon, when Mr. Shaw improvised upon the subject of "Photography." At least, it was entertaining to those who had nothing to suffer from the speaker's caustic fun directed against modern pictorial tricks. There was certainly a grim irony in the fact that the apostles of high photographic art should be told in their own house and by their own guest to go back to the plain ways of photography, to abjure imitating certain effects that were the natural outcome of the development of painting. Many a member of the Linked Ring was seen to writh and look apprehensively around. But they took heart of grace whenever the lecturer, in his usual conciliatory manner, denied, in particular cases mentioned by name the sweeping generalisations of blame. He professed at the outset to be too old and too tired to go into the matter of art and photography; yet he managed to talk of little else for two and a half hours. Naturally, he remained at his old standpoint of the vast superiority of photography over art, excepting in one particular, namely that art was a much quicker business. He compared dry-point etching made by Mr. Strang in two sittings with a photographure by Mr. Coburn made in many days, and a platinum print by Mr. Evans which took five days to print. In fact, the evening was not untruthfully described by one speaker as an apotheosis of Evans and Coburn with a passing vote of mild censure upon the "British Journal of Photography," which, Mr. Shaw said, always lost its temper whenever anyone said that photography was art. He, however, admitted reading our literature with great regularity, which, of course, immediately and entirely won us over, especially as we perceived that our whole attitude for years past towards pictorial efforts was precisely that which he himself was taking in his animadversions upon certain wrong tendencies of photographers. He maintained that many faults were common to both photography and painting and for the most part they were stated to be untruthfulness in the former, due to wilful neglect of simple photographic qualities, and in the latter to the inability of the modern painter to paint. And here followed one of the highly amusing "tomfool" digressions about oil painting being a lost craft because the Royal Academicians do not put paint on as a carriage-painter does. It is as useful to take Mr. Shaw jocularly as it is to take him seriously. He thinks that Van Eyck, who is his pet painter, painted

with the same material and in the same manner as a carriage-body painter. Well, he must continue to think that, that's all. He gets his cash and his kudos for thus bringing his ignorance, and his public love him for it. It would spoil the fun to tell him that carriage painting is much more akin to lacquering, and consists of endless rubbings down"; it would be futile to suggest, further, that the Academician has materials and means different from either Van Eyck Wendover of Long Acre. It was for the sake of stating his ideal of the smooth and shiny art, and of glorifying the enamelled silver print, that he let these pleasantries run away with him. The worst of it is that he insists during discussion that he is serious, and thus everybody finds themselves upside down in a *cul de sac*, in the dark, and with no language but a cry. A good many of Mr. Shaw's arguments cut both ways. For example, the "Juliet" instance, which, together with that of the "Aunt Maria" and other plums for public taste, has been seized upon by the daily papers whose reporters did not wait for the discussion, where Mr. Shaw shone at his brightest. The "Juliet," in the case of the painter, was a model dressed up and painted with certain realisations and eliminations, and made to be exactly what the public liked and wanted. This is absolutely truth—the sole method possible, practised from Pheidias to Rossetti; but Mr. Shaw let it all tilt off his tongue as though it were a matter for scoffing, and the gaping part of his audience, who came to laugh and didn't intend to go away without it, took their cue, and laughed! When the speaker explained that the photographer took the same model and dressed her up and photographed her and called her "Juliet," but that the public wouldn't have her at any price, but said she was Miss Wilkins, *that's* where the laugh should have come in, as indeed it did to a fair extent. If Mr. Shaw had said no more than this he would have stated the case of art and photography with admirable sententiousness, and discussion would have been for. To tickle an audience with assertions that Academicians should be apprenticed to carriage-painters is simply to become a public entertainer, and nothing beside, and Mr. Shaw should have been at the Salon speaker for the utterance of such gems, between Churcher and THE Odell.

There was one dictum of the lecturer's that nobody seemed to regard seriously, although, in talking with him afterwards, we found that he honestly meant what he said. It was that painters should be paid for their work according to time, and not according to merit. It was a gross injustice, he implied, that a man like Sargent should get such fabulous sums as he does for his portraits. Say that Mr. Strang did his dry-point in two hours, and Evans and Coburn their prints in a week; allow the eight-hours day, and what shall we say an hour? A shilling? (All men are equal except the carriage-painter, who is a excrescence of worthiness.) Strang gets a florin for a dry-point etching much admired by Mr. Shaw, and the photographers get £2 8s. for their prints. Sargent would get less still for his charcoal portrait done in a few minutes, and which would be a thing worth a hundred thousand photographic prints. Mr. Shaw overlooks the fact here that the training of the artist is a life-long affair that is never paid for at all, but without which the rapid masterpiece would be impossible. He did not overlook it when he was pointing out the advantages of photography over art in the matter of their relative ease of mastery.

Perhaps the funniest thing Mr. Shaw uttered was that Dlmeyer would sell you for £30 a lens which was a marvel of accuracy, but useless without the contrivance kindly supplied with it, by which one could make it do the work of a spectacle lens at eighteenpence. He scattered gratuitous advertisements with a lavish hand.

We ourselves came in for one, for which we are duly grateful. The Cristoid film was also singled out for approval; but as to papers, Mr. Shaw thought that photographers ought to make their own. He even extended this recommendation to films, being pushed for an answer by one of the after-speakers.

The discussion which followed included some of the matters we have already alluded to. It was participated in by the following gentlemen:—Mr. Warburg, Mr. Evans, who disowned the five-days negative; Mr. Coburn, who spoke of his photogravures; Mr. Arbuthnot, Mr. Radford, Mr. Tilney, who called the lecturer a viper in the bosoms of the Links; Mr. Emanuel, who deplored fogs, mists and dusks in photographs, which the lecturer said was impressionism derived from under-exposure; Mr. Holbrook Jackson, who maintained that art was art and photography was photography; and others. Mr. Craigie was chairman. The meeting closed at a late hour.

SOME SEASONABLE HINTS.

NOTICES have for some time past been posted up at post offices in most places enjoining the public to post early all parcels which are required to be delivered during Christmas and the New Year in distant parts. This should remind photographers that the Christmas season—which sometimes is a profitable one to many—is getting near. A question that occurs to us just now is, whether professionals—particularly middle-class ones—as a rule profit from this transient class of business as they might do if they put more enterprise and energy into it. Manufacturers have long been putting Christmas and New Year cards of their newest designs on the market, and artistic and excellent most of them are. In past years we have learnt from manufacturers that photographers have delayed ordering until many of the designs their travellers have submitted had been sold out, and it may well be understood that it is the best and most taking ones that sell out first. People then sometimes complain that they are unable to obtain what they require. We may therefore remind them that there is none too much time for decision as to what shall be issued for Christmas use.

Portraits on postcards are now very commonplace things and, after all, carry but little profit to the photographer. What is really to be cultivated is something of a more *recherché* character—say a portrait of the sender mounted on one or other of the superior Christmas or New Year's greeting cards with the sender's autograph appended. If a specimen of such a card were sent to customers with a small portrait of themselves from the latest negative, or possibly one of a group of their children upon it, together with a politely worded circular or note, saying that such cards can be supplied at such or such price, we have little doubt that in most instances business would result. We happen to know that in several instances this system has proved a good stroke of business. Should it not secure a direct order the outlay involved is but little, and is generally more than recouped by the advertisement—the photographer keeping his name before his customers. The prints so used, we might suggest, should not be the usual black bromide, but prints toned to a sepia or some of the more novel colours obtainable by toning bromides. In fact, novelty is what should be aimed at in this particular class of business, as it will then the better appeal to those who are most likely to give orders.

Enlarged portraits are sometimes given as Christmas presents, but they, if large and highly finished, are somewhat costly. However, if a feature were made of small enlargements—say of the 10in. by 8in. size—lightly finished, and neatly framed in an inexpensive frame, they would lead to business in many places and prove a re-

munerative line, but to make the thing a success the pictures must be brought prominently before the customers, that is, specimens submitted at their homes, and it is none too soon to do this. Instead of showing the pictures in frames, they may be bound up in the *passee partout* style, which will be less costly than framing, and the prices might be quoted at per half dozen. The old proverb, "Procrastination is the thief of time," is one which we fear is not always realised by every photographer with regard to the business of a season. Hence our recommendation now is to take time by the forelock and lose no opportunity in preparing for the coming Christmas season.

While writing upon "seasonable" topics, we may make one or two suggestions of a directly practical nature. One is that the roof of the studio should receive some attention. The rain, of which we have unfortunately had too much of late, has no doubt made itself manifest through the roofs of many studios, and no time should be lost in making them water-tight. Bad as the weather has been, it is but natural to anticipate that worse, so far as leaky roofs of studios are concerned, will follow as winter advances. Snow, while melting, seems to be able to find its way through roofs, though rain may not. But whichever gets through, it is liable to damage the backgrounds, the furniture or anything else in the studio. Nothing

looks much worse, or is more depressing to sitters, than to see stained blinds and curtains, with possibly dishes or basins placed about the floor to catch the dropping water.

Another point that should receive consideration just now is the temperature of the studio. Up to the present the temperature has not been such that fires have been needed, but we cannot expect that to last much longer; therefore it will be well to see to the heating arrangements, whatever they may be, as they have been out of use for so long. In the case of stoves burning solid fuel it is almost certain that the flues are more or less choked up with soot. When these have been cleared it is possible, in the case of iron pipes, that they have become more or less rusted at the joints, and allow smoke to escape into the studio. This is a thing that should be seen to at once, as the escaping smoke, though it may be but trifling, produces a certain degree of fog in the studio, and, further, its condensation on the cold glass produces a yellow-brownish film on it, which greatly reduces the actinic quality of the light. This thin film on the glass may not really be noticeable to the eye, but it is there nevertheless, and has its effect, though the cause of the prolonged exposures is sometimes not suspected. Moreover, smoke, however slight in the studio, is often irritating to the nasal and other organs of sitters, as they come into it from the outer atmosphere.

THE COUPON SYSTEM AS APPLIED TO PROFESSIONAL PHOTOGRAPHY.

II.

Now, these coupons*—which are a fair sample of what is put out—both proclaim an astonishing reduction. Clearly this may be engineered by over-pricing the goods in the first instance. The class of studio to patronise Ticket A will, as likely as not, willingly accept \$3.50 per dozen for cabinets no whit inferior—here over-priced at \$6. As \$1.25 is quoted for half-a-dozen, \$2.50 would buy twelve. To this figure must be added the fifty cents paid by the customer to the agent. So that the customer pays \$3 for what would ordinarily cost him but \$3.50—a hook which, unadorned with all the lurid paraphernalia pertaining to artificial bait, would catch no one. But as the fifty cents goes to the agent, the photographer has undercut his price \$1—that is, nearly 30 per cent.—on the score of increased business; and unless his business temporarily increases something like 50 per cent., he may be put down a loser on the transaction (bar the advertisement, if it was any), since he has not only to make up the 30 per cent., but also some considerable profit to offset the extra work entailed. On the other hand, as the ticket is out for only half-a-dozen (to disguise the dozen price), the receptionist will not always succeed in talking the customer into a full dozen. It is true that not every customer would take a whole dozen in the ordinary way, but the best way to induce this habit is not to quote for less, except when compelled to. The suggestion of half-a-dozen only helps to sell the ticket, and, in the event of not selling more than six pictures the photographer loses considerably more than 30 per cent., having the plate to make for half the money. So much for the ticket which cheapens: the instance is not by any means an extreme one.

In Ticket B the apparent reduction is even more astonishing, for here we read that \$15 per dozen is the usual price for these fine folders, two of which are priced at only fifty cents. \$1.50 for fifty cents! Here, again, the ordinary price was \$7.50, and "glad to get it." "Only a hundred of these certificates issued"—a considerable understatement. "Good for thirty days from date of sale"—anything to hurry them along! "The simple

reason previously stated," namely, "that we may become thoroughly acquainted" for the genial occupation of decorating "your home," etc. And this is business?—or is it?—or is it not?

This ticket is built on the well-known lines of the "two-for-a-half" proportion, and it must not be supposed that, in those localities where this style of ticket "has all others skinned" its terms are not fully patronised by many customers quite alive to the terms of it. The photographer offers two pictures for fifty cents, and two for a half these will have, and, positively refusing to be talked into ordering more, they take their two pictures and smile themselves into the street. And the popularity of this ticket—on the Pacific slope, at any rate—has been such that, no sooner is one gallery through than another will start a ticket on the same principle. Then the "live ones" get another two pictures for fifty cents, and so on.

And this is legitimate, for the best picture sells, orders for extra copies being the rule. Nevertheless, it may be imagined that the members of this class of customer are not popular among the galleries, and they have their name—they are called "two-fers." But because the best picture sells, extra copies can only be had at a greatly increased price, which in this case is 75 cents each. This figure may be too much for some "two-fers" to give, and they may be lost in consequence if the terms are strictly adhered to. But, at any rate, the advertisement remains, and the work of the gallery is not cheapened.

One method adopted against the "two-fers" has been that of insisting upon having an appointment. But the "two-fer" who applied for an appointment was postponed indefinitely until either he was tired of using the elevator, or he decided to take more than the two, in which case no further delay occurred. But this very unwise method cures itself as the gallery which practises putting its clients out of patience so discovers, the news spreads apace, and the chances of another ticket on the same studio in the near future are "queered"; the coupon will not sell.

The value of an appointment with all coupon work can hardly be under-estimated, and the request for such should

* See "B. J.," October 15.

be printed clearly on the ticket, as, if there is a crush of work, as at times there will be, it is very necessary to be able to keep the ticket-clients well in hand. For this also prevents the system materially obstructing the usual work of the studio. It is most annoying to have to turn away a dozen cabinets at \$7.50 to make room for three half-dozen at a total remuneration of \$3.75. It is good to appear busy, but the price of appearances may be too high, as they would be in this case.

Also, the time to put out coupons, as well as the number of them, should be most carefully considered. With a busy time coming to canvass people for photographs who need no canvassing is simply to mortgage your clientèle hand over fist. With probable depression of trade ahead tickets will go as flat as they are printed. Either they will not sell, to the disgust of the agent who, if he is spiteful, may very likely declare abroad that "you can't sell tickets on that gallery now"; or else, having sold, they will not be presented, to the disgust of clients, who vow they will never buy another.

For a time-limit seems almost necessary, if for no other purpose than to make it quite clear that the offer is a temporary one. In this case, when next canvassing the same people, instructions should be given the agent to exchange the old coupons for new and make it up to him on the terms of some arrangement satisfactory to both parties; or, what is more usual, to let the new coupon go at half price to possessors of those out of date, to which the agent will generally agree. And here I may mention the practice of buying up the coupons on other galleries, as well as record, once and for all, the case of the photographer who advertised that he was prepared to honour the coupons of all other galleries!

It is useful sometimes to "keep tab" of the agent when possible. This can be done by insisting upon him taking the names and addresses of all those to whom he has sold tickets, in order that customers may be circularised, should they fail to present their tickets within a reasonable time, and, also, if necessary, to back up every day's canvass with a notice through the post assuring customers of the genuineness of the offer. Here is the circular adopted by one man for this very purpose:—

DEAR MADAM OR SIR,

.....1909.

We beg to confirm the terms of the contract purchased by you from my Special Representative, and to inform you that we have no share in the 50c. you have paid him therefor, and which covers cost of distribution only.

As far as we are concerned the two pictures contracted for are given freely, this entailing upon you no obligation whatever except that, should you desire to avail yourself of the very exceptional terms it introduces to your notice, the said contract or certificate must absolutely be presented at this gallery one month from date it bears, either for use or for extension of time, otherwise it will become null and void in the terms of its provision.

We have adopted this method solely for advertisement purposes; and, in the orders for extra copies we expect to book, coupled with clients' good opinion of our high-grade work, you will be pleased to read not only our sole chance of profit, but also your own guarantee.

Any complaints of misrepresentation or incivility should be at once reported to us here.

Finally, we hereby certify that only One Hundred of these contracts have been issued for distribution, and that none are sold at the gallery.—Thanking you in anticipation of an appointment,
Yours faithfully,

Miss Julia Juggins.

P.S.—All clients requiring more than the two pictures will be given precedence as a matter of course.

As the news gets about, a typewritten circular of this kind gives the agent a standing in the town which will go far to help him sell your tickets. Besides serving in some measure to discountenance agents using the name of your gallery without permission—a common practice—it helps in a way to check the bona fide canvass, and the class of customer approached. It is clear that the "two-for-a-half" proposition should be in reliable hands, as to have a large number of tickets all placed in one small area of the town is a heavy mortgage on the connection which may be assumed to come into existence in response to your advertisement.

Be sure, also, to make the agent return all undelivered coupons and specimens whenever you shall deem it advisable to withdraw your offer. Otherwise, in the case of any friction arising between you, the agent may choose to sell the tickets over your head in any unscrupulous way which it will occur to him may injure you most. Likewise, the specimens are anybody's to use, to whomsoever the agent may care to give or lend them for that purpose. In which case some stray customer may one day call you to account for letting copies of his picture get into strange hands; and yet you could not restrain the vindictive agent from either of these practices without an infinity of trouble, and probably considerable loss of prestige.

Many proprietors of studios calculate to switch the customer on to something quite different or more remunerative than that advertised. This is only business, and a clever receptionist will frequently reap a harvest for her employer. But unless her talent for talk is exceptional, the procedure will be found to waste a good deal of valuable time that were better spent—not at the time of sitting, but later—on the examination of proofs, which you should try to arrange to take place at the studio. After all, the straight ticket is the only ticket in the long run, as it is far less liable to create friction than one requiring considerable explanation.

Some men will profess a partiality for a style which will *not* appeal to their customers. They depend, they will tell you, solely on the excellence of the photographs themselves to sell the tickets, the agent to explain that clients can have their choice of styles at the studio. This method is believed to play into the hands of the smart receptionist. Customers arrive ready primed to decide on a style they have yet to see and approve. The suggestion once made, there is frequently less difficulty in inducing the client to part with more hard cash than it is likely he or she would otherwise do. That is the root-idea, and no doubt some agents can make it pay—when it is really inconvenient to carry styles mounted. Generally, however, the coupon will bear some such phrase as "This certificate also entitles the holder to a similar reduction on all other high-grade work"—which occurs on Ticket B aforesaid.

Have I now said enough to prove that the man who puts out coupons ought to have plenty to think about some time or other? If not, I will add that there is much else which will thrust itself upon the notice of studio proprietors, due to peculiarly local conditions—the class and temper of their clientèle, the class of work they cater for, and the temper in which that work is executed. There is no gauging all these things here, and I have already exceeded my space.

L. HAWES.

L.C.C. LANTERN SLIDES.—At the meeting of the Education Committee of the London County Council on October 13 it was reported that the lantern slides in the Council's collection had now been catalogued for the first time in a single complete volume. The committee have been in communication with the Colonial Governments with a view to securing modern slides illustrative of Colonial scenery, and industries, and they have been able to include some 320 new slides made from specially selected photographs and negatives which have been placed at the Council's disposal by the Govern-

ments of the Cape of Good Hope, Canada, Natal, New Zealand, and Western Australia. As similar facilities have been promised by the Governments of most of the other Colonies, it was anticipated that a large number of additional slides will be available at an early date. Sets of slides illustrating places of interest on the Cape Government Railway, and Grand Trunk Railway system (Canada), and the North-Eastern Railway have also been presented to the Council. Some 948 slides have been placed in the collection, which have been made from negatives, photographs, and slides lent by teachers.

THE USE OF RED-SENSITIVE PLATES IN PORTRAITURE.

[The following article on a subject to which we have on several occasions drawn attention appears in the current issue of "Photographic Progress," from the pen of Mr. R. J. Wallace, whose appointment to the directorship of the Research Laboratory of the Cramer Dry Plate Company we recently noted. Mr. Wallace's writings have in the past dealt almost exclusively with sensitometric questions, but it may be hoped that in taking a seat upon the scientific direction of the Cramer factory he will apply his expert knowledge and facility of exposition to such every-day problems of the photographer as this—of securing better rendering of tone and colour in studio portraits.—Eds. "B.J."]

It is the general custom in portraiture to make use of a plate which is selected solely on account of its general speed to "white light." Consequently, as the "isochromatic" or "panchromatic" emulsions are somewhat slower than "ordinary" plates, the latter are almost universally used.

There are two factors, however, which enter into consideration regarding practical utility, viz.: first, the nature of the subject (or object) photographed, and second, the nature of the white light under which the exposures are made.

The Sitter is a Coloured Object—

In portraiture we are dealing with the copying of a coloured object—not only that, but a coloured object which presents the maximum of its hues in the longer wave-lengths—viz., the red end of the spectrum. That this is obvious is apparent upon but a moment's consideration, for the dominant hues of flesh tones are yellow, pink and red. If we were dealing principally with hues situate in the region of shorter wave-length, then the dominant colour reflected to our eye from the flesh would be a bluish violet.

The face, however, does not present one even gradation of tints in yellows and pinks, but is marred by many imperfections, such as freckles, etc. These freckles are brownish in hue, but brown is simply red and green mixed (or degraded) with black; in other words, red and yellow of low luminosity.

—and the Ordinary Plate is Colour-blind.

Turning now to the "ordinary" photographic plate, it is very thoroughly known that it is extremely "colour blind." This is easiest proven by the exposure of such a plate to the spectrum.

If we divide the solar spectrum (which is the analysis of white light) into the three primary colours, we have red, green, and blue-violet; these three colours cannot be produced by admixture, and are therefore primary. Yellow is a mixture of green plus red, while pure blue is a mixture of green plus blue-violet. Besides these three primaries there is another spectral region which is utterly invisible to the eye, termed the ultra-violet, but while invisible, is yet strongly active upon the photographic plate. Tabulating these regions in a semi-graphical manner, we may show the relative sensitiveness of photographic plates thus:—

Spectral Primaries.	Red.	Green.	Blue-violet.	Ultra-violet.
Sensitiveness of the various plates	Plate.	Plate.	Plate.	Plate.

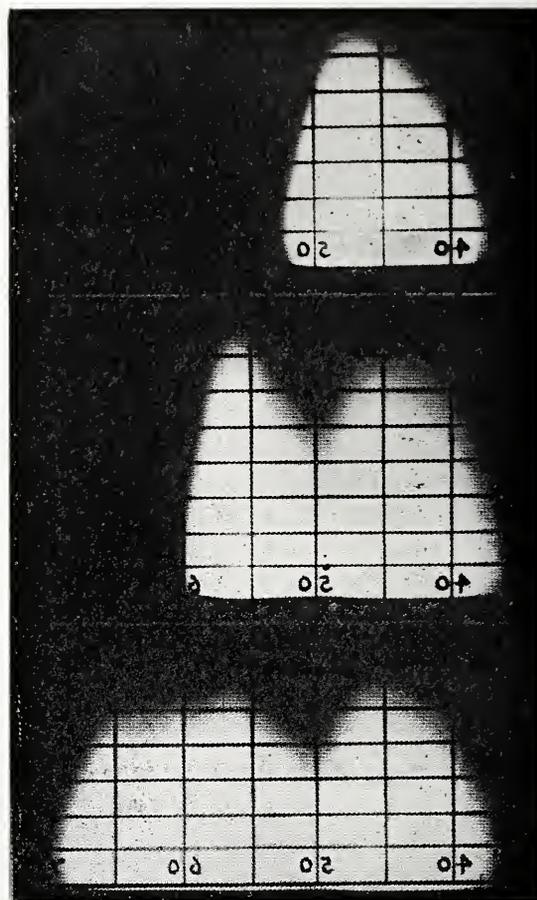
	Spectrum	Isochromatic Spectrum	Ordinary Isochromatic Spectrum	Ordinary Isochromatic Spectrum

Such a tabulation shows at a glance the general capability of the plate used. With the ordinary plate we obtain no record of either the green, yellow, or red; with the isochromatic we obtain no record of the red, but one-half the value of the yellow, while with the spectrum plate we are enabled to obtain a record of all colours.

A very pertinent question at this point would be, "Why do we obtain a negative on the ordinary plate if it is not sensitive to the colours which the object presents?" The answer to which is that in nature (fortunately for photography) we are not dealing with pure colours, but with colours which

also contain varying amounts of all the others, and also ultra-violet. Red, for example (in nature), is not red solely, but reflects to the eye also green, blue-violet, and ultra-violet; it appears red simply because that is the hue which it reflects most of. The plate, therefore, is acted upon by these regions (or colours) to which it is sensitive, i.e., the impurities in the colour, and not by the colour itself; hence, when using "ordinary" plates the negative is formed by blue-violet and ultra-violet, and not by the yellows, pinks, and reds.

It is equally obvious that by making use of an isochromatic plate we have a material advantage by the increase in the



Red. Green. Blue-Violet. Ultra-Violet.
Fig. 1.

range of colour sensitiveness, and with the spectrum plate a still greater advantage, because we have a plate sensitive to the entire gamut of colour. This increasing extent of colour sensitiveness is well shown in the accompanying illustrations, which are exposures of the spectrum with the three types of plates enumerated. (Fig. 1.)

The subject is not concluded with such extreme simplicity, however, for although the "iso" and "spectrum" plates are respectively sensitive to green and red, yet the sensitiveness to the blue-violet is by far the strongest, while the ultra-violet is equally strong on all three. In reality, the red and green present an almost equal brightness to the eye, while the blue-violet is very much darker, so that if the plate-sensitiveness were to correspond, then the action would be considerably

changed, and the red and the green present the highest maxima.

In order to obtain this correct relative intensity it is, therefore, customary to cut down the excessive sensitiveness to the blue-violet by means of a colour filter (or "ray filter" as it is popularly termed), whose function is the absorption of a portion of the blue-violet—that is to say, it dims down this hue to such an extent that it is not able to impress itself so strongly as before. Inasmuch as the ultra-violet is invisible to the eye, it is obvious that we do not want its record; hence every ray filter, to be thoroughly effective, must also absorb completely the ultra-violet. It is not possible by sensitising methods alone to obtain a plate wherein the red or green sensitiveness is greater than the blue-violet; and all claims to the contrary are founded upon results from imperfect testing apparatus; for example, exposures made to the prismatic spectrum, or with an abnormal light source strong in red.

How the Ordinary Plate Accentuates the Sitter's Defects,

It will now be readily apparent that, armed with a plate and colour filter, capable (collectively) of representing colours

D Eb F G HK

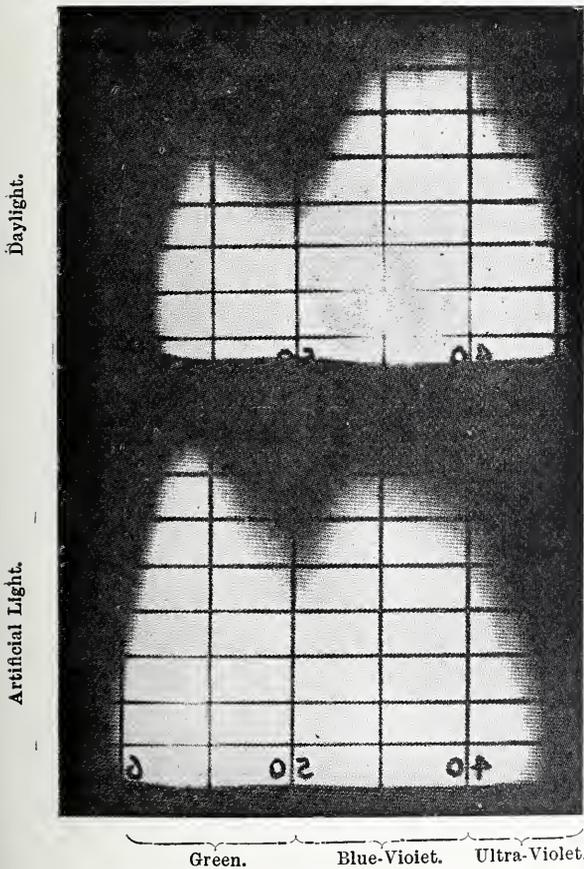


Fig. 2.

in black and white by their relative brightness, the production of prints from such negatives are absolutely certain to be more truthfully correct to visual impression than prints made from another negative obtained by blue-violet and ultra-violet light. Not only is this so, but the "ordinary" plate negative (by reason of its insensitiveness to colour) accentuates strongly every brown freckle and facial blemish, and therefore requires the maximum amount of retouching, while the colour-sensitive plate, simply on account of its very sensitiveness to these colours, renders a result in which retouching is more or less eliminated and dependent upon the amount of correction by the ray filter.

Nothing need be said regarding the improvement in the rendition in the colour of eyes, hair, or costume, because the value of colour-sensitive plates in this respect is now too well known. "Colour-correct" photography is the coming factor in portrait work, just as surely as it has become the premier

factor in landscape, genre, and commercial work. Wise is the man who comes in on the crest of the advancing wave, instead of struggling painfully with the flood.

Drawbacks of the Red-Sensitive Plate.

The "advantages" having been presented, we may glance briefly at the "disadvantages." First, there is the question of speed. It is unfortunately true that a plate may not be specially sensitised for colour without a lowering of the speed to "white light," *i.e.*, daylight. Many photographers, however, make use of artificial light—incandescent gas, acetylene, incandescent electric, and arc. With all such colour-sensitive plates have a marked advantage, because they are making use of a light source which is deficient in the amount of blue-violet and ultra-violet light, compared with daylight, while the red and green are accentuated. That this is so is easily shown by exposures behind, say, a Chapman-Jones or other like form of "plate tester." It will be found that the speed readings of "isochromatic" plates are *higher* than the readings of "ordinary" plates. This is simply due either to the light used or to the yellow-brown colour of the "neutral grey" speed squares. The fairly general use of rapid working modern lenses, however, eliminates the greater portion of this "trouble," and colour filters can readily be obtained to give any amount of correction desired, the principle being that it is obviously better to obtain one-half or even one-quarter correction than no correction at all. Double or triple the present exposure time is a small matter on adult sitters to an operator possessed of modern tools.

The mechanism (so to speak) of the increase in exposure by the use of a "ray filter" is very simple. Suppose, for example, that the speed of any particular colour-sensitive plate be represented by 100 units, of which 15 units are in the red, 15 in the green, 50 in the blue-violet, and 20 in the ultra-violet. If we make use of a ray filter which absorbs only the ultra-violet, then we are cutting off just that 20 units. Consequently, the exposure must be increased to allow of stronger action in the remaining regions to make up the loss. Again, if the filter not only absorbs the ultra-violet, but also reduces the action of the blue-violet to, say, 10 units, we have 20+40=60 units, with a correspondingly greater time increase in the exposure. These figures are simply used as an example.

The second "disadvantage" lies in the very colour sensitiveness of the plate itself, for it necessitates that the red-sensitive plate be handled in total darkness. That it must be so handled is simply a tribute to this sensitiveness; but even this point is well met by the use of tank development, a method coming more and more into general use and favour. It is taking the photographer a long time to appreciate that he can't *help* a plate by watching it develop, and that he can get better and more uniform results by "tank methods" than ever before. Advancement is slow, however, and in this instance by hard travail, verily "there is no pain like the pain of a new idea."

The use of the mercury vapour lamp is not to be commended with colour-sensitive plates, because this light is practically devoid of red. This brings us to a consideration of the difference in "general" sensitiveness of a plate when used with abnormal light sources.

Any light is termed abnormal which differs in its constitution from daylight; that is to say, which has different relative distribution of intensity throughout the different hues. As has already been stated, the artificial illuminants previously mentioned have relatively a stronger action in the red and green than daylight, and this increased intensity is well shown in the spectrum curve prints of Fig. 2, which shows a comparison of the acetylene flame spectrum with daylight on identical plates. The greatly stronger action to the blue-violet is readily apparent in the daylight exposure, and needs no further comment.

R. J. WALLACE.

ON THE INFLUENCE OF BORIC ACID ON THE KEEPING AND WORKING QUALITIES OF THE DIAMIDOPHENOL DEVELOPER.

(A Paper read before the recent Congress of Applied Chemistry.)

SOME years since, a recommendation was made by the present writer as to the use of boric acid in alkaline developers as an excellent means of correcting over-exposure. It was found that boric acid is particularly active when used in conjunction with potassium bromide, and the suggestion was made to use a 10 per cent. solution of potassium bromide saturated with boric acid, this mixture being kept in readiness in the dark-room. This bromo-boric acid solution has been adopted by many, whilst others have informed me that the use of a similar solution has been found of advantage by Dr. Dillaye in the development of bromide prints.

In the course of further experiments on the use of boric acid in conjunction with different developers I have found that, in the case of solutions which work only when containing an alkali, the action of the boric acid is distinctly different from that which is observed in developers such as diamidophenol, which do not require alkali. In the case of the former solutions the boric acid exerts only a notable restraining action on the developer, whilst on the other hand, in the case of diamidophenol made up in the usual way, without bromide but saturated with boric acid, it is found that the effect of the latter on the development is not noticeable. The appearance of the image is restrained so little that in cases of over-exposure the effect is nil. The only distinct advantage is that a diamidophenol developer containing as much as 50 gms. per litre of boric acid keeps much better than the ordinary formula, so that it is not necessary to make up the solution at the time of use. Further, a bath so prepared appears to be sensitive to differences in temperature to a far slighter extent, since the solution has been employed up to a temperature of 77 deg. Fahr. without difficulty.

I find that potassium bromide possesses only a very limited restraining action upon diamidophenol, so that very considerable quantities require to be added in order to correct errors of exposure.

It is, therefore, on this account that bisulphite solution is advisably added to the diamidophenol developer when thus dealing with over-exposure. The bisulphite, however, possesses the property of weakening the reducing power of the developer, and even when present above a certain limit, of almost entirely suppressing its activity. When containing bisulphite, amidol developer, which without such addition possesses a tendency to give weak negatives, gives still less intensity, so that, as Lumière and Seyewetz have recently pointed out, the development is restrained without the contrasts being improved. So

far as concerns the preservation of the solution the small quantity of bisulphite which may be safely added to the diamidophenol solution exerts a very slight influence on the latter, as already shown from the figures given in a previous contribution.

Addition of boric acid by itself to the diamidophenol developer does not possess the drawback of the bisulphite; it does not diminish the reducing power of the amidol, whilst it keeps the bath almost as well as the bisulphite. Used alone, as already stated, the development is restrained only to a very small degree, but it has the advantage of rendering the developer much more sensitive to the action of bromide. Thus the following formula is arrived at:—

Sodium sulphite, cryst.	40 gms.
Boric acid, powder	50 "
Diamidophenol (hydrochloride)	5 "
Water	1,000 ccs.

As examples of the use of this solution, the following times of development are given, the conditions under which the plates were treated being identical in all other respects:—

1. Development with plain diamidophenol developer, as given above, but without boric acid 5 to 6 minutes.
2. Same developer with addition of 3 gms. potass bromide per litre 8 to 9 minutes.
3. Development with diamidophenol and boric acid as given in formula above 6 to 7 minutes.
4. Same developer as in No. 3, but with addition of 3 gms. potass bromide per litre 17 to 20 minutes.

As regards intensity of the denser portions of the negative the four results were the same, but as regards contrast those obtained with bath No. 4, in comparison with the others, showed a greater degree of correction of the over-exposure.

Since it is thus feasible to impart to the cheap diamidophenol developer, by means of addition of large quantities of boric acid, the properties which are possessed only by the more costly developers, it will be clear that the above formulæ should be of value in practice, particularly in the case of the preparation of cinematograph positives, or in making large quantities of bromide prints. Reference should also be made to the fact that the use of a considerable proportion of boric acid in the diamidophenol developer has hygienic reasons for its recommendation, since it greatly diminishes the action of all alkaline developers on the skin to which many persons are liable.

R. NAMIAS.

THE PLATINUM MARKET.—Platinum is likely to be raised in price, according to the measures which the Russian producers are taking. About 95 per cent. of all the platinum in the world comes from the mines of Nijni Taguil and the neighbourhood. The mines are now operated by English, German, French, and Russian companies, but there is now a movement in Russia to keep the platinum production in the hands of a native company or a State enterprise, so as to have Russia benefit by the platinum production instead of foreigners. Last spring (according to a report in the "Scientific American") the Aide of the Minister of Commerce and Industry, M. D. Konvaloff, presided at a meeting of the platinum producers, and the assembly came to the following decision in principle, namely, that all the platinum extracted in Russia should be turned over to a State establishment, which would deliver it to a commission charged

with the sale of the same, and to be composed of seven members, a delegate of the lesser manufacturers, one from the mean, and four from the leading, producers, who handle more than 800 pounds annually, also a Government delegate. This commission will make a reckoning before the end of the fiscal year, and will publish the least price established for the following year. For the first year the price will be 21,000 roubles the pound (\$710 per pound) for 83 per cent. platinum. Upon the products which are turned over to the State establishment there will be allowed an advance of 80 per cent. of the value, at a 5 per cent. interest. It will be forbidden to export crude platinum, and the refining must be done in Russia. This decision is not as yet legalised, but it may be done in the future and it is expected that the price of platinum will be accordingly raised.

ON GENERAL AND LOCAL PHOTOGRAPHS IN MUSEUMS.

(A paper read before the Maidstone Conference of the Museums Association.)

II.

The Second-hand Photograph.

AND exactly the same cause is productive of another difficulty for the collector of photographs. Few, I suppose, in the first instance desire to collect reproductions of every kind of art, ancient as well as modern. Yet before he has long been at work collecting some particular category, he will find himself the involuntary possessor of works of art of all sorts of other categories. If, for instance, he takes in one of the numerous German publications such as *Das Museum* or the French *Les Arts*, he will find that besides the particular school of art which interests him, all other schools will be represented in the plates that come to him month by month. It will frequently happen that the very print he wants is to be found in a casual number of some art magazine, which he therefore buys; but after abstracting the particular print desired he will have on his hands perhaps two or three dozen more, many of them doubtless of no little intrinsic interest, but belonging to altogether different schools and periods from the school and period that he may have selected for his own study. If he keeps these, as he will of course tend to do, and roughly group them together in their proper places, before he realises what he is doing he will find that he is collecting the art of all sorts of periods and of schools which he never intended to regard. Somewhere else, no doubt, there is a student who would gladly relieve him of whole groups of these bye-products of his own search; but until the commercial organisation of the photograph trade is further advanced, no means exist for bringing to each of these persons the knowledge of the existence of the other. This is the reason why masses of photographs are annually destroyed which it only requires a little organisation to make of some definite value. I have frequently inquired of second-hand booksellers and print-dealers and persons who attend the smaller auction sales, why it is that though in almost every house there are to be found volumes and portfolios full of photographs which in due course must frequently find a place in sales, such collections of photographs are hardly ever to be found at the second-hand booksellers' and print-dealers'. The answer I receive is always the same, viz., that the price these things fetch is simply that of old paper, and that they are used mainly for packing for the sake of the cardboard on which they are mounted. One man assured me that he had recently bought for a few pence a great pile of Braun's costly photographs and that they had been simply chopped in half and used to pack the parcels of books that he despatched to different parts of the country. It is only on the very smallest second-hand bookstalls that one may sometimes come across a box labelled "Everything here 1d.," in which you will find photographs. Out of such boxes, which I make it a habit to turn over, I have in my time bought photographs of drawings by old masters which have since disappeared, and of buildings which have since been burnt or restored out of recognition. There is no doubt whatever but that the annual destruction of photographs of real importance to the future historian and student of art is very great indeed. And this destruction is entirely due to the fact that though multitudes of people buy photographs, very few as yet buy and arrange them systematically, and therefore the commercial organisation for photograph collectors does not exist. There are shops, of course, galore where you can buy the ordinary run of current production in the photographic line; and some even where a laudable effort is made to keep negatives of objects, of articles and drawings in private collections. But no trade is alive until the articles it supplies have a second-hand value. It is by the second-hand trade that the health of a trade in new objects can best be tested. The fact that some books at any rate are worth far more second-hand than when they were new; the fact that some pictures increase in value from year to year; that some postage stamps grow more valuable as time goes by, stimulates the collection of such objects and gives vitality to the trade in them. Already there exist, as I have said, a multitude of buyers of photographs whom present arrangements suit well enough, and a small but increasing number of systematic collectors for whom no existing agency caters at all. It is probable that the time has already come when a skilful dealer might commence the trade in second-hand photographs and find no little profit in so doing, especi-

ally if he added the collection and storing of negatives on a systematic plan, to the mere buying in of prints.

Multiply the Small Private Collector.

Nothing is more wasteful nowadays than the way in which negatives are cast aside after they have served a temporary purpose. Owners of private collections are unanimous in describing the photographer as a common nuisance. They are continually being applied to by one person after another for permission to photograph objects which have already been photographed half a dozen times before. If there were some place where negatives after serving their first purpose could be stored, for use again when required, an immense amount of overlapping would be saved. Owners, in fact, would be wise to make the condition when they give permission for any of their pictures to be photographed, that the negative should be loaned for a reasonable fee to any other person who had the owner's permission to apply for it. Still better would it be if owners themselves were to require the negative when done with to be returned to them, and were to keep a series of negatives of objects belonging to them in their own possession or use when required. It is frequently the case that when a collection is dispersed by auction, an illustrated catalogue is published. What happens to the negatives no one knows. The pictures are scattered all over the world, the illustrated catalogues remain for the most part in the hands of dealers and are presently destroyed, and the negatives are presumably broken up before many years have passed, or otherwise cease to exist. In the same way, when a picture or a bronze passes through the hands of a dealer, it frequently happens that he has a photograph made of it; and there is reason to believe that if any central establishment were formed for the preservation of negatives, that many dealers would be willing to transfer such negatives to it for a small price. Thus records would be preserved of fine objects passing through the market, and if they afterwards met with misfortune, as some of them must, these records would be of considerable and sometimes priceless value. There is a well known case of a seal of Hittite workmanship which was offered for sale to a great museum years before the work of the Hittites had been identified. The seal was not recognised to be of interest and importance and was returned to the vendor. But by good luck an impression of it was taken and remained in the museum. Years afterwards, when attention was attracted to Hittite archæology, this impression was recalled and was found to be of the greatest interest. Meanwhile the original seal had utterly disappeared and no one has been able to find a trace of it ever since.

The Value of Rare Photographs.

Such is one of a thousand instances that might be quoted of the possible importance of old reproductions. Nothing is easier than to keep them once they have been made, if only there is a proper place to which to send them where persons are employed to take care of and to arrange them. But, as I have said before, the great preservative agency in all such cases is not first of all the big institutions, it is the small collector. One small collector of course can do little, but as soon as he becomes one of many, the search for these perishable objects is carried on by many pairs of eyes peering about in many places. Competition quickens intelligence; co-operation spreads the knowledge. By degrees, that which is rare becomes recognised as rare, obtains a correspondingly increased value, and leads to more vigorous and persistent efforts of search. The danger of destruction attending a rare thing is diminished the moment it is known to be rare. The only original photograph existing of some important picture, let us say, that has since been burnt, would very properly have the value proportionate to the value nowadays assigned to a rare postage stamp. It is a mere question of the number of people who desire an object that determines its price. At present rare photographs are not particularly desired, because nobody knows anything about their rarity and few people realise their importance. Value in the case of postage stamps may indeed be called fictitious, because the objects themselves are of little intrinsic interest, and it is only the fact that so

many people collect that makes the possession of a particular stamp desirable. But in the case of photographs the intrinsic interest may be very great indeed, and if in addition to intrinsic interest great rarity is added, the value arrived at may be far higher than now seems likely. What has made stamps so much sought after has been the competence of the principal dealers in organising the trade. Few trades indeed are so well organised as is the trade in postage stamps. No trade is so badly organised as that of photographs. Nowadays at least the illustrated postcard has begun to be made a matter of collection. This has been due to the fact that the post-card comes very near to the area pastured over by the stamp collector. Here photography and stamp collecting meet. But illustrated post-cards, when all is said for them that can be, are an indifferent kind of photograph, and do not lend themselves to mounting and classification nearly so well as somewhat larger prints. Their single merit is their cheapness and the elaborate organisation that already exists for their sale. Already a tendency is apparent to increase their size by doubling or quadrupling them, and it is probable that out of this further developments may arise which will be important to the collector of photographs. Italy is the only country where the production and sale of photographs has really been carried to a high degree of perfection. With the catalogues published by the chief Italian photographers at hand, it is easy for anybody to order and obtain photographs of almost any kind of work of art existing in Italy. England is perhaps at the other end of the scale—the country in which photograph publication is least efficiently carried out. The moment you happen to want anything outside the most commonplace range of tourists' photographs in England, you find it almost impossible to obtain it. Most things indeed have been photographed, but the work has been sporadically done and the negatives having served their temporary purpose have been destroyed. In Italy, photography is carried on by large firms who have realised, as English photographers have not, that the great touring public

will buy photographs very freely if they are offered at a reasonable price and are made easily accessible. The ordinary Italian photograph costs 5d.; the corresponding English print costs from one to two shillings. In Italy you can hardly find a building or a picture or any object in a museum of any importance where a photograph is not easily obtainable. But even in the National Gallery in London, half the pictures, if photographed at all, are not easily obtainable in the photographic form. If this is true of the National Gallery, how much truer it is of the provincial museums and private collections will be readily guessed. There is room in England not for one, but for several great photographic publishers to cater to the demands of the large touring public, and still more, of the public that seldom tour, but that desire to possess representations of objects they cannot travel to see. If once these two steps could be taken in England, a proper system of publication on the one hand, and an organisation of the second-hand trade on the other, the number of photograph collectors would rapidly increase and the preservation of records of existing objects of beauty and interest would be efficiently carried out. Not till then will a demand arise for the formation of an historical photographic museum such as I have above proposed. The time will certainly come when that museum or something like it will be made. When it is made, its utility will be so obvious, its importance for all sorts of investigations will be so readily recognisable, that the wonder will be why the making of it was so long delayed. Every collector of photographs who nowadays makes the organisation and arrangement of his collection a matter of personal interest will be contributing to this ultimate development. The mere fact that a man goes and searches over second-hand bookstalls for old photographs is itself a stimulus to the bringing together of such objects by dealers. It is in the hope that I may inspire some of my readers to go more methodically to work in this matter that the present article has been written.

MARTIN CONWAY.

DISCUSSION.*

The President: You have already, by your applause, shown your great appreciation of this communication by Sir Martin Conway. Yesterday, when we were visiting his castle at Allington, the absorbing attraction of the castle rather militated against seeing the collection of pictures he has been speaking of. That was a very great loss. But the compensation for us is that we had so much to see; and the loss is somewhat made up by the pleasure we derived from the artistic and noble work being done at the castle in its restoration. It only makes us doubly under an obligation to Sir Martin Conway that he should have come to us this morning with this delightfully breezy account of his labours in the collection of what may be regarded as representing everything in connection with art. He spoke of it as the dropping of a suggestion amongst us; and I cannot help thinking that to some of us the suggestion came rather like a bomb-shell when he spoke of cutting up rare prints. But we have to remember the main object in view—to acquire a collection on a thoroughly comprehensive scale, which shall deal with the whole subject, and be readily accessible for reference. There is only one way in which this can be achieved, and that is by having one definite uniform standard; and the cutting up principle comes in as a necessity when that is accepted. We have to accede to the rigorous necessity of hardening the heart in this direction. The only thing that strikes me is that there must be some limitation to this cutting up. While Sir Martin Conway was describing his collection and methods, it occurred to me that it is most desirable that there should eventually be established a great national collection, based upon the system so ably expounded by him, and I am tempted to express the hope that the splendid collection of photographic and other records which Sir Martin Conway has already developed upon such comprehensive lines may one day form the nucleus of such a national reference collection.

Mr. J. H. Allchin: A few years ago there was established in this county a Kent Photographic Survey, and steady but slow progress has been made up to the present time. Prints when mounted by the secretary are sent to this institution, and I have the charge of them.

The collection of photographs is divided into architecture, antiquities, archæology, natural history, with sub-divisions, landscapes, historic events, etc. When anything of historical importance is taking place we get someone to take a photograph. When the Maidstone volunteers returned from the Boer War there was a reception at the railway station, and we secured several photographs of their subsequent progress through the town. We obtain photographs of everything we can. The prints are kept here for reference and are mounted on stiff brown paper, as we cannot afford expensive mounts, and if paper is used they do not occupy very much space. A label is attached at the bottom of each sheet, giving the classification of the print, the date, locality, and name of photographer. A great many of the pictures, especially the natural history subjects, have been taken by my colleague, Mr. Elgar. One of very great interest shows the overhanging nests of one of our sand-boring wasps, composed of tubes of grains of sand projecting from the tunnel. The Survey is quite a private association, and has nothing to do with the museum.

Dr. F. A. Bather: I should like to express our great thanks to Sir Martin Conway for his address and to make a suggestion concerning the cutting up of prints. As you say, there must be a limitation. I take it he is collecting these objects not as works of art, but as records of works of art or whatever the subject may be. The word "photograph" implies that he does not regard these reproductions as pictures in themselves. But, of course, the time comes when what was originally described as a photograph may be regarded as a work of art. It is all very well to take prints and cut them in pieces for the sake of convenience; I quite appreciate the point of view. But when the reproduction becomes itself the work of art, Sir Martin Conway would no more think of cutting it in two than of sawing through one of the statues of Notre Dame for the sake of putting it into a cube.

Sir Martin Conway: No, I should have it photographed.

Dr. Bather: I expected that.

Mr. Charles Madeley pointed out that it was scarcely possible to prosecute such a work as Sir Martin Conway was doing in a public institution. Many prints such as he dealt with so drastically had to be treated as works of art in the museum, and the Curator was expected to preserve them with respect. At Warrington it had

* In his introductory remarks Sir Martin Conway stated that by "photographs" he meant all kinds of reproductions (on a flat surface), whether photographs, engravings, or lithographs, &c. This explains some comments made during the discussion which would otherwise appear irrelevant.—Ed.

been found possible to do this. While in many instances they had adopted the principles laid down by Sir Martin, they differed from him in matters of detail. They had adopted a different unit and classified according to subject, so that the pictures formed their own index. When, however, they came to deal with records of objects existing near their own town, they found the geographical interest overpowered the topical interest, and they adopted a geographical arrangement. Sir Martin Conway did not mention it, but he did the same thing himself. When, at Allington Castle the previous day, they came to Sir Martin's end box, they found it devoted to pictures of Allington Castle without chronological arrangement. He hoped Sir Martin would forgive him for giving him away, but they had to do the same at Warrington when they got within a certain distance of their own hearth-stone.

Mr. Richard Quick mentioned that something of the kind was done at Bristol, but they photographed the engravings and placed them on cards to make them uniform with the rest.

Mr. Henry D. Roberts inquired if curators had not already enough work to do. A photographic survey in Sussex had been resuscitated, but he had religiously abstained from having anything to do with it beyond arranging and cataloguing the documents which the members brought in. So far as maps, records, and engravings were concerned, they were carefully photographed by themselves. The unit used was not a topographical one, everything went to its own immediate district.

The President thanked Sir Martin Conway for reading as the concluding paper one which would leave a pleasant impression on the minds of members of the Association.

TREATMENT OF STALE GASLIGHT PAPERS.

[The following article in the current issue of "Photo-Notes" suggests that damp is the main cause of trouble with stale gaslight papers, and the results submitted by the author show pretty clearly that a thorough drying of the paper before use will more or less remedy the effect of staleness if the developer is restrained with extra bromide. It must be remembered that all the cases quoted by him were very bad ones, for the paper, when bought, gave perfectly hopeless results, as evidenced by the specimens sent. The effect produced by the drying process is, however, very marked, and from the results we may reasonably conclude that no trouble would have been met with if the paper had been kept dry all the time. The conclusion to be drawn is obvious. We should exercise greater care in storing gaslight paper, and it would be best to adopt precautions similar to those taken with platinum papers.]

I HAVE always contended that the deterioration of gaslight paper is due mainly to one cause—namely, damp. In the course of a long experience of gaslight papers I have often purchased papers of various makes on which it was impossible to get a good print, the chief fault being absolute lack of contrast, the finished result being flat and grey. In some cases, with papers which were known to be old, the development was unequal, the image coming up in spots, at different rates in different parts.

In Oban in autumn, 1908, I purchased some postcards of a brand I have used more than any other. The first prints made from the packet were excellent in every way. The open packet was then put away in a cupboard, which, by the proprietors of the house, was said to be damp. Some days (certainly not more than a week) later I had occasion to use the same packet of paper with the same negatives, and, notwithstanding a liberal use of 10 per cent. bromide solution in the developer, I could get nothing but exceedingly flat prints. The following evening I put the remainder of the same packet in front of the fire for an hour or two, and then with the same developer (but without bromide) that had been used all along the paper once more gave brilliant results.

About the same time I bought a packet of a very old paper that has been off the market for some years. The dealer from whom I bought it considered it valueless, as he had had it in stock for many years. Merely heated it gave grey results, but by gradually increasing the amount of bromide a clean print was got with terrific contrast, as might be expected when in some cases nearly $\frac{1}{2}$ fl. oz. 10 per cent. bromide solution was added to 4 oz. developer. In some cases the tone of the print was greenish, but it gave a good result when sulphide toned. I subsequently bought up the whole stock of this paper from the dealer and had no further trouble.

These experiments were continued on samples of Rotox paper,

obtained from dealers in Stirling, who had laid it aside as useless, various customers having failed with it. On March 25, 1909, I obtained one packet of above paper (No. 3 thin matt smooth) (packet No. 1 hereafter), and one packet Silvo postcards of same make. Both packets were removed from their envelopes and treated in front of the fire for three to four hours. Prints were then made and developed. Every postcard in the packet gave a perfect print. Two pieces of the paper were tried. The first one was hopeless, being dark grey and covered with irregular white spots. After a further heating for an hour the result was slightly improved.

On March 26, 1909, I obtained another packet of same postcards, of which all that were tried were satisfactory. Another packet of paper, same make, was tried (No. 2 hereafter); it was called No. 1 thin glossy rose.

After developing some six postcards, five drops of bromide were added to the 3 oz. developer and a print made from packet No. 1. It was quite good, though development was irregular, streaky, and spotty, but owing to a somewhat exhausted developer, and the addition of bromide, the image came up slowly, and the spots had almost entirely disappeared when development was finished. The print was practically perfect, but the remains of a large white spot may be seen in the form of a light-coloured patch on the bottom edge. Other prints were successfully made in the same way from the same paper.

Packet No. 2 was then tried with same or similar developer. It yielded satisfactory prints on the whole, but a spot can be noticed in the same place on several prints, showing that some exterior cause was to blame, as the outside print was the worst, and the spot got less and finally disappeared after two or three sheets had been used.

R. A. CRISTAL.

FORTHCOMING EXHIBITIONS.

- September 10 to October 23.—The Photographic Salon. Sec. Reginald Craigie, 5A, Pall Mall East, London, S.W.
 September 23 to October 30.—Royal Photographic Society. Sec., J. McIntosh, 35, Russell Square, London, W.C.
 October 21 to 23.—Rotherham Photographic Society. Secs., H. C. Hemingway, Tooker Road, Rotherham, and F. Sargeant, 17, Aldred Street, Rotherham.
 October 27 to 28.—Watford Camera Club. Sec., W. J. Edmonds, 3, The Parade, Watford.
 November 10 to 13.—Hackney Photographic Society. Sec., Walter Selfe, 24, Pembury Road, Clapton, London, N.E.
 November 10 to 13.—Cambridge and District Photographic Club. Entries close October 28. Sec., T. J. Sowdon, Sunny Side, Guest Road, Cambridge.

- November 23 to 26.—Southampton Camera Club. Sec., S. G. Kimber, Oakdene, Highfield, Southampton.
 November 29 to December 2.—Lancaster Photographic Society. Entries close November 20. Sec., Thomas Holt, 4, Parliament Street, Lancaster.
 December 4, 1909, to January 1, 1910.—Southport Photographic Society. Entries close November 15. Sec., J. McLellan, 2, Pilkington Road, Southport.
 December 31, 1909, to January 8, 1910.—Wishaw Photographic Association. Entries close December 18. Sec., R. Telfer, 138, Glasgow Road, Wishaw, N.B.

1910.

- April 5 to 9.—Sheffield Photographic Society. Secs., J. A. George and J. R. Wigfull, 14, Parade Chambers, Sheffield.

Photo-Mechanical Notes.

Multi-Colour Machine-Printed Photogravure.

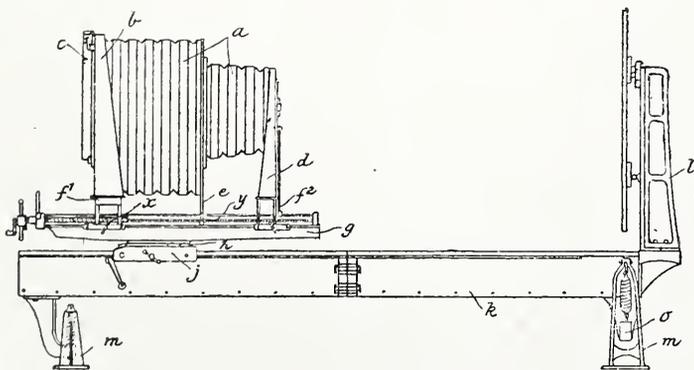
WRITING on the methods employed in this latest development of intaglio printing, Mr. Max Levy states in the "American Photo-engraver": "A screen is employed, usually about 150 lines to the inch, consisting of very thin transparent cross-lines on an opaque ground, and an ordinary positive is used. The screen itself is first printed upon a piece of gelatine tissue, such as is used in carbon printing, and next the negative is printed upon the same tissue. The tissue, then containing the print from the screen and that from the negative, is moistened in cold water and transferred by means of a squeegee to a copper roller, which has been turned accurately true. The design is now etched into the copper roller with perchloride of iron, by what is known as the staging process, as employed in producing a flat photogravure plate, first washing off with cold water the paper upon which the gelatine was coated. If the copper, coated with the gelatine, is immersed in an absolutely saturated solution of chloride of iron no etching will take place, as there is no free water to penetrate the gelatine. If a few drops of water are added, the etching will proceed through the least exposed portions of the gelatine. By slowly adding water the etching will gradually proceed until the more exposed portions have been attacked. The etching can be watched through the transparent gelatine, and when it is completed the gelatine is removed and the design appears on the copper in the shape of little squares, conforming in shape and size to the opaque parts of the screen, but varying in depth in proportion to the action of the solvent. The roll is then ready for printing from on a slightly modified calico press.

Process Cameras.

The main girder of the baseboard or "cradle" (for the camera and copy-board), entirely of metal, is one of the claims in a recent specification (No. 18,263, 1903) of Albert Nixon and Owen Linley, of the Camera Construction Company, Eagle Works, Durham Grove, Hackney, London, N.E.

It is found that girders of narrow section combine in the highest degree economy of material in construction and freedom from vibration and also from sagging and from torsion under the stress of the weight of the camera, which for convenience in practice must usually be made capable of occupying different positions along the length of the girder, and which will also, owing to the movement of the camera bodies, exert a varying torsional stress.

A saddle, also of metal, and similar to the saddle of a lathe, is borne upon the girder and carries the turn-table of the camera.



The saddle is movable along the girder by means of a pinion and a rack, the latter preferably placed with the teeth downwards so as to prevent anything falling upon it.

The saddle may be held down by gibs, preferably three in number, the middle one being loose and capable of being forced forward by a screw or other means, and so serving as a clamp. The action of this clamp is independent of the fitting of the saddle on the girder.

The turn-table consists of a circular metal plate, having its outer edge conveniently at an angle of 45° to its lower face. This turn-table is capable of rotation in three gibs on the saddle, the inner faces of these gibs being curved to fit the outer edge of

the turn-table. One of these gibs is free to move slightly, and can be forced against the turn-table by a screw or other means to clamp it in position.

Lugs, provided with adjustable set screws, project from the saddle, and a projection or projections from the turn-table abuts against these so that the rotation of the turn-table can be arrested at desired points.

The base of the camera is constructed of metal of hollow section on a similar principle to that adopted in the cradle girder, and for lightness it may be tapered in depth towards the ends and deepest at the position where it is desired to fasten it to the turn-table, and provision may be made in the base of the camera for so fastening it conveniently.

The bodies of the camera are of metal, and are attached to metal saddles, which are capable of travelling along the base in a similar way to the saddle on the girder of the stand, and may be capable of being similarly clamped in position.

The back body of the camera may be moved along the base by means of a hollow screw through which a screw for moving the front body passes, so that they have a common axis, and clamps or set screws or other device may be fitted for the purpose of preventing the accidental rotation of these screws.

Exhibitions.

PHOTOGRAPHS BY AMERICAN WORKERS.

At the house of the "Amateur Photographer" there is a highly interesting display of American work which introduces a great number of new names to our notice. The exhibition will be a surprise to many who have come to regard the work of one or two men as the beginning and end of transatlantic talent.

Chas. Booz is an original worker, whose best thing perhaps is "Up the Valley" (8). A child reading a newspaper is the subject of W. D. Brodhun's "Picture-page Reader" (11); awkward material most artistically managed. D. H. Brookins has some capital winter scenes in the city of Chicago, and C. F. Clarke's "Girl and Muff" (20) is a most attractive print. We have already seen the work of W. H. Porterfield this year in London, and the half-dozen things he shows here confirm the good opinion of his powers that we have already expressed. His "Twilight" (25) has but one blemish; the little patch of bright cloud is out of keeping; but he atones for this by a sky truly felt in "The Lowlands of Jersey" (22), which is an eerie moonrise seen through the slender stems of strange looking trees. Wm. T. Knox is with one exception, namely, "Home Portraiture" (31), much too dark for success. We have also some of the large heads by Augustus Thibaudeau, which certainly have distinction in spite of the fact that they appear to resemble bromide wasters. "The City at Night" (6) is by Mr. Richard Witt, the only contributor whose name is prefixed in the "catalog." Mr. Witt has deserved the distinction. The best of F. A. Lidbury's is "Buffalo Harbour—November" (72). Altogether the show gave us a good deal of pleasure.

PHOTOGRAPHS BY MEMBERS OF THE LYCEUM CLUB.

Miss Zaida Ben-Yusuf opens this exhibition with six Japanese photographs and a "Decorative Study" (1), which has nice line and represents a lady holding the inevitable crystal ball, the indispensable accessory of American pictorialists. We think the nicest of the Japanese subjects is "Finishing Touches" (6), a lady on her knees at her toilet, where double lighting has supplied a theme. "Shy" (9) is an exceedingly charming picture of a little girl in the pale manner affected by Mr. Cadby. It is by Mrs. Michael Foster, who shows five other frames. "Italian Mother and Child" (8), is marred by the trembling hands of the mother. Mrs. Cadby's "Girl with Dog" (14) is very attractive, and her life-size "Dog Portrait" (37) striking to a high degree. Miss Warburg shows a portrait of "Henry Lemon, Esq. I.M.S." (17), with which we should be even more pleased were not a hand, a cane, and a leg given over-prominence. Her sea-piece, "A Meeting in the Mist," (43), is harmonious in its feeling and

truth. Mrs. Veley's animals are all excellent, and so is the noble composition of "Silver Birches" (46) by Mrs. Kinder. We must add a word for the interesting views of St. Petersburg and Moscow by Miss S. M. Taylor, and the Alpine pictures of Mrs. Le Blond.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents have been received between October 4 to October 9:—

ADVERTISING.—No. 22,621. Invisible photograph advertisement. Albert George Nepean Ford, Inverie, Lower Green, Mitcham, Surrey.

PRINT TRIMMERS.—No. 22,735. Improvements in or relating to trimmers or apparatus for cutting or trimming photographic and other prints, paper, card, cloth, and other like materials and substances. John Merrett, Hill Street, Trowbridge, Wilts.

MAKING PICTURES.—No. 22,776. Improvements in processes of making pictures. Charles William Saalburg, 3, Broad Street Buildings, Liverpool Street, London.

convenient to be able readily to alter this interval, and also to separate the lens for cleaning purposes. For this purpose the mounting in Fig. 1 has been well known for many years. To alter the separation of the middle and back glasses, the back cell can be unscrewed from the middle. In practice, however, it is found that the two cells are sometimes liable to unscrew together from the tube, instead of one remaining fixed and the other unscrewing from it. In another construction shown in Fig. 2 the cells both project outside the tube, right-handed threads are used, and two bolts prevent the flange and the tube respectively from unscrewing from the cells.

In the present invention, as shown in Fig. 3, both right and left-handed threads are used, and one of the cells may be sunk inside the tube, allowing only a small rim to project to facilitate unscrewing for cleaning the glass. The construction is applicable to any lens composed of two or more separated glasses.

It is necessary that the first-glass should be so mounted, either permanently or by means of a detachable cell, as to move as one piece with the tube, and that the second glass should be so mounted, either permanently or by means of a detachable cell, as to move in one piece with the body ring. The flange, or flange adapter, must be mounted by a female screw thread on the body ring, and the tube and body ring connected by screw threads. The tube may carry either a male or female thread, the body ring

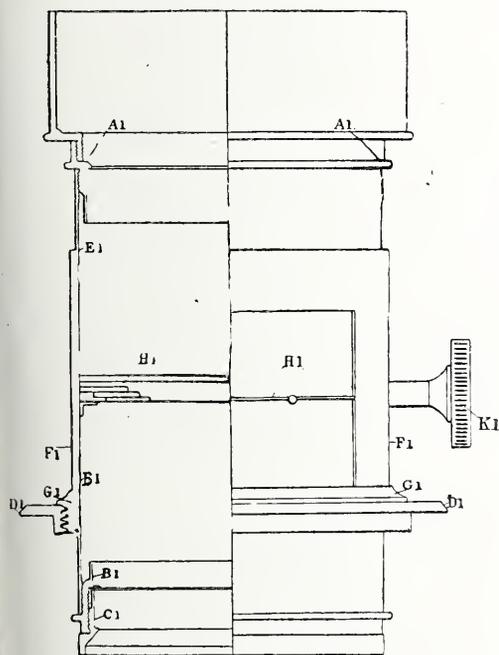


Fig. 1.

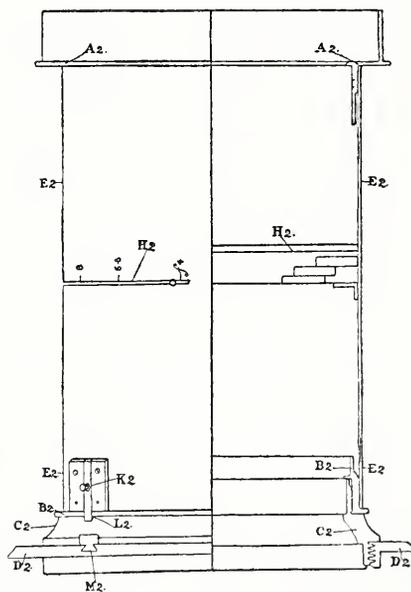


Fig. 2.

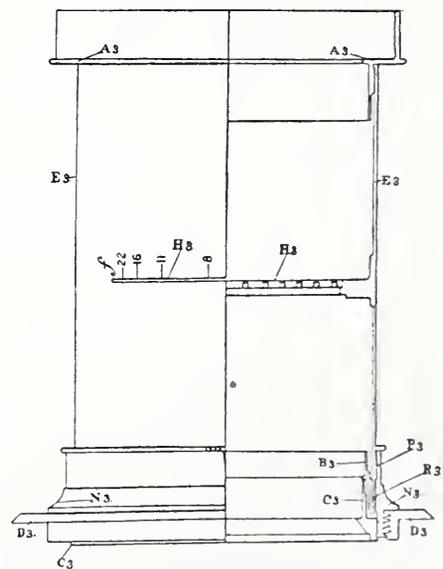


Fig. 3.

PICTURES.—No. 22,777. Improvements in pictures. Charles William Saalburg, 3, Broad Street Buildings, Liverpool Street, London.

PROJECTION APPARATUS.—No. 22,910. Improved apparatus for projecting and enlarging pictures. Ernst Reiners, 22, Gray's Inn Road, London.

POSTCARDS.—No. 23,063. Crystoleum photographic postcards. Harben James Valentine, 41, Reform Street, Dundee.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

LENS MOUNTS.—No. 1,141, 1909 (January 16, 1909). In certain types of lenses used for photographic and other purposes, and more particularly in lenses known as Dallmeyer patent portrait lenses and Dallmeyer stigmatic lenses, the optical construction is such that a small difference in the air interval between the two glasses considerably alters the definition, either at the centre or at the outlying portions of the field of view. For some purposes it is

carrying a female or male thread to correspond, but the thread connecting the body ring and flange must be of opposite hands to that connecting the body ring and tube. That is, there must be a right-handed thread on one and a left-handed thread on the other. It is immaterial which carries the left-hand thread. As a matter of practice it is preferable to cut the flange thread right-handed and the tube thread left-handed. All other threads may be either right or left handed.

Owing to the use of threads of opposite hands on the flange and tube respectively, rotation of the tube for separation of the glasses does not end to unscrew the whole lens from the flange, but actually tends to tighten it. Sinking one of the cells inside, or nearly inside, the tube removes the need for the tube bolt shown in Fig. 2.

As an example, the 3 B Dallmeyer patent portrait lens in brass may be taken. The front cell screws by a right-handed thread at one end of the tube. At the other a casting is soldered on and a male left-hand thread cut. On the inside a right-handed thread is cut in which the middle cell screws.

The body ring carries a male right-handed thread on which the flange screws. Internally a right-handed thread allows the back cell to screw in, and a left-hand thread receives the male thread of the tube.

After the glasses have been adjusted, all parts screwed home, and the flange fixed to a camera front, an increase in separation of the middle and back glasses is made by rotating the lens tube from left to right. By suitable adjustment of the length of the body ring, in the first instance, the glasses may be brought in contact. Rotation will then give any desired separation. Reversal of rotation diminishes the separation.

In the accompanying drawings Fig. 1 represents a well-known mounting of the 3 B Dallmeyer patent portrait lens. The external appearance of one-half and a section of the other half are shown. Three cells are used. The front cell A₁ carrying a hood screws by a right-handed thread into the inside tube E₁, the middle cell B₁, screws by a right-handed thread into the other end of E₁, the back cell C₁, screws by a right-handed thread into B₁. E₁ slides inside an outer tube F₁, and is fitted with rack and pinion K₁. The body ring G₁, is attached to F₁. The flange D₁, screws on to G₁, by a right-handed thread. A diaphragm, H₁, is fixed between A₁ and B₁.

Fig. 2 represents another well-known mounting. The external appearance of one half and a section of the other half are shown. The front cell and hood A₂ screws by a right-handed thread into tube E₂. Middle cell B₂ screws by a right-handed thread into E₂ and back cell C₂ screws by a right-handed thread into B₂. Flange D₂ screws by a right-handed thread on C₂. There is no rack and pinion. H₂ is the diaphragm. K₂ is a bolt fastened to tube E₂ and slipping into a notch L₂ on cell B₂. When shot home K₂ prevents E₂ from being unscrewed from B₂. M₂ is a bolt on flange D₂, slipping into a notch on cell C₂. When shot home M₂ prevents D₂ from being unscrewed from C₂.

Fig. 3 represents the invention. The external appearance of one half and a section of the other half are shown. The front cell and hood A₃ screws by a right-handed thread into tube E₃. Near the other end of E₃ an external left-handed thread P₃ is cut. Below P₃ a short piece of the tube E₃ is left without thread. At the end of E₃ an internal right-handed thread R₃ is cut.

Middle cell B₃ screws into E₃ by R₃. The body ring N₃ screws on the left-handed thread P₃ and carries the flange D₃, which is attached by a right-handed thread. Back cell C₃ is attached to N₃ by a right-handed thread.

The following are constructional details, as shown in Fig. 3:—

Internal diameter of front cell	3.625 inches.
„ length from upper surface of casting on tube to top of tube	4.8 „
„ length of tube	5.6 „
Internal diameter of middle cell	3.55 „
„ depth of middle cell .....	.7 „
Internal diameter of body ring	3.9 „
External diameter of portion of body ring on which flange screws	4.25 „
„ Depth of body ring	1.1 „
Internal diameter of back cell	3.5 „
„ depth of back cell .....	.7 „
External diameter of tube	3.8 „
External diameter of flange	5.25 „
„ length from iris diaphragm to top of tube	2.9 „
„ length from iris diaphragm to bottom of tube	2.65 „

The flange is attached to the body ring by a screw thread of 14 threads per inch. All other screw threads are 31 threads per inch. Cyril Frederick Lan-Davis, of J. H. Dallmeyer, Ltd., Denzil Road, Neasden, London, N.W.

The following complete specifications, etc., are open to public inspection, before acceptance, under the Patents Act, 1901:—

MOVING PICTURES.—No. 22,094. Moving picture machines. Mills.
PRINTING FRAMES.—No. 22,311. Automatic printing frames. Edwards.

New Trade Dames.

PHONEMATOGRAPH.—No. 315,060. Electrical or mechanical apparatus for synchronising phonographs with cinematographs and the like apparatus, and transparencies and other accessories relating thereto included in Class 8. Andrew Lincoln Jackson, 118, London Wall, London, E.C., engineer. July 23, 1909.

Analecta.

Extracts from our weekly and monthly contemporaries.

Printing Titles on Negatives.

I have found the following very simple method perfectly satisfactory (writes Mr. J. Gregory in "Photography and Focus" for October 19). The title is first written or printed on a piece of thin parchment paper, underneath which is laid a piece of carbon paper. On turning the parchment paper over, the carbon paper will have marked it with the title reversed. The carbon paper is then laid on the negative in the position selected, the parchment paper put on the top, with the reversed title upwards, and this is then gone over carefully with the pencil. The carbon paper will then set off the reversed inscription on the negative, which, when printed, will show the title the right way round.

How to Carry a Wet Negative.

It sometimes happens (says a writer in "The Amateur Photographer and Photographic News" for October 19) that one wishes to carry away a negative which is just washed, say, from a friend's house, where developing has been done. The negative is laid film side up in a plate-box of its own size, and little props of cardboard, made by bending flat strips at right angles, are stood upright on the film at the extreme corners. They are cut sufficiently long to stand just above the top edge of the box. The cover is now laid carefully on these props, and the whole tied round firmly with string, or secured with a couple of elastic bands. The negative will thus be held down at the bottom of the box, and the film will not be in contact with anything except the ends of the card angles at the extreme edges. These, however, will not cause any damage, because, even if they slightly scratch the film there, it will not affect the printing portions of the negative.

The only precautions to observe in this dodge are to cut off the card strips to equal heights, because if one happens to be decidedly shorter than the others it may fall away from the cover and plate and get on to the film; also the string must be tied round firmly, so that there will be no chance for the strips to work loose. Bearing these points in mind, there is no risk, and valuable time may often be saved.

New Books.

"Photograms of the Year, 1909." London: Dawbarn and Ward Ltd. 2s.

This volume comes to hand in good time this year, so that it able to rank as a running commentary upon the exhibitions rather than as a Christmas gift-book or souvenir. Mr. Snowden Ward to be congratulated upon having triumphed over block makers and printers to such a remarkable extent. As we have said of past issues it is more comprehensive than any one show, a pocket edition of Royal and Salon, and a telescope to show us what photographers across the seas are doing: and the technical qualities of the reproductions are excellent in almost every instance.

We ourselves must take some credit for having furnished Mr. Snowden Ward with a peg upon which to hang, the time- and labor-saving device of reprinting his Convention address as a leader of the book. He says that his address was ridiculed and criticised, but as we remember no other review of it than our own, we add the soft impeachment perforce. "One may, however, ask," says the writer, "that critics should read the matter before demolishing it." We humbly whisper that we did both, whilst we sincerely agree that "there seems no good reason to apologise or withhold the whole or any part of it." It is all good reading and must have been instructive entertainment for many. Certainly it is food for thought for all, and perhaps for the very reason that it came with the weight and authority a Convention address bestows, we were impelled to question its main argument. We believed that it would have been more salutary to show to pictorial photographers where they are weighed in the balance and found wanting than to

them for qualities possessed by few, and, with invidious comparisons, to belittle those whom the outside world call artists, ancient and modern. Photographers as a class cannot be said to be in danger of decline by self-abnegation and dissatisfaction, those never-failing symptoms of the real artistic temperament. If Mr. Snowden Ward were as critical as the ideal critic whom he describes, we should have no quarrel with him, but to our minds he is more moralist than critic, and too solicitous about the effect his words are likely to have upon the one criticised. The milk of human kindness is all very well, but when there is too much, it slops over, and one has to wade through it. Our point was, and still is, that in order to please his audience Mr. Snowden Ward stretched his argument to a breaking-point.

As to the archaic work, which Mr. Ward only ridicules, it has been stated by one of the most sure critics the world ever saw that the true grandeur of Egyptian work has only been apprehended of late years, because it was supposed that its conventionalism was due to simple ignorance of nature and want of skill in art." We might add, on our own part, that conventions in Greek vase paintings, which are such a stumbling-block to Mr. Ward, were contemporary with the finest period of Greek art.

Most of the matter of the address after the point where the writer places the beginning of real art is either outside photography altogether or else relates to mere sentiment as differentiated from art. We do not say that other critics' photographs are not in the same boat with him. It is difficult to see how to speak of photographs without overlooking the fact that they are science made pleasant by good taste. But when Mr. Snowden Ward goes so far as to make the astounding claims of his fourth paragraph it is time to pull up, look around, and take bearings. The cause of pictorial photography is not to be furthered by such arrogant calls for a recognised status. It is not enough, that old justification that photography may be a means of artistic expression. It signifies so little. Gardening and hair-dressing may be means of artistic expression, and indeed they are claimed as art by their votaries.

M. Demachy, in his admirable article referring to France, makes some healthy observations upon the Autochrome and oil workers which we commend to our readers. The article upon Germany, by Matthies-Masuren, deals largely with the Dresden Exhibition, but concludes with a lament that pictorial photography shows no advance in its position ten years ago.

The article upon Spain, by Manuel Mendez Leon, sounds a doleful note on the whole. Amateur societies do not flourish, and publications also have to live a languid and unprosperous life. Nevertheless, the writer assures us that Spain is not asleep, but in the vigour of progressive movement. Pigmentary processes are going strong, and inspiration is forthcoming from a novel feature in exhibitions, "that is, that the person obtaining the prize of honour will nominate the Queen of the Fête, to whom he will offer a pretty artistic insignia, and this lady will distribute the prizes to those who have been favoured with the award of the jury. This is a charming novelty, which I applaud," adds the writer, "and trust it will be adopted by other exhibitions, to which it will add beauty and importance. It is evident that chivalry flourishes still in Spain, even if photography gets languid upon occasion.

As to the contribution by Walter Burke upon Australia we learn that the conditions are much as in Spain in regard to photographic societies, which "seem to languish, and the majority of them are practically dead." But hopeful auguries are set forth by Kodak and Pathé Frères, who appear to have come to stay in Australia.

Then follows the long critique upon the work of the year by the editor. It will no doubt be much read and much valued. Mr. Snowden Ward is always complimentary, always passing votes of thanks, and usually has an excuse at hand as antidote to the venom of his mild objections and heart-to-heart admonitions. In short, it is a part to encourage and exhort, and his essay reads much more like a Sabbath school address than a critique of pictures. Where is the art criticism of a passage like this:—"Mrs. Barton's 'Old Fifer' is one of those fine characters that seem attracted to her, not by instinct. Week after week, until the time of his death the old man walked many miles for the little sympathy and kindness that was awaited him at Rose Cottage, and that he found there on his first call as a wandering musician. A true Bohemian, a true artist in his poor un instructed way, he responded at once to the

interest felt in him by another artist." We are willing to add our dropping tear, but we refuse to accept these moving obituary details as anything to do with art, and we differ *in toto* to the conclusion of the next sentence:—"Sympathy, which is not pity, but which is understanding, is the true alkahest, the universal solvent that converts base metals into gold, and the most invaluable possession of the picture maker." These are the platitudes of the pale young curate and not the trenchant impartial word that should praise or blame and give the reason for either. Similarly we cannot believe that the closing words of the volume will inspire confidence in any one who is hungering and thirsting after art:—"This book closes on a high note, a rich chord of harmony, a combined effort of masterly builder and masterly photographer, to attune our thoughts to the great, the solemn, the eternal truths." It is Ruskinese of the most irritating sort.

"We ought to thank God for the great strong faith that built the enduring fanes, and for the process and the men that can catch some part of their glorious frozen music and bring it to our own easy chair, wherever in the world we may be. A book like this must skip rather irresponsibly over many phases of artward effort and the comment is necessarily disjointed, often inadequate. But the book closes with a great benediction, and the writer of the words cannot do better than wish to every reader that he may receive into his life the message of 'A Pillared Shade,' and feel something of that great peace which passeth all understanding."

By a continuity of ideas one instinctively feels for the threepenny piece and awaits the voluntary.

We are quite sure that Mr. Snowden Ward is himself assured that this attitude towards pictures is the right and proper one, and we are convinced that most of his readers will think so too and derive satisfaction from his remarks. Our sole object in quoting these passages is to substantiate our charge that in such writing art and sentiment is confused: The artistic temperament is callous to story-telling *per se* in pictures, callous to sentiment, callous to moral lessons to be derived or grace and blessings to be received. When it concerns itself with these things it does so only for the worldly advantage in having subject-matter that appeals to minds unable to understand the doctrine of art for art's sake. Art for moral's sake, art for amusement's sake, is art of a bastardised form, always popular, often useful, but contemned by the seeker after art of pure strain. Real art is sensuous; it must fill with desire for the exercise of those faculties that are necessary to its culmination. In fact, art is a lust, and photographers who can neither draw nor paint nor sculpture cannot feel its incitements, though many are now hearing some echoes of its entrancing seductions in oil-printing, which is a little breach in the wall separating art from photography. Those photographers who have succumbed even to this faint beckoning smile of art know that story-telling, character-mongering, picture-making à la Robinson, and sermon-preaching are not art at all. Art is in the blissful and painful *doing*. When all is done the art effort is over—it is the child of art that remains.

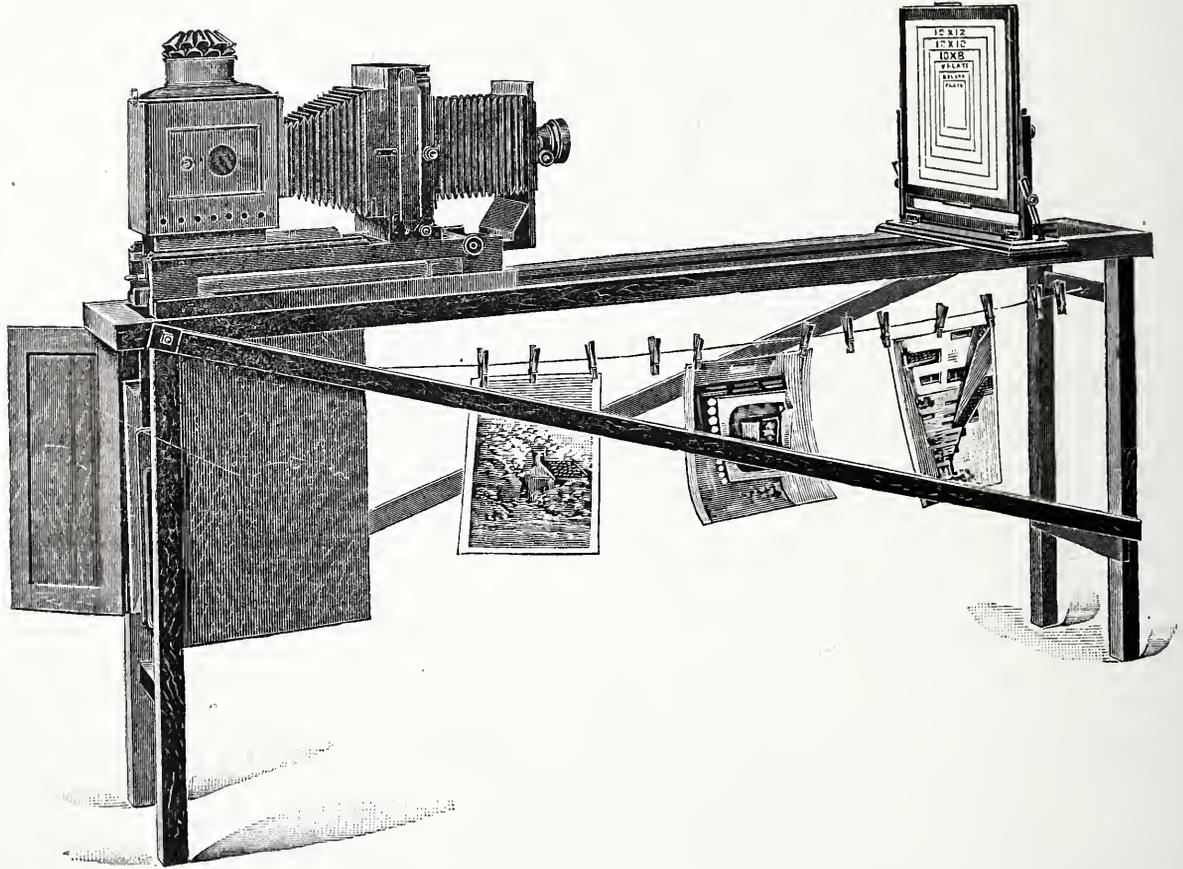
MR. N. S. AMSTUTZ, author of the "Handbook of Photo-Engraving," and well-known both in America and Europe for his researches in process matters, has associated himself with Mr. W. F. Hertzberg, in the establishment of the International Research Company, with headquarters at 1536, Old Colony Buildings, Chicago. They will continue to make scientific investigations of matters pertaining to mechanics, electricity and chemistry.

SOUTHPORT PHOTOGRAPHIC EXHIBITION.—Under the auspices of the Southport Photographic Society an international and open exhibition will be held from December 4, 1909, to January 1, 1910, in the Atkinson Art Gallery, Southport, and will be open to both amateurs and professionals alike. Exhibits will be divided into four sections, namely, pictorial photographs, pictorial photographs in colour, lantern slides, and colour slides, Autochromes, etc., and awards in the form of decorative plaques will be placed at the disposal of the judge, Mr. A. H. Blake. Entries close on November 15, by which date entry forms, together with the necessary fees, must reach the secretary, Mr. J. McLellan, 2, Pilkington Road, Southport, from whom forms and full particulars may now be obtained. A special feature of the exhibition will be the inclusion of the exhibits shown in the British pictorial section of the recent Dresden exhibition.

New Apparatus, &c.

The M.C.C. Enlarging Trestle. Made by the Midland Camera Company, Ltd., Slaney Street, Birmingham.

A new introduction by the Midland Camera Company, of whose many types of enlargers to suit all purses and requirements we have been able to write appreciatively in the past, has been designed with a view to providing a rigid and independent support for the enlarging camera and easel. To the many photographers who are unable to afford the space for a permanent enlarging outfit a piece of apparatus of this kind should be of the greatest service, since the trestle can be taken apart and packed away in comparatively small space, although, when erected for use, the length of the enlarging bench is 6ft. Not only this, the trestle, as shown in the illustration, embodies a light-tight cupboard, which serves for the convenient storage of bromide paper, plates, etc. The easel is supplied mounted on a pair of uprights, which permit of a central swing necessary when making correction of faulty lines in the negative. The space available for the sensitive paper is 16in. square, allowing of 15 x 12



paper being placed either way of the easel. Both easel and enlarger may be readily moved along the trestle, and the operator will find it a convenience to be able to place his enlarger in any position convenient to the place where development is being done, one or other of the spirit incandescent lamps now available making him independent of a gas or electrical connection. The whole apparatus, including the trestle proper, easel, and cupboard, but not the enlarging lantern, is sold at the price of £3. When taken apart for storage the greatest width of the apparatus is 14in., so that not only professional photographers in a small way but also amateurs needing to put their equipment away when done with will find in this new introduction something which very practically supplies their wants.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.—The annual supper will be held at the Hotel Boulogne, 27, Gerrard Street, W., on Thursday, October 28. Mr. H. Snowden Ward will occupy the chair, and music will be rendered during the evening by Mr. T. Bennett Griffin's concert party.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, OCTOBER 22.

Shotts Camera Club. "Autotype Carbon." Demonstration.

SATURDAY, OCTOBER 23.

Southend-on-Sea Photographic Society. Outing to Stambridge Mill and Temple Sutton.
Worthing Camera Club. Outing to Shoreham.

MONDAY, OCTOBER 25.

Southampton Camera Club. "Autotype Carbon." Demonstration.
South London Photographic Society. "Autotype Carbon." Demonstration.
Leek Photographic Society. "Thornton-Pickard Demonstration." R. Hesketh.
Marylebone Camera Club. "Rule of Thumb v. Mechanical Means of Photography." Dr. F. O'Brian Ellison.

TUESDAY, OCTOBER 26.

Manchester Amateur Photographic Society. "Epping Forest." J. Hayward.
Kinning Park Co-operative Camera Club (Govan). "Autotype Carbon." Demonstration.
Hackney Photographic Society. "York and the North-East Yorkshire Dales." N.E. Ry. Co.

Glasgow Southern Photographic Association. Monthly Lantern Slide Competition.
Leeds Photographic Society. "An Evening with Pictures." Walter Bagshaw.

WEDNESDAY, OCTOBER 27.

Preston (Lune Street) Camera Club. "Autotype Carbon." Demonstration.
Borough Polytechnic Photographic Society. 1909 Affiliation Competition Slide.
Croydon Camera Club. "Travels with the Camera." C. H. Dymond.
Edinburgh Photographic Society. "Bromoil." T. A. Knoblauch.
Sale Photographic Society. "Pin-hole Photography." A. Redfern.
Balham Camera Club. "Carbon Printing. Single and Double Transfer." Tozer.

THURSDAY, OCTOBER 28.

Handsworth Photographic Society. Continuation of Exhibition; with Criticism.
Walter J. Morgan, R.B.A.
Liverpool Amateur Photographic Association. "The Woodlands of Wirral." C. Theodore Green.
L.C.C. School, Bolt Court, E.C. "The Art Work of Durer." S. M. Peartree.

SOUTHAMPTON CAMERA CLUB.—A lecture was given last Monday evening on "Saints, Benedictines, Goths and Vandals," by Mr. B. W. Harvey Piper. The address was illustrated by over one hundred slides, many from recent photographs by prominent workers. The topic of the discourse was the past and present history of the Cathedral and Abbey Church of St. Alban's A

apid sketch describing the early history and the foundation of little church rudely constructed of wattle and mud was given, after which the Abbey Church, built largely at first of Roman bricks quarried from the adjacent and deserted Roman city, was fully described. The church, although restricted to its original narrow dimensions, was so added to that it became one of the longest in England. In 1553 it was sold to the townsfolk, but proved far too large for their requirements, consequently the western part of the nave, being disused, soon fell out of repair. Three centuries of neglect brought the great Abbey Church into sad state of ruinous dilapidation, from which it was rescued by three successive generations of restorers: Lewis Cottingham in the nineteenth century; Sir Gilbert Scott, who evidenced great constructional ability in underpinning the central tower and pushing back into place the long, bulging walls of the nave clerestory; then followed Sir E. Beckett, afterwards Lord Grimthorpe, who expended £140,000 out of his own pocket in reconstruction. Mr. Harvey Piper stated that Grimthorpe's work raised the most commendation that ever raged about an architectural undertaking. A review of the whole exterior was given, and illustrations from ancient engravings in contrast with the recent photographs depicted clearly the effect of the restorations that had taken place. The lecturer then proceeded to conduct the audience through the interior, and made special reference to Trumpington's early English bays at the west end. He also described the discovery of the fragments of the Shrine of St. Alban and its re-erection by the late John Chapple in 1872. The reredos was contrasted with a very similar one at Winchester. Views of the Lady-chapel when desecrated by use as a grammar school brought to an end a most interesting lecture.

Commercial & Legal Intelligence.

EASTMAN KODAK COMPANY OF NEW JERSEY.—The Directors of the Eastman Kodak Company of New Jersey have declared an extra dividend of 2½ per cent. upon the Common Stock of the Company, payable December 1, 1909, to stockholders of record at the close of business on October 30. The usual quarterly dividends will be paid on January 1, 1910.

LEGAL NOTICES.—Joseph Bernard Shepherd, photographer, 27, Queen Street, Rhyl, and Wilson Nair, postcard dealer, 25, Queen Street, Bridlington, have been adjudicated bankrupt. In each case a receiving order was made on the debtor's petition. The first meeting of creditors of Wilson Nair will be held in Scarborough on the 26th inst., and the public examination on November 16.

In the Sheffield Bankruptcy Court on October 14 the public examination was held of John Scott (trading as E. Holt), described as a photographer and postcard publisher, and residing and carrying on business at 50, Hollogate, Rotherham. The debtor said that he commenced business on March last with a capital of between £2 and £3. He attributed his failure to competition, bad weather, and inefficiency of capital. His previous employment was that of a chemist and photographer. The examination was concluded.

Edwin Walkden, photographic dealer and chemist, 129, Ferham Road, Holmes, and now of 30, Broomfield Cottages, The Broom, Rotherham, was publicly examined at the Sheffield Bankruptcy Court on October 14. He estimated his liabilities at £126 and his assets at £25, and attributed his failure to high rent and rates and to bad trade. The examination was concluded.

PHOTOGRAPHIC FRAUDS.—In the Forfar Sheriff Court last week three men—James Muir, George Macfarlane Muir, and Alexander Robertson—were charged with having formed a fraudulent scheme for obtaining money by pretending to a number of people in the Carmyllie district that they were soliciting orders for a firm of portrait specialists in Glasgow; that for the sums of money received they would deliver photographic enlargements in frames; and did so induce persons to pay sums of money, amounting in all to £8 12s., for enlargements and frames, which they did not deliver. The Muirs did not appear, and the charge against Robertson was proceeded with. He pleaded not guilty, and was represented by Mr. James W. Lowson, solicitor, Forfar.

The first witness was David Hume, farmer, Mains of Carmyllie, who spoke to receiving visits from one of the Muirs and Robertson, to whom he gave an order for two frames, and paid a sum of £1 15s. The receipt he received was signed by Robertson.

Mrs. David Gibb, Mains of Carmyllie, also spoke to Robertson and the Muirs calling on her. The men persuaded her to give an order for two frames for two photographs, which they had had enlarged for her, and she handed over £1 19s. 6d. to one of the Muirs. The receipt she received was in Robertson's name.

Mrs. William Gray, from Bankfoot, Arbroath, gave evidence as to her husband having paid 17s. 6d. for an enlargement to Robertson at his lodgings in Arbroath. Several other witnesses were also examined.

Robertson made a statement on his own behalf, and Sheriff Lee, in sending him to prison for ten days, said he thought it was pretty clear that this was not a fraud in which Robertson was the principal, or from whom the idea of carrying out the fraud had emanated.

DISSOLUTIONS OF PARTNERSHIP.—The partnership between Walter Davey, Walter Davey, junior, and Sydney Davey, carrying on business as photographers, under the name of Walter Davey and Sons, at 26, James Street, Harrogate, and at Ashley House, Middleton Street, Llandrindod Wells, Radnor, has been dissolved so far as concerns Walter Davey, who retires. The business will be carried on by the other two partners under the same name as before.

Herbert Button is retiring from Messrs. F. E. Jones and Co., photographic material dealers, 22, Gray's Inn Road, W.C. The business will be carried on by the two other partners, Frederick Ernest Jones and Ernst Makus von Arx.

NEW COMPANIES

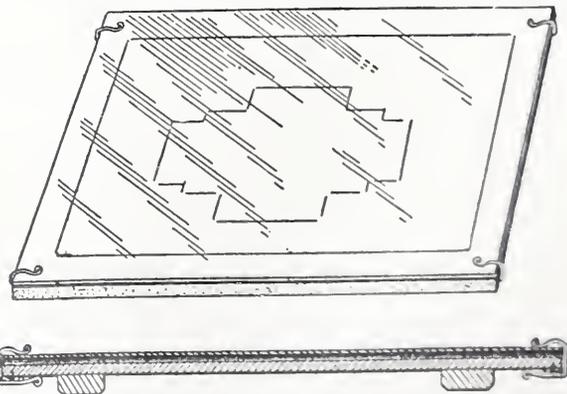
A. E. HUBSCH AND COMPANY, LTD.—Capital, £2,000 in £1 shares. Objects: To take over the business of photographic film merchants and agents, carried on at 3, The Broadway, Ludgate Hill, E.C., as A. E. Hubsch and Company. The first subscribers are:—A. E. Hubsch, 18, Charing Cross Road, W.C.; and H. A. Browne, New Court, Grafton Street, W.; private company. The first directors are: H. A. Browne and A. E. Hubsch, with £500 each per annum as remuneration. Registered office: 18, Charing Cross Road, W.C.

CHERRY KEARTON, LIMITED.—Capital £4,500, in £1 shares (2,000 preference). Objects: To adopt an agreement with C. Kearton and to carry on the business of photographers, publishers, booksellers, advertising agents, etc.

News and Notes.

SIMPLE BLUE-PRINTING FRAME.—For those desiring to make a few small blue prints and having no regular printing frame, the following may prove useful (writes C. L. Swezey, in the "Scientific American").

Secure a piece of ordinary window glass, somewhat larger than



the largest blue print desired. If a piece the same size as your drawing-board can be secured, it will be very convenient. Bind the edges of the glass with adhesive tape, to prevent scratching the tracing or hands. Cover the drawing-board with felt or other heavy cloth, drawing the covering over the edges and fastening with thumb tacks. Make four clips, as shown in the accompanying illustration,

using thin spring brass or wire. The exact size of clips depends on the thickness of board and glass.

In use, the sensitised paper, which can be obtained from dealers in photographic supplies, is laid on the felt, coated side up, the tracing to be copied is placed in position, and covered by glass, which must be clean, then the clips which hold the whole in position are slipped on at the corners.

R.P.S. LECTURES.—The following lectures will be delivered at the New Gallery, at 8 p.m. :—

Saturday, October 23.—“The Romance of Plant Life,” by F. Martin-Duncan.

Monday, October 25.—“A Trip Round the World, via Ceylon, through Australia and Canada,” by C. J. Marshall, A.R.I.B.A.

Thursday, October 28.—“The Catacombs of Rome, and the Early Christian Period,” by S. J. Beckett.

Saturday, October 30.—“Westminster Abbey,” by S. G. Kimber.

THURSDAY EVENINGS AT THE BLENHEIM CLUB.—The photographic lectures at the Blenheim Club will re-commence on Thursday evening, the 28th inst., when Mr. H. W. Fincham will be the speaker, and his subject, “Ely Cathedral, Queen of the Marshlands.” Mr. F. Martin Duncan is arranging these evenings, and a number of very interesting fixtures have been secured, including at least one on the all-absorbent topic of aviation.

MR. E. H. FARROW, who for upwards of nineteen years has carried on business as maker of photographic apparatus at 441, Hornsey Road, has removed to 35, Lichfield Grove, Finchley, London, N.

Correspondence.

- *• We do not undertake responsibility for the opinions expressed by our correspondents.
- *• Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

TONING LANTERN SLIDES.

To the Editors.

Gentlemen,—On page 825 of the “Photographic Almanac” for 1907, you describe a process for toning lantern slides. I have been experimenting with that process lately, and although I have not obtained the exact results as there explained, I have turned out some very pretty slides.

By further experimenting I have also discovered that similar results can be obtained by using the chromium intensifier, thus doing away with the necessity of using the highly poisonous mercury bichloride.—Yours, etc.,

WALLACE H. MATHEWS.

[The process described by our correspondent is that first published in the “Amateur Photographer,” and is as follows :—

The slide is first under-developed, and then intensified to the desired depth in mercury and ammonia. It is then well washed and placed for three minutes in a mixture of :

No. 1. Ammonium citrate of iron.....	16 grs.
Water	4 ozs.
No. 2. Potassium ferricyanide	16 grs.
Water	4 ozs.

An equal quantity of each is mixed in a measure glass. To the mixture a few drops of a 10 per cent. solution of nitric acid are added immediately before using.

It is then removed to the final washing, without any apparent change whatever having taken place. On drying, however, the sky will come out a delicate azure blue, the high-lights will be very slightly tinged with blue, and the rest of the slide will present the warm brown tone which follows the intensification process. For certain subjects, notably those with clear skies and a foreground of water, these colours are most effective, the slight tinging of blue in the high-lights of the water appearing only as the natural reflection of the bluer sky.]

Answers to Correspondents.

- *• All matters intended for the text portion of this JOURNAL, including queries, must be addressed to “THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C.” Inattention to this ensures delay.
- *• Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- *• Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.
- *• For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED :—

- T. C. James, The Studio, Chapel Lane, Formby, Liverpool. *Photograph of the Rev. W. Carr's Silver Jubilee Testimonial Committee.*
 S. R. and Berliet Works, 156, Westminster Bridge Road, London, S.E. *Photograph of 22 h.p. Berliet Chassis Paris.*
 J. Weir, The Studio, Moffat, N.B. *Photograph entitled, “Sheep Shearing in Upper Annandale, Dumfriesshire.”*

A. M. E.—Dorrett and Martin, 16, Belle Vue Road, Upper Tooting, London, S.W.

W. H.—If your work is chiefly single portraits, head and shoulders, or three-quarter lengths, we think you will be best advised to use one arc, or two if you require to do groups by artificial light. See also reply to “A. E. C.”

GELATINE MOUNTANT.—I wish to use gelatine as a mountant in future, and shall deem it a great favour if you will inform me how to prepare it for use.—IGNORAMUS.

One of the best formulæ is the following, from the “Almanac” :

Nelson's No. 1 gelatine	4 ozs.
Water	16 ozs.

Soften the gelatine in the water, liquefy by heat, and add a little at a time, stirring rapidly.

Methylated spirit	5 ozs.
Glycerine	1 oz.

This is used hot.

A. G.—There is no paper published so far West. The nearest is the “St. Louis and Canadian Photographer,” issued from 911, N. Sixth Street, St. Louis, Mo. ; but, so far as we know, it is not on sale in this country. Write to the above address for a specimen copy. We may tell you that the “British Journal” circulates widely among photographers in Canada and the North-West.

ADVERTISING.—We do not know of anyone offering to advise on the lines suggested. The best reply we can make is to apply to one or both of two firms of printers making a specialty of photographers announcements—viz., Harold Hood, Ltd., St. Bride Works, Middlesbrough; and Walter Pearce and Co., St. George's Press, Brentford. Either of these, we think, would be able to draw up a series of suitable announcements for press or booklet use, and either, of course, is well equipped for printing or supplying any stereos for a newspaper.

PINATYPE.—Would you kindly inform me, through the “Journal,” how prints are finished off in the process known as Pinatype? Perhaps you will be able to understand me more clearly when I quote a few lines which appeared in the “Almanac,” 1909 page 623, which read as follows: “The later process is exactly the same as that for the impressions taken from the positive transparencies in the pinatype process.” Now I am unable to find here anything about the process, so I would like your help. I receive the “Journal” through a newsagent here in Wanganui, New Zealand.—O. BUCKENDALE.

In the pinatype process a “print-plate” is made (from a positive transparency) on a gelatine plate sensitised with bichromate. This print-plate is then dyed with one or other of the special pinatype dyes and prints taken from it by contact only (without light) on

paper coated with gelatine. The materials for the process and booklets of instruction are obtainable from Messrs. Fuerst Bros., 17, Philpot Lane, London, E.C.

E. C.—Your studio is rather short, and as the lamp will always be somewhat near to both sitter and camera we think you would find one of the smaller enclosed arcs sufficiently powerful. We should advise a conical or umbrella-shaped reflector, some six or eight feet across, in the centre of which the lamp is placed. The lamp and reflector should be suspended from a point a little to one side of the ridge, and about nine feet from either end. You will thus be able to work from either end of the studio quite readily. Have a large three-fold screen papered white and mounted on castors. This can be placed under the lamp, and will provide an ample amount of side light. Of course, you will hang the lamp from the solid half of the roof, not the glass half; and if the roof is wood it may be well to cover it just above the lamp with asbestos cloth, or a sheet of iron may be fixed up, with an air space of a couple of inches between it and the woodwork to which it is attached. It is often an advantage to have the lamp on a pulley, with a counterpoise weight, though this is by no means absolutely essential, and with your width of studio you will be able to move both sitter and camera about very considerably in relation to the light. You will need the usual supplementary reflectors and head screens, which you probably already have in your studio.

ENISH.—We should be glad if you would give us the formula or a varnish (matt) for bromide opals, which will allow heavy washes of water-colour to be applied without drying in spots where any quantity of water is used. The present varnish we use is the ordinary "ground glass" or "matt," but although affording an excellent tooth for colour, it does not appear to protect the underneath film. The spots appear in the form of blisters and when dry dark.—SARONY AND Co.

We do not know of a matt varnish other than the ordinary matt varnish, which we should have surmised would have protected the gelatine film sufficiently for it to be worked upon with water-colours. However, we would suggest that you try treating the plates with the aqueous varnish, the formula for which was given in our issue for the 8th inst., before applying the matt varnish. That would possibly get over your difficulty by making the gelatine film less impervious. Possibly, if the gelatine film were thoroughly hardened with formaline before varnishing, it would not blister under the water-colour. If these suggestions will on trial you might try a spirit varnish and dull the surface by rubbing it over with *fine* pumice powder.

BLINDS FOR STUDIO.—I enclose a rough sketch of my studio, and shall be pleased if you will kindly tell me (1) what is the best material and colour for the blinds, and also if my present arrangement can be improved upon. The existing top blinds have gone quite yellow, and I use for the side light nearest camera a blue blind, and for the other half (nearest sitter) two white ones. Is there a better arrangement? (2) I wish also to introduce some work blinds so as to get firelight effects—that, I suppose, would mean a double set. (3) Please advise best "incandescent gas" arrangement for this size studio, and how placed.—STUDIO LIGHTS. The sketch gives no indication of the aspect of the studio, so that we cannot give a definite opinion. But so far as we can judge, the present arrangement should answer very well. 2. A double set will be advisable for convenience in working; very dark green or black will be best for one set. 3. The Tress Company, 4, Rathbone Place, supply a suitable arrangement for the purpose. The apparatus should be so placed as to represent as nearly as possible a high side light.

MATT VARNISH.—I would be greatly helped if you will inform me what to mix with ordinary matt varnish in order to make it more opaque or denser. I saw it mentioned in this column before, but I have searched through the back numbers in vain.—DENSER. A little iodine dissolved in the varnish will increase the depth of colour, or asphaltum may be used, whilst one or other of the spirit-soluble dyes would also serve.

INSURANCE.—Could you tell me if there is any insurance company connected with the photographic profession to insure for sickness, or loss of employment, or old age, or, if not, is there one you

could recommend of sound reputation for business girls? I should feel greatly obliged if you could give me any information.—K. J.

There is no such thing in connection with photography. We should think that the Hearts of Oak Society would be the best, but we do not know if it admits females.

CARBON TROUBLE.—Please find carbon sepia print enclosed. Could you inform me of the cause of the flat-looking shadows? This was a double transfer print, sensitised in a solution bichromate of potash 1 oz., water 40 ozs., for one minute, and dried as usual in five or six hours. Any cause as to its flatness and loss of brilliancy would oblige.—FLAT.

The flatness in the print seems to be due entirely to the negative. It is not vigorous enough for carbon printing. For this process tolerably vigorous negatives are essential if vigorous prints are required. If you intensify the negative a little you will doubtless get better carbon prints from it.

COPYRIGHT.—I sent a local newspaper four photographs of events in the district, which they reproduced in the paper. I did not state a price when I sent them. They sent me payment at the rate of 2s. 6d. per photograph. As I did not consider this enough I sent an account in for them at 5s. each, and a receipt for the payment they had made me as so much on account, together with a letter pointing out that the usual price for press work was 10s. 6d. per print. I have had no reply from them, and I should like to know if I can compel them to pay the fee I have asked for.—PRESS.

You had better apply again for the balance, and if it is not paid you will have to sue for it in the County Court. When photographs are sent to newspapers it is usual to mention the fee to be paid if the pictures are used. Then there can be no dispute about price.

MARION LENS.—Is an old portrait lens marked "Marion à Paris" of any value. It is said to be a 11 plate lens, but as the glasses are only about 2in. diameter, is it not a rather slow one? There is a slot for Waterhouse stops, but as the stops are missing I cannot give exact aperture.—LENS.

We are continually saying that we do not appraise the value of apparatus. However, we may tell you that such a lens as you describe has no market value. We may tell you also that Marions never issued a portrait lens of two inches in diameter as a whole-plate lens. Did you not read the article on the subject of old lenses in our last issue?

A. B.—We think the studies are quite free from objection.

MATT BROMIDE.—I am anxious to know how to work the bromide matt-surface paper by ordinary light, also the toning bath for same? I suppose it can be printed in the same way as the P.O.P.—sunlight or shade printing?—A. B. C.

It is possible, but not practicable, to work bromide by daylight. Why should you want to use the paper in a way quite different from that for which it is intended. The best toning method is the sulphide. See recent articles in these pages.

THE PORTRAIT OF A LADY.—Will you kindly advise me re the following question? Some time ago I photographed a lady and gentleman together, the gentleman paying for a dozen cabinets. Last week the same gentleman called and ordered another dozen, at the same time asking me to put one in the window, and paying so much per week to me for doing so. Since then the lady called and ordered me to remove the photograph from the window, threatening me with legal proceedings if I do not comply with her request. What shall I do? I may add they are not man and wife.—STUDIO.

We advise you to remove the portrait at once, as it is causing the lady annoyance. It is not creditable to the gentleman to wish for the exhibition of the picture to her annoyance, and it is less creditable to you to do so for a weekly payment. If the lady takes legal proceedings against you it will probably land you in heavy law costs, and we may tell you that you will get little sympathy from any respectable photographer.

SPOTS ON PRINTS.—I am enclosing a print which has gone spotty after only about two months, and I am very anxious to find out cause, as I fear there may be some in circulation like it. Some

time ago, probably about same time as this was done, I was troubled with markings on prints of a similar shape, but deep purple in colour, showing up during final washing. They ceased to appear, and I thought no more of it. Now this and a few others have cropped up. Have they any relation to each other, do you think? My first thought is air bubbles during fixing, but as I am a very careful worker and never over-crowd my dishes, I cannot think this is the cause. I use enamel dishes for first and final washing, but never for toning and fixing. Enamel has become broken off in places, and exposes the under-surface. Can that be the cause? The singular thing about it is, I do an enormous number of postcards, and I have never found anything like this. Kindly give me some information in next issue of "Journal."—WHOLE-PLATE SPOTTY.

These spots are not due to air-bubbles, but to specks of some chemical substance. This is evidenced by the dark centre to each spot. From your description of the state of your dishes we should say that the trouble is due to particles of iron from the chipped places in the dishes. Chipped enamel dishes are very unsafe things to use for prints, and you should abandon them. You say nothing about alum, but if you used it the spots can readily be accounted for, as iron and alum together make a slow acting reducer.

PAIRING LENSES.—If I have a 3B. Dallmeyer paired with a cheaper lens, will the focus be identical at all distances? In other words, if two lenses are of identical focal length at infinity, will they require exactly the same bellows extension for all less distances?—BEE.

The camera extensions will most probably not be equal for any distance of the object, but if the lenses are adjusted by packing one of the flanges until both give perfectly sharp focus on, say, a distant object, then the same amount of extra extension will serve for near objects. You may, however, find that the depth differs with the two lenses, as this depends to a very large extent on their degrees of correction.

ARC LIGHT.—I have an arc lamp (medium size). I have tried to take portraits with it, but have not been very successful. One can see they have been taken by artificial light. This shows particularly in the whites of the eyes. For diffusing the light I have tried white cotton, muslin and tissue paper, each separately, and reducing the light till shadows were not shown, by putting a few thicknesses of the various things used. Still they are not what I have seen or would like. I also tried it by having the light reflected from a large screen painted white with Hall's Distemper, with side wings and a piece slanting from the top, but this I think was worse than any, and took up a great lot of room. Is there a diffuser I could buy ready-made that would suit this lamp, or can you tell me of any other things I might try and where they may be had?—LEARNER.

By using such diffusing media as you have been employing you are almost certain to prolong the exposure unnecessarily, and also to destroy the delicate crispness of the modelling of the lightest portions. One thickness of engineer's tracing linen is always sufficient with such a lamp as that you are using. Judging from your remark as to the whites of the eyes showing the character of the lighting, we should imagine you are getting considerable under-exposure. Arrange to have the light a little above and slightly to the front of the sitter, diffused as we have suggested, and for the shadow side have a large grey reflector at least six or eight feet square, and placed partly to the side and partly to the front of the sitter, so that its edge almost comes into the picture. Grey gives a less harsh reflected light than such a dead white as you have been using.

T. C. B.—If there is a registered copyright in the photograph it will be illegal for you to copy it, and if you do, you must take the risk. Whether the copyright is valid or not may depend upon circumstances, and that is a matter on which we can express no opinion. The fact that the photograph is not marked "Copyright" makes no difference. If that is the ground on which you doubt if the copyright is valid, you are quite under a misapprehension.

IDA.—From what you describe we should say that you are suffering from astigmatism, which constant sitting at the retouching desk will probably add to. As you have to depend upon retouching

as a livelihood, we should advise you to consult an experienced oculist without delay. If your means do not enable you to see a specialist, better go to one of the ophthalmic hospitals—say that at Charing Cross. There you will get the best advice free of charge. If spectacles are found to be necessary, you will be able to get them at a very moderate price.

DISTORTION.—Will you please give me your opinion on the enclosed portraits? The lens they were taken with was sold to me, second hand, as a half-plate portrait lens. It is 2½ in. diameter and 5½ in. focus. You will see the pictures are distorted, the nearest part being on a much larger scale than the more distant ones.—J. C. KLEWER.

There is no actual distortion in the pictures, but the perspective is very violent, and that is often called "distortion." It arises from the portraits being taken with a lens of too short a focus for the size of the picture. If you used a lens of the most modern type of similar focus on the same sized plate, the result would be the same.

PATENT QUERY.—Our firm, about a couple of years ago, took a licence to use a certain apparatus and a certain process for an annual payment. We now find that others are working it and paying a royalty. One of those told me that the patent was no good, as was not valid, because the whole thing had been published in the photographic press a dozen years and more back. He also gave me "chapter and verse" for what he said, and we find by reference that it is quite true. Will you please say if, in face of that, we shall still have to pay the licence fees?—V. B.

We fear you will, so long as the patent is not upset. By taking the licence you admitted the validity of the patent, and you cannot now repudiate it. If the validity of the patent is contested by anyone else, and it is ruled invalid, you can then discontinue your payments.

THE LATE MR. E. D. LAVENDER.—It is with regret, which we are sure will be shared by all who knew him, that we have to announce the death of Mr. E. Davey Lavender, F.R.P.S., of Bromley, Kent, which occurred on the 7th inst. Mr. Lavender was at one time a frequent exhibitor of large direct portraits at different exhibitions, in which he gained some of the highest awards, notably at the International Exhibition held in the Crystal Palace in 1889, when he was awarded the gold medal. He took a very active part in forming the now defunct Photographers' Benevolent Association, which came to an end owing to lack of the support from those it was intended to benefit. He was fond of outdoor sports, and was for some time secretary of the Bromley Cricket Club. For the greater part of a century Mr. Lavender carried on a high-class portrait business at Bromley, where he was much respected. We understand that this will be continued by Mrs. Lavender, who has always taken an active part in the business, and by her eldest son.

ENSIGN ROLL-FILM COMPETITION.—Miss E. M. Russell, 43, St. Bourne Terrace, Hyde Park, W., is the winner of the "Ensign" roll-film competition for October. Houghtons Ltd. offer a £1 guinea camera every month for the best negative on "Ensign" film. The entries close on the 3rd of the month. Entrance is free and a competition form is enclosed with every spool of "Ensign" film.

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SUMMARY.

The Traill-Taylor lecture will be delivered on November 23 by Professor A. W. Porter, who will take as his subject "The Growth of the Photographic Image." (P. 848.)

Mr. Shaw's "extemporisings," the legitimacy of the straight print, and the fixation of bromide prints figure with other topics in "Correspondence." (P. 849.)

Mr. Cavendish Morton and Mr. A. L. Coburn appear before the committee this week as the authors of "The Art of Theatrical Make-up" in "London" respectively, the latter a portfolio of photogravures. (P. 845 and 833.)

Our contemporary "Printers' Ink," Mr. W. J. Casey lays stress on the increasing use which should be made of photography by advertisers in the general Press, as well as by those who might possibly employ stereoscopic, cinematographic, and other forms of photographic pictures in drawing the public's attention to their goods. (P. 837.)

The slight photography of indoor groups, interiors of factories, etc., having considerable commercial possibilities, the article by Mr. H. Andrews on p. 836 may be offered as a timely reminder of the comparatively simple outfit which is required and of the precautions which are quite essential to success in this class of work.

A recent communication to the R.P.S. by Mr. Arthur Payne describes the method of engraving direct on to the metal plate in the preparation of half-tone blocks, which has been christened "Phototype." (P. 840.)

Etching aluminium, a stop-out medium for fine etching, and a book on colotype, are among the "Photo-Mechanical" topics on p. 843.

The standard methods to be adopted in the recovery of residues in a practical article on p. 841.

The useful purposes to which linoleum or cork-lino may be put—after it makes an excellent facing for the enlarging easel—are mentioned in a note on p. 834.

The German inventors have united in designing and patenting a developing storage bottle. (P. 844.)

The tables, which have been found highly effective by the Kodak Company for the printing, enlarging, and mounting of prints, are described on p. 839.

Two hints on avoiding reflections are given on p. 834.

Some recommendations on making shutters interchangeable with various lenses and cameras which the professional photographer may use are given in an article on p. 835.

EX CATHEDRA.

Photographs at the Goupil Gallery.

In the Regent Street galleries, well known as the Goupil Galleries, a small upper room has been set aside for the photographs by Mr. A. L. Coburn, from which the plates illustrating his "London" have been made. The book is reviewed in another column. We have no hesitation in saying that the originals are incomparably better than the photogravures, in which the results in almost every case have become muddy and heavy. In seeking for more force, Mr. Coburn has lost qualities better worth having, such as delicacy and subtlety, true values and atmosphere. The "London Bridge" is the best subject, and has suffered least; but the great charm of "Hyde Park Corner," its vapour-thickened air, has quite gone in the photogravure, where the omnibus that should gleam out of a foggy ambient is many tones too dark, and has lost its proper place in the scheme. Mr. Coburn's photographs are in remarkably fine company, and they are not a little tried by the works in oil and water-colours by the most advanced artists of to-day, through which the visitor must run the gauntlet before he arrives at the London views. The ground floor galleries are filled with the choicest works, and we advise any who visit the galleries to "do" the whole show whilst they are about it.

* * *

Photographing the Curvature of the Earth.

In these pages we have frequently drawn attention to the value of photography in recording scientific truths. We are, however, reminded by an article in a contemporary that there is a certain amount of danger in this application of photography. It is a matter of common knowledge that we have still with us a few individuals who believe, or profess to believe, that the earth is flat. In support of this theory much use has been made of some photographs produced by Mr. Edgar Clifton, who, we may remark, is not a "flat-earthist" himself. These photographs show a bridge at Salters Sode in Norfolk, as seen from Welney, in Cambridgeshire, along the course of a perfectly straight and level canal six miles long. The bridge was covered with a white sheet, the lower edge of which touched the water; visual observation was made through a telescope, and also a photograph taken with a telephoto lens at a height of two feet above the water, showed the lower edge of the sheet even though, owing to the curvature of the earth, the visible horizon was about five feet above the straight line joining lens and edge of sheet. This result seems to have misled even Mr. Clifton, who says that in his mind "there is little doubt that this canal is absolutely level," and adds: "The most bigoted 'globularist' would not expect the water to rise

above its banks to assume the curved outline which the vast bulk of mankind still associate with the figure of our 'terrestrial ball.' In explanation he suggests that "being situated on an accidentally flat part of the earth's surface, the water, which is trifling in volume, is held in position by gravitation following the flat bottom of the canal." This last argument is beyond us, but we agree with Mr. Clifton that the canal is absolutely level, and we believe it has been proved to be so by actual measurement, but we would remind him that a true level is a curve, and that if the surface had the kind of flatness he seems to assume it would in reality be concave. The whole of Mr. Clifton's remarkable argument is due to disregard of the familiar daily phenomenon of "refraction," which compels the light rays to take a curved path under particular conditions, instead of the straight one they are popularly supposed to follow. In consequence of this phenomenon we are able to see the sun after it has actually sunk below the horizon, while the same cause is responsible for the appearance of mirages. Indeed, Mr. Clifton's photograph is one of the variety of mirage, and all the trouble is due to the fact that he was so near the water level where the air was naturally lying in strata of variable density, and where the light rays had an excessive curvature approximating to that of the earth itself.

* * *

Outlets for Artistic Photography.

The letter from Mr. G. T. Harris which appears on another page makes the altruistic suggestion that photographers might do worse than brighten the depressing atmosphere of a railway waiting room by displaying upon the walls of these apartments examples of their efforts in picture making with the camera. We are not prepared to admit that in every instance the effect would be that sought for, and there is another factor in the case which would probably nip any endeavours in the bud. Wall spaces on the premises of railway stations being the valuable asset for advertising purposes of Messrs. W. H. Smith and Son, it is more than likely that any offers to display alleged works of art in them would be referred to the contractors and would gain admission to the walls only at a price. Nowadays, when everyone advertises by some means or other, we can imagine an agent for the letting of advertisement space raising his eyebrows when told that the motive for showing the photographs displayed was a purely philanthropic one.

* * *

Re-mounting Lens Cells.

A somewhat curious experience was recently reported to us by a friend. It appeared that he possessed a modern lens of good quality mounted in a diaphragm shutter, and, having no use for the shutter, he re-mounted the lens cells in a plain iris mount and sold the shutter. Unfortunately he parted with the shutter before trying the new combination, and when he did try it the result was somewhat startling. He focussed first on an object in the foreground and then racked the camera in so as to change the focus on to a more distant object, but to his surprise the racking-in made the focus worse than before. After several trials he found that to change the focus from one object to another he had to rack out for the greater distance and to rack in for the nearer one, which state of affairs, being contrary to all his previous experience, simply bewildered him. The explanation was, of course, curvature of the field. Though he had appreciated the necessity of preserving the original separation of the two lens cells, yet he had not succeeded in doing it with sufficient accuracy, and as the result, strong curvature of the field was introduced. The nearer object on which he focussed appeared near the centre of

the plate and the more distant one near the margin. When the first object was in focus the image of the other one fell behind the plate instead of in front of it, the curvature being negative or convex to the lens, therefore it was necessary to rack the camera out to get the farther of the two objects into focus. This experience illustrates the danger of shifting lens cells into other mounts, especially when a modern highly corrected objective is in question. Very careful measurements are necessary if the correct adjustments are to be preserved, and it is always best to put the work into the hands of the original maker of the objective. Many good lenses are spoiled by being improperly mounted in diaphragm shutters. In some cases the lens owner makes the change himself on finding that the cells will readily fit the screw threads in the shutter, and when the threads will not fit he appeals to the nearest dealer, who most probably alters the screw thread only, and never discovers that other much more critical adjustments are essential.

* * *

"Cork Lino" for the Enlarging Easel.

Recently we referred to the use of linoleum as a cover for a work-room bench. The same material is, however, eminently useful for a quite different purpose. It is often necessary to let freshly mounted prints dry under pressure, but sometimes the result is marred by unsightly marks produced by the boards used for equalising the pressure. A piece of smooth thick linoleum used in place of the usual board is the best preventive of this trouble, for while it is smooth it is also slightly elastic. For pressing prints we commonly use a large copying press with a pair of linoleum pressure-boards between which the print is placed. A sheet of clean blotting-paper preserves the surface from contact with the linoleum, and so keeps it clean. Another variety of linoleum, known as "Cork Lino," or cork carpet, is also very useful in the workshop. Practically it is an extremely smooth and close-grained variety of cork, backed with strong canvas, and eminently durable. It is adaptable to various purposes. One piece can serve as a cork mat for flasks and beakers which contain hot solutions. Other pieces, fixed to walls or shelves in convenient position will form excellent pincushions for the dark-room pin that are in such constant demand and so seldom to be found. Perhaps, however, the most useful service which it can be put to is that of a covering to the enlarging easel. It should be glued down all over the board, that it may lie quite smoothly, and we then have the luxury of a cork-faced easel into which the feeblest pin can be driven with ease, while the hole vanishes when the pin is withdrawn.

* * *

Photographing Small Interiors.

One of the minor difficulties met with in photographing well-lighted rooms, which are usually a number of pictures on the walls, is the reflection in the glasses of these latter of light objects in other parts of the room. In such cases as this, inspection of the actual subject is a more efficient method of locating unsightly reflection patches than viewing the image on the ground glass. But the point of view must be that of the lens, the operator stooping down in front of the camera and scrutinising his subject from close in front of the lens. In many cases a glaring patch of reflected light may be turned off the plate by tilting the offending picture-frame by means of a ball of paper or a pocket-handkerchief stuffed in behind it. Unfortunately this local tinkering with the subject will not suffice when a number of frames are faced by white or light objects. In this event the most satisfactory remedy is a screen

thin black cloth or lining, which can be easily reared up on a couple of bamboo rods so as to exclude the cause of the trouble entirely. In taking a series of photographs in a picture gallery some such plan as this is almost a necessity.

* * *

Another Experience with Stains.

Though many remedies for stained negatives have been advocated, yet occasionally we come across a stain that refuses to yield to any treatment. Recently we turned out an old negative that was hopelessly stained and quite unprintable, and, as we knew the history of the stain, it seemed to be an interesting subject for experiment. It was a hydroquinone-developed negative, which originally showed a slight yellow stain across one end. In the course of years this stain had spread over the whole negative, and had become of a strong brown colour. Thiocarbamide was tried first, but it failed to touch the stain. We then bleached the negative with bichromate and hydrochloric acid, following this with a bath of chromic acid calculated to dissolve everything out of the film except the silver chloride and the gelatine. After a long soaking the film looked fairly clean, so we washed and re-developed, with the result that the stain reappeared. As a last resource we put the plate in a fixing-bath, and here, for the first time, a certain amount of effect was apparent. The chromic acid had started a certain amount of frilling, and we noticed that the frilled portions of the film were much cleaner than the rest. Frilling was then encouraged, and wherever the hypo got to the back of the film the stain tended to disappear. Evidently this was a case in which the stain was in the parts of the film next the glass, and could not be removed from the top. If we had stripped the film at the start and then operated on the loose film, in all probability we might have been successful in the clearing operations. The remedy would have been a rather desperate one, but sometimes it is necessary to be desperate, so the experience we have described may be useful *in extremis*.

ON LOOKING TO STUDIO APPARATUS.

ANY photographic business, however large or small, is bound to have a variety of cameras. The efficiency of these can be vastly improved in many cases by a little thought. These improvements will be chiefly in the arrangement of the shutter and lens, and in the direction of making these fittings interchangeable. The most generally used type of studio camera of to-day is provided with a grooved front, into which the various lenses on loose panels lift in and out. The panel is generally provided with a fitting upon which the studio shutter is attached. This is a quick method of altering lenses when changing from cabinet to 12 by 10, or what not, but the shutter takes time to detach and attach. We have much simplified matters by screwing inside the camera (covering up the square hole for lens panel) a piece of blackened three-ply wood with a hole in the centre the exact diameter of the largest aperture of the shutter. The shutter is fixed permanently to this, and the lens can be changed even if the plate is ready for exposure, needless to say, re-focussing after changing. The shutter should be large enough to take the largest lens used. We have said above "permanently fixed," but the shutter should be removable when required. For at-home portraits, a really silent shutter is a great boon, and both whole plate and 12 by 10 field cameras are conveniently fitted so that the studio shutter can be used with them. In a large camera this is only a matter of fixing the same shutter catches as for the studio apparatus and placing a brass air-pipe through the lens panel. In a

whole-plate camera, however, the shutter may only just fit, and great care is required in fitting catches. The brass connection almost led us to give up the idea, but the difficulty was overcome by fixing the pipe in the permanent front and cutting a slot in the rising and falling front, similar to that in which the tightening screw works. Only a square-bellows pattern camera will take an inside pattern shutter. For architectural and general work, the extreme rise and swing front of the conical bellows pattern camera make it far superior to the older type. A good lens of the ordinary angle and an extremely wide angle lens are, however, imperative. The loose lens-board type of shutter is to be recommended for general reliability and quickness of alteration, say a whole-plate shutter, big enough to take a 15in. by 12in. lens. This has the disadvantage that it will not fold through the turntable and restricts the cross front, but on the score of convenience and economy it cannot be beaten. Practically, every lens except the 3B portrait should have a lens panel for this shutter, giving a great range of focal length. The quarter-plate lens stopped down will cover the whole plate, as will also a half-plate lens. The wide-angle whole plate comes between these two; thus there is the regular anastigmat and the 15in. by 12in. for long focal length.

The cross front, with the shutter screwed thereon, fits on to the square-bellows whole-plate, when exceptional rigidity is required, and also on to the longer cameras, so that, besides increased efficiency, the cost of an extra shutter, lens panels, and lens flanges is saved. By making a special pattern cross-front and putting two extra grooves on the square-bellows pattern, the studio lens at $f/3$ is available for at-home portraiture—a very great help indeed for groups (of two or three) and babies when combined with the silent shutter as before described. This advantage of the square-bellows camera, i.e., the ability of the solid front to take studio lenses and shutter, should be borne in mind when the respective merits of square or conical bellows pattern are to be determined. With very little work indeed any lens can be made to fit any camera. For copying and other special work it is often desirable to use the field lenses. To avoid purchasing extra flanges, we have one studio camera lens-panel so fitted with the aid of some home-made grooves, velvet, and glue that the various lens-panels of the field shutter will slide on to it.

Should the longer and smaller cameras be out on different work at the same time, shutters for each will be necessary. In that case it is advisable either to have identical shutters or by a little ingenuity to make the lens boards of the smaller shutter fit on to the larger. It will, perhaps, appear rather extravagant to have both types of whole-plate camera, but in this connection we may quote the experience of a correspondent, Mr. Foster Brigham, of Scarborough: "Having by an accident got a camera of each kind, I would not now be without them, each having merits impossible to combine. The accident mentioned was the fact that one square-bellows model had been declared 'unmendable' by the cabinet-maker who has had it several times during the last twenty years. The rack became so loose that the focussing screen moved when the dark slide was inserted and, moreover, the slides leaked slightly. The new camera was ordered with reversing back to take the old slides and also the focal-plane shutter, so that these are again interchangeable. Upon taking the slides to pieces it was found that the velvet light top which is 'unget-at-able' without entirely withdrawing the slide, was worn smooth and shiny. This was replaced with new velvet and slides, and both are now quite as good as new. The slides have always been kept black-leaded to avoid wear, and the brass side clips tightened slightly whenever required. Having some spare time, a too common occurrence in the spring, I removed the

pinion from the camera and found that it was slightly bent. After straightening and screwing on to camera very tight in slightly different position, this also works as in the days of youth."

We have no doubt that there are many dozens of cameras rotting in idleness or thrown away that only require some such simple attention to put them in working order. Brass stays and plates will easily cure slight shakiness. Printing-frames are articles often discarded on account of broken springs or because the angle blocks have become

detached. The latter are easily cut and glued in, whilst spare springs are cheaply purchased. Some of the springs on the cheapest class of printing-frame are almost useless for their purpose. Springs on frames we have had for ten to twenty years are still perfectly "springy" and strong. Some new ones we recently received were more like lead, losing all springiness after bending four or five times. Printing-frames should not be stored higher than a gas flame. The fumes soon destroy all the qualities of the brass, so that springs break like matchwood.

PRACTICAL HINTS ON FLASHLIGHT PHOTOGRAPHY.

Now that the season for flashlight work is here, I wish, if possible, in this short article, to give a few very practical hints and some useful information that will be of some benefit to the professional photographer, so that the average practical man can undertake this class of work with more confidence, and so increase his business. Many have refused this kind of work; indeed, it is not uncommon to find photographers who are absolutely afraid to undertake it at any price. I want, if possible, to make it very clear and plain that it is not so very difficult and dangerous if carried out by a practical man.

First of all, let me emphasise the fact that no one should think of undertaking flashlight unless he be fairly well acquainted with the necessary precautions. There is certainly some danger attached to it, but if the reader will closely follow the instructions here given, and never attempt any experiments with flashlight powder, then the risks are reduced to a minimum.

Let it be said at once that any danger does not apply to the sitters or subjects, but to the man who operates. In an experience of over twelve years with flashlight, during which time I have made considerably over 1,000 exposures, both of indoor and outdoor subjects, I have come in contact with many other workers, but I have never known any accident to happen to anyone except the operator. In some cases he has been severely burnt, and in most instances it can be traced to carelessness. Only once did I ever meet with a slight accident myself—I was burnt slightly—and that was caused through experimenting with a new automatic flashlamp, which went off at the wrong moment.

I intend principally in this article to deal with group flashlight work and indoor commercial work, and shall have little to say about portraiture, because this latter is so very simple and easy after the other. A workroom, or a dinner or children's party, to be taken on, say, a 12 x 10 plate, is not easy, and it is here where the operator has to be quick, have a cool head, and make no mistake.

A Flash Equipment for Practical Work.

For the man who has a good deal of flashlight to do, it is better to have a good lamp, made something after the style of lamp I shall describe; but for only an occasional job it is not at all necessary to have anything elaborate. Really, a pair of borrowed steps and a piece of board about three feet long is all that is necessary; the word flashlamp gives a mistaken idea of what is really wanted. All that is required is something to place the powder on ready to fire. There is not really a perfectly reliable flashlamp on the market that, for large commercial work, I can recommend, and I have tried pretty well every lamp there is, and experimented with every kind of powder. The lamps which I am referring to principally are those for firing off instantaneous powder. Lamps for magnesium powder are not a bit of use for present-day photography; they

are antique, and seldom used now and are practically useless. The kind of lamp which I recommend is one that can be made at home for about ten shillings, and will answer the purpose for a long time without getting out of order. Obtain a piece of match-board about three feet long by about four inches wide, cover this with some sort of metal—aluminium for preference, on account of its lightness.

Insert at the bottom, in the centre, a bush for screwing in a rod, collapsible or otherwise (collapsible for preference), about eight feet in height. A clamp for attaching the rod to a chair or table completes the list of what is required, excepting a taper mounted in holder of decent length. Those who have a lot of flashlight work can quite easily have a more elaborate lamp made on the same lines. The piece of board and pair of steps referred to is what I used for a long while myself some years ago. Never have anything to do with any lamps which act automatically or are fired by batteries or electricity; they may go right for some time, but they are sure to fail later on, and generally at the critical moment. I have heard of more failures from this cause than any other.

The Powder.

Any of the well-known instantaneous combustible powders will answer well, but the powders that I prefer are the "Argentorat" and "Ideal" powders, which have been in use in this country for several years, and can be bought at most dealers at about 4s. 6d. per box of 100 grammes. This is enough for exposures for four 12 x 10 or eight whole-plate negatives. Never be persuaded to try mixing your own powder. The process involves a lot of trouble, is dangerous, and the powder so made is often unreliable. As I have said, at the critical moment of the exposure nothing must go wrong, and there must be no mistake; so always use a good, reliable powder that is well recommended, and, in preference, one of those just mentioned.

Fixing up the Camera.

Assuming that we are to take a dinner-party or a workroom full of people, to be taken on a 12 x 10 plate: arrange to fix the camera fairly high up from the ground. In a large room it is often best to erect the camera on a table. After focussing carefully, stop your lens down to $f/16$, if necessary, but never more than this, or you will require a terrific lot of powder. Nearly all our modern lenses will cover a 12 by 10 beautifully at $f/16$, and there is very seldom occasion to stop down more. If working 1/1 plates $f/11$ should be quite sufficient.

Whilst the focussing is being arranged, if you are lucky enough to have an assistant with you, he can be arranging the flashlamp. An assistant is not at all necessary. I nearly always do all my flashlights quite alone.

Fixing the Lamp.

Erect your lamp as high as possible, and immediately behind the camera. Always remember to get your light high up, and as near to your objects as possible, but never in front of the lens, unless the latter is well shielded from the light; otherwise a fogged plate will be the result, through the light reflecting back into the lens. The plate should now be put in the camera. Always use the fastest plates obtainable: it is useless to use a slow or medium rapidity plate. Now draw your slide, and, last of all, place your powder in position. This sounds perfectly easy, placing the powder in position, but in this operation there is decidedly more art and knack needed than one would imagine. One great thing to remember and aim for is a large sheet of light, rather than an intense concentrated light. This is most important, and essential to good flashlight work. You want your light to carry all over the room, if possible, and this can only be done by placing the powder correctly. On the centre of your lamp, or on your temporary piece of board, place a small piece of gun-cotton (this can be purchased at any wholesale chemist's, and half an ounce will last for years). Use a piece about the size of a small nut, cover this partly with powder, and gently form a trail of powder from end to end of the tray, being careful to see the trail is not broken in any part; otherwise, when ignited, the powder beyond the broken trail will not ignite. One then feels inclined to apply a lighted match with the hand—an act which would prove disastrous to the operator. The amount of powder required is about a quarter of a box (25 grammes). Having previously seen that any near lights are turned off—the lights in the distance will not matter in the least, and will not affect the plate the few seconds the lens is uncapped—you should ask your sitters or party either to look at their work (if a workroom), or else to look just below the camera, and on no account to look at the flash; otherwise they will all appear staring upwards. Nothing remains now but to uncup the lens, and to expose by applying the lighted taper to the exposed piece of gun-cotton: the result will be an instantaneous flash of about a tenth of a second. Your taper-holder should be of good length, so as to allow you to keep as far away as possible from the flash. The majority of the powders contain aluminium, which gives off intense heat, especially when a large flash is used.

One Essential to Success—Dry Powder.

One important thing always to remember is never to have your powder exposed any longer than is really necessary: arrange that it is fired as quickly as possible after having been laid out. If not, there will be a loud report when fired, and the report will be louder the longer the powder is exposed to the atmosphere. If fired as soon as laid out, the powder should go off without any report whatever. If a report does occur, it is liable to give rise to confusion, and may cause certain timid people to be very frightened. Remember, it can be avoided, as can also smoke, to a great extent, if special attention is given to the windows. A great deal depends on the ventilation of the room. If well ventilated, the smoke will go out in a few minutes. No matter how high the room or hall, the smoke will always ascend to the ceiling, and if all the windows are opened for a few minutes, the smoke should soon disappear without descending and causing any inconvenience.

The quantity of powder required will be less than 25 grammes if using the lens at $f/11$, and in proportion less still if using $f/8$, which can be used for half-plates and for single portraits; where the open aperture of the lens can be used, enough to cover a shilling is sufficient. A very large hall will require more powder if it is required to light the whole place well, or if found to be absolutely necessary to stop to $f/22$. Experience only will teach the correct quantity to use.

Development of the Plate.

It will be found that it is very rarely that a flashlight is over-exposed. On the other hand, they will always lean towards under-exposure, so that little or no bromide should be used in the development. Greater care must be used in handling these very fast plates than those in general use. Too much red light will often cause fog, so keep the dish well covered during development.

In this short article I hope to have made it very plain and distinct how good flashlights can be obtained; and all photographers who wish to increase their business would do well to make some attempt to understand this branch of the trade thoroughly, as I believe there are heaps of business to be got in this direction.

H. ANDREWS.

PHOTOGRAPHY IN THE SERVICE OF ADVERTISING.

[The use of the photograph in press, poster, and other forms of advertising is steadily growing, but not as rapidly as one might expect of the large number of photographers "out to make money." If this is due to any misapprehension as to the field open to them on the part of the photographers, we would recommend a perusal of the following article from the two last issues of our advertising contemporary, "Printers' Ink," a journal which we would further suggest for regular study by every photographer and photographic firm interested in improving their methods of publicity. The author, Mr. W. J. Casey, the advertising manager of Messrs. Raines and Co., will doubtless admit that in thus advocating in the advertising press, the greater use of photographic work, he is affording another instance of the "Service that Helps" (Where have we seen that phrase?), since it is the professional photographer who will directly benefit by an increased demand for photographs among advertisers.—Eds. "B.J."]

THIS is a plea for the greater use of the photograph in advertising—both in its half-tone reproduction for illustration and in its actual form for showcard and similar purposes.

The public dearly loves a photograph. All through the big postcard boom it paid its twopences for "real photograph celebrities" compared with the penny or less for the many competing coloured varieties, thus violently upsetting the "penny plain, twopence coloured" theory of values of our childhood.

Public Prefers Photographs.

But strongest of all reasons that I can bring forward is the steadily increasing use of photographs in the editorial pages of the popular press. The managements of these publications gauge the public taste to a nicety, and advertisers may well follow the cue thus given.

As Kenneth Groesbeck puts it in the *Printing Art*, "the advertising value of anything is based on the intensity of the

impression it creates. A photograph, as a general thing, makes better advertising than a drawing. This, when naturalness is desired. If we are illustrating any commonly seen objects, or if figures of people enter into our scheme of illustration, photography is valuable. It convinces by its very accuracy."

And is not "naturalness" the most desirable of attributes in advertising? Is it not more desirable even than the humour that so many advertisers aim at incorporating in their publicity? Ask a woman who has to sweep rooms herself, or (what is seemingly harder work still) who has to direct the servants doing so, her impression of the Hassall "Help" poster. Then ask her what she thinks of the Allenbury mother and child, and you will soon learn which appeals the more strongly. Certainly Allen and Hanburys have run the one subject a long time, but it is quite possible to use photographs, and yet change copy frequently, as witness the excellent half-page of Pearline Soap Powder and the full-page of Washburn-Crosby flour in the American magazines, both of which use a new subject every month. These two advertisers, be it noted, use photographs specially taken—photographs that are made to fit the copy, and not, as are the majority of photographs here used, taken at random and offered to the agents for the article for its name to be worked in and copy written, more or less loosely, around it as opportunity offers.

Who Will Be First?

Who will be the first advertiser to run such a series in our monthlies or weeklies? Obviously the work can only be done by a really good professional photographer, and as such must be well paid for; but even at that, and including payment to the models, the cost would not be nearly so much as that now paid for good pen-and-ink and wash drawings.

I would lay particular stress on this necessity for co-operation between the advertiser and the photographer. Up to the present there has been too much reliance on more or less spasmodic work. I venture to assert that one half of the sum awarded in prizes in the Bovril photographic competition a few years ago (one recognises, of course, that other motives besides the acquisition of photographs were behind the scheme), if spent in commissioning one or other of the West End photographers whose imprints appear below the theatrical photographs in the weekly papers, would obtain such a series of photographs as would create no little attention.

Photographs must be Good.

There is room, too, for more photographs of the article itself than are being used—I mean good photographs of the kind used by Hampton and Maple. The trouble is that too many advertisers think that any photograph is good enough for half-tone reproduction, and that the engraver's artist and fine-etcher can work wonders, and that without extra charge! During the last few years great improvements have been made in photography of coloured objects, and with such a plate as the Wratten Panchromatic and properly adjusted filters, it is possible to photograph even polished mahogany furniture without reflections, and still to show the beauty of the figuring. But for work of this description it will be necessary to call in the photographer who has made a special study of commercial photography; it will not do to entrust the work to the junior clerk who is the proud possessor of a guinea hand-camera.

And how little are photographs used as compared with what they might be.

The Manufacturer at Fault.

The retailer cannot be blamed—except in the case of the companies working a chain of shops—but surely the manufacturer, especially of foodstuffs, who is producing a better article than most of his competitors, might well make use of photographic showcards. For instance, sausage-making—long the

butt of the would-be funny man—could be demonstrated by Messrs. Palethorpe, of Dudley Port, in such a way as to show the product of their model plant immensely superior to the cheaper unlabelled article with which they have to compete. Similarly with the jams produced by Chivers at Histon. A frame with a series of, say, twelve appropriately worded photographs, to be changed daily, would be appreciated by many retailers.

What the Railways are Doing.

The railway companies, whose advertising has been the subject of so much adverse criticism in previous issues of "Printers' Ink," have long realised the value of photographs. Not only have they used small photographs in carriages, but, at the termini in their parcels receiving offices and at the Shepherd's Bush exhibitions, they have used enlargements of such striking size as at once to arrest attention. At Shepherd's Bush this year the London and North Western presented an excellent cinematograph show, while at Earl's Court the Southern and Union Pacific Railway had a very fine exhibit. A small hall was tastefully hung with enlargements, and several times during the day half-hour "talks" were given, illustrated by coloured lanterns and cinematograph films. Thus a "talk" on "San Francisco and its restoration" showed about fifty different slides, and interspersed among them were "moving pictures" depicting a ride on a street car through the busiest part of Frisco, a fire-engine parade, seagulls following a fishing boat from which waste fish are being thrown overboard, an ostrich farm, and an entertainment in a swimming-bath. At the close I remarked to Mr. Erwin, the gentleman in charge of the exhibit, that he had not once mentioned his railway. His reply was interesting. "Oh, that doesn't matter. We want to interest people in California; once they go there, they must travel on our system." Many of our lines have monopolies, or practically so, of desirable resorts—Brighton, Eastbourne, the Norfolk Broads, Lowestoft, the Cornish Riviera—will they follow the Union Pacific example?

Why Not Steamship Companies?

If the railway companies thus realise the value of photographs, why do not the steamship companies use them more? Experts may appreciate the models that are always on show in the office windows of the leading companies, but one doubts if they appeal very strongly to the general public.

The Inexpensive Stereoscope.

Mention has been made of the cinematograph. Lloyds, of newspaper fame, have already a "moving picture" show, and doubtless other firms will soon follow suit. But I have not yet heard of the stereoscope being used for advertising purposes. The councils of seaside resorts, manufacturing firms such as Cadbury's, who, in addition to their model village, must have many interesting views in their factories, might well arrange to have stereoscopes and sets of views in the reading and smoking rooms of hotels, boarding-houses, clubs, etc. In America there is a huge business done in stereoscopic views—Underwood and the H. C. White Company each turn out many thousand weekly. If people will thus buy views on the other side, it may reasonably be argued that they would, were the opportunity offered of doing so free of charge, look at them carefully in this country.

Aids to Recruiting.

It seems to me that photographs depicting life in the army and navy would be very much more attractive as aids to recruiting than the lithographs that one now sees displayed in public places. These all seem to have been designed with the idea that the desired recruit is most likely to be captured by the high

coloured uniforms—but to my mind photographs of the kind that one sees in the sixpenny weeklies, i.e., those showing manœuvres and sports, would, if shown in enlarged form, appeal more strongly to the fighting and sport-loving spirit animating, to a greater or lesser degree, most young Englishmen.

To repeat the quotation I used above, "Photography is valuable. It convinces by its very accuracy." The advertiser should remember this. If he does not, it is "up to" the photographer, the man who has to make his living by it, to remind him of it.
W. J. CASEY.

USEFUL WORKROOM TABLES.

[In arranging and equipping their model studio, the Eastman Kodak Company endeavoured to install only such fixtures as would prove thoroughly practical and convenient and a help in the economy of time and labour. Below we reprint from the September "Studio Light and the Aristo Eagle" a description of the work-room tables.]

THE three tables or work-benches described in this article have thoroughly demonstrated their practical efficiency in three years' constant use, and we have found no necessity for any modifications from the original plans.

It will be noticed that none of the shelving or cupboarding extends entirely to the floor—the free space allowing the floor underneath the benches to be easily swept, and also acts as a protection to the contents of the benches from dampness.

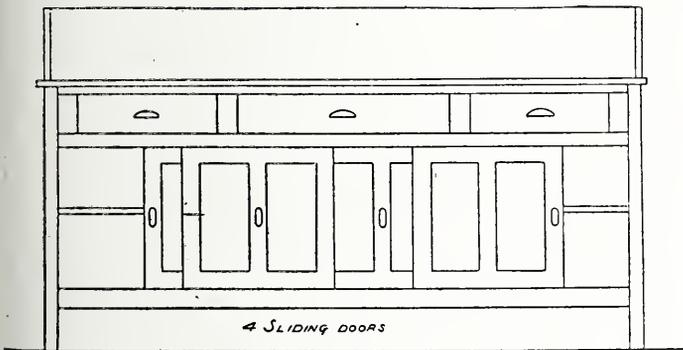


Fig. 1.
Printing-room Table.

The table in the printing-room—see illustration No. 1—is placed against the side wall of the room, just out of range from the light from the printing-window. The top is provided with back and end pieces about twelve inches high. The back forms a handy support for the negatives when sorting for printing, and also prevents any of the negatives from slipping down behind the table and becoming lost or damaged.

We call your attention to the fact that all printing-frames are stored in the lower part of the bench, either in the open shelves at each end or in the enclosed cupboards. This method is far better than sorting the frames on shelves above the

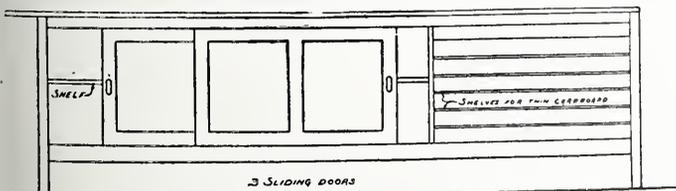


Fig. 2.
Mounting-room Table.

table, as, when stacked above the table, they sometimes come tumbling down, with disastrous results to important negatives. The table is provided with three snugly fitting drawers, equipped with pull handles, for the storage of sensitive paper. In the cupboards beneath ample space is provided for the storage of vignettes, tissues, and other printing necessities.

The table in the mounting-room is of solid construction, and is provided with a broad, perfectly smooth top, which may be covered with white rubber or oilcloth to insure its surface being

always clean, and mounts and prints from damage by soiling. The long shelves for the storage of thin mountboard will be found a great convenience, as the thin stock will remain in perfect condition, and no time need be lost sorting the sheets to locate different colours or weights. The other open shelves may be used for storing dry mounting tissue or paste, and other incidentals for mounting, while the shelving protected by the sliding doors forms an ideal storage place for stock mounts.

The table in the enlarging-room presents some unusual features, which, though simple, greatly facilitate the work when enlarging in large sizes.

By referring to illustration No. 3, it will be noticed that

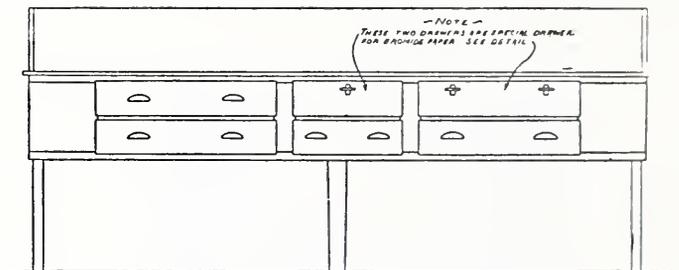


Fig. 3.
Enlarging-room Table.

the top of this table is constructed in the same manner as the table in the printing-room, and for the same reasons. This table is fitted with six drawers for the storage of paper and other incidentals, four of the drawers are of the ordinary type, but the two upper right-hand ones are designed for the storage of bromide paper in large sizes, and are of special construction.

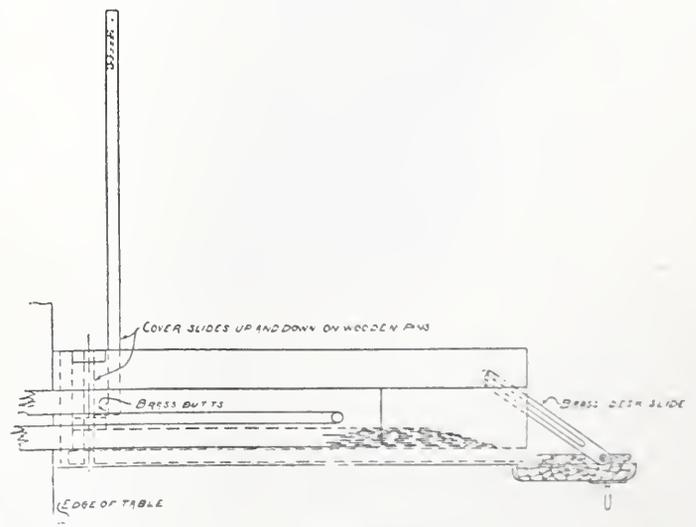


Fig. 4.

Illustration No. 4 affords a profile view of one of these drawers when pulled out. It will be seen that the drawer is provided

with a heavy board cover, which slides up and down on wooden pins, and serves as a weight to keep the paper flat during storage. This cover is provided with a brass flush ring, so that it may be easily lifted up to a vertical position when it is necessary to remove paper for use.

The front of the drawer pulls down, and is supported by a brass desk slide, making the large sizes of paper stored on the bottom of the drawer easy of access, and permitting the

removal of any size sheet without disturbing the remainder. The paper may be stored in this manner in its original enclosures, the size, surface, and grade may be written in the edge extending, thus making it easy to locate and remove any size or grade instantly.

The plans reproduced herewith are reduced from the original scale of three inches to the foot; but they, of course, can be constructed in dimensions to accommodate any space.

A DIRECT PHOTO-ENGRAVING PROCESS.

(A Communication to the Royal Photographic Society's Journal.)

THE illustration on this page is interesting because it is the first half-tone block to be made by photographing the human figure direct upon the prepared metallic (zinc) plate. I exposed the plate in June, 1909, and the exposure was 10 seconds at $f/18$, square stop, with a 65 line Levy screen; the portrait was taken in the open air. Of course, this prolonged exposure does not permit of the practical use of the process by the press photographer at present, but it should be noted that a very slow emulsion was used, and if the most rapid emulsions are found to be suitable for this work, the exposure may be reduced under similar conditions to 1-14th of a second.



The process is protected by Letters Patent No. 28415, 1907, and No. 18775, 1908, in Great Britain.* Patents have also been applied for in the United States of America, Germany, France, Belgium, Austria, and Hungary.

The essential part of the process is the prepared metallic plates, which may be manufactured, stored, and sold ready for use, in a similar manner to ordinary dry plates. Though I have worked with both copper and zinc plates, it seems likely that zinc will be the most useful metal to use as a base. The plates consist of an extremely thin film of a gelatino-bromide

emulsion coated upon a film or substratum of spirit-soluble varnish laid upon the metal plate. The varnish acts as the etching resist and also prevents chemical action between the emulsion and the metal plate. The plates keep well, and may readily be cut to any size by means of a guillotine machine used in the dark room. I have adopted a slow emulsion, of about the same speed as wet collodion, so that I could use a strong yellow light in the dark room in order to study the working details of the process, but it is quite possible that the rapidity of the emulsion may be considerably increased in the future.

The plate is exposed in the process camera in the usual manner, except that as the image does not require to be reversed, no prism is used upon the lens. The exposed plate is developed exactly in a similar manner to an ordinary gelatine dry plate with a glycin developer for about two and a-half minutes, and after rinsing under the tap for half a minute, is immersed for three minutes in a 5 per cent. solution of potassium bichromate, which has the well-known effect of hardening the gelatine in contact with the developed silver. The plate is again rinsed and then developed in hot water like a carbon print, and dried with heat. In parentheses, I may draw attention to the fact that the unexposed silver bromide is not fixed out of the image before the plate is hardened in the bichromate solution, for its presence does not interfere with the effective use of the bichromate solution, and it forms an excellent indicator to show when the lines or dots are thoroughly developed. At this stage the plate carries an image in hardened gelatine imposed upon the acid resist, which is easily removed from the portions unprotected by the gelatine, by immersing the plate in methylated spirit of good quality, 64 O.P., slightly rocking the dish and then rapidly flushing the plate with plenty of water, so as to remove all the spirit from the film before it has time to mix with the water and penetrate through the gelatine film and attack the resist. Under this treatment the acid resist is softened and may be readily removed by carefully wiping the plate with a pad of wet cotton wool. Upon examination, the lines or dots should be found to be quite free from scum, though, if the resist is not completely removed, the plate may be dried and then re-immersed in the methylated spirit and the operation repeated. When a satisfactory result is obtained, the gelatine film may be removed by strong rubbing with a pad of wet cotton wool.

At this stage a negative image is usually obtained which it is necessary to "reverse" into a positive image; though in the making of intaglio line blocks, or in the production of half-tone blocks by copying a continuous tone negative instead of a print made therefrom, this is the whole simple process, and the plate is ready for etching.

But in the larger proportion of blocks it will be necessary to "reverse" the image, and here the operator has the choice of

* "B.J.," 1909, p. 198 and 785.

three different methods. In the first place, he may convert the gelatine image immediately after the first development, and before it is hardened, into a positive, by dissolving the developed layer with an acid permanganate reducer, then re-developing the silver bromide after it has been exposed to light, and, after cleaning the film, proceed to harden the gelatine by means of the bichromate solution. This attractive method is, however, difficult in practice, and it is preferable to convert the negative image into a positive by, in the first place, finishing the plate as if an intaglio line block were required, and then electrolytically depositing copper upon the exposed zinc lines for about ten minutes by means of a very weak electric current and using a warm bath of copper cyanide. The varnish resist prevents the deposition of copper upon those parts of the plate that are protected. When a sufficient coating of copper is obtained—and it is surprising what a thin film forms an efficient etching resist for the nitric acid bath, even when used in a Levy acid blast machine—the plate is cleaned of all traces of the original varnish resist, and may then be etched in the usual manner. The third, and what will probably be the most popular method “reversal,” is to finish the plate as if for the production of a “reversed” block, and then to roll up the plate with a composition roller and middle litho ink thinned with litho varnish, being careful to cover the plate with a thin, even coating of ink. It is necessary to add a little litho varnish to the ink to ensure it remaining sufficiently “tacky” to hold the dragon’s blood after the plate has been immersed in the methylated spirit. After the plate has been rolled up with ink it is immersed in methylated spirit and allowed to lie therein for two minutes, the image subsequently being carefully developed by gently wiping it with a pledget of cotton wool, exactly as in the development of an albumen inked image, over which, however, it has the great advantage that there is no film of albumen between the ink image and the metal. When the plate is developed a picture in greasy ink is obtained upon the zinc plate, and this image may be retouched, dusted with dragon’s blood or bitumen, and etched in the usual manner.

Schedule of Operations.

Development with glycin	2½	minutes.
Rinse with water	½	”
Harden in bichromate solution	3	”
Develop in hot water	2	”
Removing resist.....	2	”
“Reversal” by ink method.....	5	”
	15	”

It should be noted that these times apply to the production of one plate only; when more plates than one are being produced it is possible to work more rapidly. For instance, my own record for the production of twelve half-plate relief-line blocks ready for etching, working single-handed, and including the time of loading the plates into the camera, exposing and develop-

ing them separately, is 2 hours 16 minutes, or an average of 11½ minutes each, against 15 minutes according to schedule time; the reason for this is because considerable time may be saved by dovetailing the operations into each other.

The Paynetype process is not suitable for all kinds of photo-engraving. It will not produce good fine half-tone blocks, and I think that in this direction a 133 line block is about the limitation of the process, and even a block of this grade will not be easily made. But the process has been thoroughly tested under practical conditions, both in a newspaper process studio and a photo-engraver’s establishment, and it was found easy under these conditions to produce excellent line blocks of a reasonable degree of fineness, and also good coarse half-tones that can be made either direct from the original, a negative, or a print. It may be said to be a process that is eminently adapted for newspaper photo-engraving where the speed of working will be a most valuable feature, and for economic reasons, in the production of line blocks in the ordinary photo-engraver’s establishment. Mr. A. J. Newton suggests that it will be an admirable process for making half-tone poster blocks by enlarging from a small half-tone negative direct upon the prepared zinc plate. In addition to its use in the production of printing blocks, this process can be applied in the making of engraved metal plates for use as name-plates, illuminated brasses for churches, engraved dials, engineers’ name-plates, furniture goods, etc., by photographing printed matter, or line sketches, direct on to the metal plate, which is then etched and the intaglio marks filled in with coloured wax. It is interesting to note that the cost of the materials other than the prepared metallic plate is very low, being less than one penny per 12 x 10-inch plate when the process is worked on a commercial scale.

Perhaps I may be permitted to enumerate a few of the advantages possessed by this process. They consist of economy and ease in manipulation, and, principally, in the great saving of time over existing methods. The speed of working is remarkable, for it is possible to develop and etch, with the Levy acid blast machine, a half-tone block in about 15 minutes. It is a really cold process, and therefore suitable for use with zinc plates; it is also a dry plate process, and its beautiful simplicity must appeal to all when they realise that the wet collodion process is finally abolished, and in its place reigns a plate that is supplied to the operator ready for use, and which he has only to lift out of the box and place in the camera. No prism, no sweating of screen, no polishing of metal plates, no fish glue enamel, no printing, and only three cheap solutions, are all features of the Paynetype process.

A set of plates illustrating the steps in the production of a Paynetype block, and also a line block reversed by the electro-deposition of copper, and showing the copper face upon the block, will be found exhibited in the Museum at 35, Russell Square, after the close of the Exhibition at the New Gallery, where they are at the present time. ARTHUR PAYNE.

RESIDUES AND THEIR SAVING.

[Although the remunerative return which attached to the recovery of silver residues in the days of wet collodion and albumen paper no longer holds good, there is, nevertheless, an opportunity for economy, of which probably many photographers making a large turnover do not take advantage. The following article describes the essential methods of saving the silver and gold left unused in photographic materials and solutions.—EDS. “B.J.”]

P.O.P.s contain but comparatively little soluble silver salts which can be washed out; they are very different from albumen paper sensitised at home, but in either case the proceedings are the same. It is well to have a good size vessel to contain the washings, say a large stoneware jar or a paraffin cask with the head removed. When a sufficient quantity has accumulated the silver is precipitated as chloride. It may be as well to mention here that it is only the

first and, perhaps, second waters that contain enough silver to be worth the trouble of recovery. The precipitant of the silver as a chloride, usually recommended, is chloride of sodium (common salt), but in two respects hydrochloric acid is preferable. First, chloride of silver is, to some extent, soluble in a solution of chloride of sodium, and if a large excess of the salt be used some of the chloride of silver may be re-dissolved. Secondly, chloride of silver

precipitated by hydrochloric acid subsides more quickly than does that thrown down by salt. The commercial acid, costing about two-pence a pound, answers quite well for the purpose. If salt be used and there is a difficulty in getting the silver to settle down, an ounce or two of common nitric acid added and well stirred in will cause it to subside more rapidly. When all has settled down the water should be drained off and more washings added until the vessel is again full, when the silver can be precipitated as before. This procedure may be continued until sufficient has accumulated to make it worth while to further deal with it. Silver baths used for sensitising paper, or for collodion plates, are usually renovated or strengthened and used over and over again. But should occasion arrive, that it is required to recover the silver from them, or any other solutions containing nitrate of silver, they may be added to the washing waters. When sufficient chloride has accumulated to make it worth while to deal with it further, the water is drained off closely, and the vessel filled up with fresh water, well stirred up, and allowed to subside. This is repeated two or three times. If the chloride contains much free acid it will neutralise the alkali, carbonate of potash or soda, used by the refiner in reducing it to the metallic state, and perhaps give trouble. The chloride is now emptied out, and dried, and is ready to be sent to the refiner.

Instead of sending the chloride to the refiner, the silver may be reduced to the metallic state and then converted into the nitrate for future use as such. The wet chloride is put into a large basin, and some sulphuric acid added, and, after stirring up, some cuttings of zinc are dropped in and allowed to rest for a day or so, until all the chloride is reduced. After any undissolved zinc has been removed the silver is well washed with water and then dissolved by nitric acid, and crystallised. But as there is but little use for nitrates of silver by photographers at the present time it is better to send the chloride to the refiner for reduction.

Paper Cuttings.

These should be first burnt in an open grate, taking care that none are carried up the chimney. The ash is then collected and put into an old iron pot, or saucepan, which is then put on to a good fire and allowed to incinerate for an hour or two, so as to reduce the bulk to the smallest possible quantity. Unless that is done no correct assay can be made as to the silver they contain. In the case of the cuttings of albumen paper, sensitised at home, if carefully collected and treated in this way, the fine ash usually contains from a third to half its weight of silver. With P.O.P.s the paper is usually surfaced with sulphate of baryta, which is a very heavy substance, therefore the mere weight of the ash, however closely burnt, is no guide whatever as to the quantity of silver it may contain. After the paper ashes have been passed through a sieve to remove any extraneous matters, they are ready for the refiner.

Fixing Solutions.

When only P.O.P.s are used as the printing papers it is in the fixing baths that the greatest portion of the residue must be looked for, whilst in the case of plates this is the sole source. The solutions after use should be emptied into a large receptacle, such as used for the print washings. The silver in hypo solutions is best precipitated as a sulphide. The most convenient precipitant to use is sulphide of potassium—liver of sulphur. A solution of it must be made and added to the hypo, which will throw down a brown precipitate of sulphide of silver. The sulphide of potassium should be added so long as a precipitate is produced, but no longer, as an excess will redissolve it. There is some little difficulty in saying when enough has been used, therefore the best way to proceed is to add a certain quantity and then let what sulphide of silver that has been formed to subside, and then decant a little of the clear liquid, and if the addition of more of the sulphide of potassium solution does not produce a cloudiness it indicates that all the silver in the solution has been thrown down; if it does, more must be used. After the deposit has subsided the supernatant liquor is drained off and the vessel is ready to receive more hypo solution, to be treated as before, and so on until a quantity is collected sufficient to be dried and sent to the refiner.

The treatment of the old fixing baths with the sulphide should be done in the open air on account of the odour—that of rotten eggs. Sulphide of potassium that has long been kept, unless stored in well-

corked and sealed bottles, is almost useless for the purpose. A good test of its quality is its smell—the more it “stinks” the better it is. There are other ways by which the silver may be precipitated from a stock of old fixing baths. One is by putting it into a large carboy, about two-thirds filling it, and then passing a current of sulphuretted hydrogen through it, with occasionally shaking up. With this method there is no risk of any of the sulphide of silver being redissolved. Another way is to add to the solution some cuttings of zinc. That will reduce the silver, but it takes a somewhat long time. Instead of treating the washings from printing, when they are from P.O.P.s, separately, they may be added to the fixing solutions and the silver recovered as a sulphide instead of a chloride. After the sulphide of silver has been dried it is ready for the refiner.

Gold Residues.

In old toning baths, if the gold has been properly apportioned to the number of prints to be toned in them, there should be little or no gold to be recovered from them. However, it is seldom possible to use up all the gold, and the precious metal may be recovered in a fairly pure state as follows:—The old baths are first filtered into a large bottle and a solution of protosulphate of iron, rather strongly acidified with sulphuric acid, added. This will throw down the gold in a metallic state of a brown colour. The precipitate is well washed in several changes of water, finally with distilled, to remove all traces of the iron. The precipitate is then transferred to a Florence flask and well drained. Then a little of a mixture, in the proportion of half a dram of pure nitric acid and two and a half drams of pure hydrochloric acid, is poured in and the flask treated on a sand bath until the gold is dissolved. The whole of the precipitate will not be dissolved, as that consists of chloride of silver, which may be filtered out, and we then have a solution of chloride of gold which may be crystallised and used for making other toning baths; or the acid in it may be neutralised with carbonate of soda and kept as a stock solution. When this is done, after the solution has been neutralised, it is well to add a drop or two of hydrochloric acid to it, as then there is no risk of the gold becoming precipitated by keeping.

SAXONIAN.

ACTINOMETER MEASUREMENTS OF DAYLIGHT.

(A Note by Dr. J. M. Eder in “*Photographisch Korrespondenz*.”)

As is well known, Bunsen and Roscoe employed the darkening of silver chloride paper for the measurement of the intensity of sunlight and diffused daylight, the paper being caused to match a “normal grey” consisting of 1,000 parts of zinc white and 1 part of lamp black, and spread upon paper. The sensitive Bunsen paper was prepared by saturating paper for a period of about five minutes with a solution of about 30gms. of common salt in 1,000 ccs. of water, drying, and floating for two minutes on a 12 per cent. solution of silver nitrate. Professor Wiesner, of the Vienna University employed this method in his studies of the function of light in plant life. He found, in agreement with Bunsen and Roscoe, that a small altitudes the chemical intensity of direct sunlight is remarkably small; at high altitudes of the sun and in mountain districts the ratio

$$\frac{\text{direct sunlight}}{\text{diffused light}}$$

obtains much greater values. Maximilian Samec, in further examining the conclusions of Wiesner, made his experiments at increasing heights above the sea-level from a balloon, and used at first, in addition to the Bunsen paper, a silver-chloride collodion paper and also Andresen's “Rhodamin” paper, which is sensitive into the orange. He found that the quotient

$$\frac{\text{direct sunlight}}{\text{diffused light}}$$

for silver chloride paper at 120 metres above the sea-level and a 53 deg. altitude of the sun is 2.82; at 1,200 metres above sea-level and 61 deg. altitude of the sun, 3.4; and at 4,200 metres above sea-level it was 5.72. The intensity of the diffused light projected upwards from below is increased and then falls off. The intensity of rays of long wave-length, measured with the “Rhodamin b,” is

creased, according to Samec, from 450 to 1,200 metres above sea-level, and remained almost constant at greater heights.

Since the Bunsen normal paper keeps good only one day, I recommended, more than ten years ago, the use of a permanent silver paper for photometric purposes, sensitised with potassium nitrite, and this has been used by Dr. Wiesner and his colleagues in their later actinometric measurements.

The following directions serve for the preparation of a permanent silver chloride paper which may be used in place of the Bunsen normal paper. Some 8-kilo Reeves raw paper is immersed for five minutes in a 3 per cent. solution of common salt, hung up to dry, and then floated for two minutes on a sensitising bath of 12gms. silver nitrate dissolved in 100 ccs. of water, after which it is washed several times in an ample supply of distilled water. It is now placed for five minutes in a solution of 1 part potassium nitrite in 20 parts of water and again hung up to dry. The paper readily assumes the colour of the normal Bunsen tint, which, as is well known, may be read with much greater certainty by employing a yellow or green glass or by making the observation by yellow sodium light. If the Bunsen normal tint be supplemented by darker tints containing a larger proportion of lamp black, these latter serve for the measurements of greater light intensities. The most recent work on the intensity of light at a considerable height above sea-level has been done by Dr. Samec with this Eder normal paper. He ascertained by a number of comparative measurements the relative sensitiveness compared with the Bunsen normal paper, the ratio being .665. Thus measurements made with the nitrite paper when multiplied by this factor of .665 are converted into the units corresponding with the Bunsen normal paper. As an interesting result of this work it may be mentioned that Wiesner and Samec have ascertained the increase of the intensity of the chemically active rays at different heights above sea-level. The increase of intensity at a height of 4,078 metres above sea-level is 47 per cent.; in another case at the height of 3,528 metres the increase was 101 per cent.

J. M. EDER.

Photo-Mechanical Notes.

Collotype Formulæ.

To the correspondent who asks, in reference to our recent note on this process, for formulæ, we would say that several text-books give reliable working formulæ, and to show that there is no magic in it, we give the formulæ now being used by one of the most successful producers of coloured collotypes on the Continent. Substratum.—Dissolve 12 grams gelatine in 400 ccs. distilled water, add 12 ccs. of a concentrated solution of chrome alum and 34 ccs. potassium silicate. Coat in warm room with soft sponge.

Sensitising solution:—

Creutz middle hard gelatine	75 gms.
Water	900 ccs.
Potass. bichromate	12 ccs.

Take 5 ccs. for every 100 square centimetres.

A formula for coarse-grain collotype suitable for lithographic transfers is as follows:—

Gelatine	80 gms.
Water	800 ccs.
Potass. bichromate	12 gms.

Add 2 to 4 gms. gum arabic, according to grain desired.

Take 7 ccs. to every 100 square centimetres.

A Manual of Collotype.

"Manuel pratique de Phototypie." By J. Voirin. Paris: C. Mendel. 2fr.

For those who read French this little book gives very plain and precise instruction for working collotype, with many illustrations of the apparatus employed. An appendix gives a full description of the pedal platen presses introduced by M. Voirin which can be used for collotype, enabling 300 per hour to be printed under very favourable conditions, or easily 1,500 per day of ten hours. The same presses can be used for printing type when required, and therefore

very suitable for either collotypers wanting to print titles, etc., or small printers who want to print collotype postcards.

Fine Etching.

In an article on "Half-tone on Zinc," in the current "Zeitschrift für Reproduktionstechnik," the question of a suitable material for painting-out when fine etching is discussed, and the writer recommends a "Tusche," for which he gives the recipe, on the ground that it is miscible with water, and therefore can be used without having the plate so thoroughly dry as is necessary when a spirit lac or bitumen varnish is used. His formula is as follows:—

Wax	120 gms.
Mutton fat	120 gms.
Marseilles soap	100 gms.
Lampblack	40 gms.
Gum mastic	5 gms.
Shellac	70 gms.
Asphalt	10 gms.
Resin	5 gms.

These ingredients are melted by heat, thoroughly mixed, poured out, and allowed to set. For use, a small piece is taken and thinned to the required consistency with distilled water. The author declares such a paint to be an excellent acid resist.

Exhibitions.

ROTHERHAM PHOTOGRAPHIC SOCIETY.

Viscountess Halifax visited Rotherham and inaugurated, in a very charming manner, the twentieth annual exhibition of the Rotherham Photographic Society in the Drill Hall. The display of pictures is unusually attractive, competitors from all parts of the country having contributed work in the open classes; whilst the members' section is more numerous and artistically represented than usual. A glance through the 600 examples arranged with tasteful effect on the screens which surround the large hall affords evidence that the newest processes are being made use of with the best effect, and some of the oil prints in particular are worthy of careful inspection. In the landscape and seascape class (open), 116 prints are entered, and a fair standard of merit is maintained. Portraiture and figure studies are strong; but architecture shows a little falling off in quality, and is not greatly superior to that in the members' section. There are a few good still life subjects, and colour work, although not a large lot, amply illustrates the progress being made in this branch. Great interest centred in the members' section, which occupied the whole of one side of the hall, and considerable versatility was apparent both in regard to medium and subject. There were the usual lantern-slide classes in both departments. Other interesting material was the selection of prints lent by the Royal Photographic Society Affiliation Committee; a screen of transparencies illustrating "electric splashes" and X-ray work; and the various loans by trade firms. The exhibition, as a whole, is a tribute to the fostering care of the committee, and especially of the secretary, Mr. H. C. Hemmingway.

The judges, Mr. C. B. Keene, F.R.P.S., and Mr. T. A. Scotton, of Derby, made the following awards:—

OPEN CLASSES.

Landscape, seascape, and river scenery.—Silver plaque, "To the Sea," Bertram Cox, Lincoln; bronze plaques, "Nightfall on the Moor," F. Parkin, Sheffield, and "Approaching Storm," Dr. H. G. Paterson, Sheffield. Hon. mention: J. Bell, Sunderland; F. A. Tinker, Sheffield; and G. A. Booth, Preston.

Portraiture, figure studies, and animals.—Silver plaque, "The Oracle," O. C. Wilmot, Sunderland; bronze plaques, "Old Dutch," P. F. Storrs, Birmingham; "A Sylvan Scene," A. W. Walburn, West Hartlepool. Hon. mention: F. W. Menwry, Staines; O. C. Wilmot, Sunderland.

Architecture.—Bronze plaque, "Ray of Light," P. Smedley, Ilkeston. Hon. mention: F. C. Boyes, Theydon Bois, Essex.

Flowers, fruit, and still life.—Bronze plaques, "Clocks," F. A.

Tinker, Sheffield; "Tulips," A. Black, Nottingham. Hon. mention: P. W. Morris, Bushey; J. Dunlop, Motherwell.

Colour work.—Bronze plaques, U. M. Jones, Birmingham; C. H. Parker, Sheffield. Hon. mention: P. D. Prior, Nottingham; G. and D. Smith, Sheffield.

Lantern slides.—Bronze plaques, F. A. Tinker, Sheffield; Alfred Taylor, Whalley, Lancs.

MEMBERS' CLASSES.

Landscape, seascape, and river scenery.—Bronze plaques, F. A. Jordan, Doncaster, and M. Creswick. Hon. mention: S. G. Liversidge, Miss F. A. Eskholme.

Portraiture and figure studies.—Bronze plaque, M. Creswick. Hon. mention: Miss E. H. Tillotson.

Architecture.—Bronze plaques, A. E. Rawson, W. Firth, W. B. Davison. Hon. mention: H. C. Hemmingway.

Flowers, fruit, and still life.—Bronze plaque, F. G. Blackshaw. Hon. mention: A. S. Pye.

Lantern slides.—Bronze plaques, A. S. Pye, R. Chislett.

Boards of Exhibits.—Bronze plaques, A. S. Pye, A. E. Peck. Hon. mention: S. G. Liversidge, Miss E. H. Tillotson.

FORTHCOMING EXHIBITIONS.

September 23 to October 30.—Royal Photographic Society. Sec., J. McIntosh, 35, Russell Square, London, W.C.

November 10 to 13.—Hackney Photographic Society. Sec., Walter Selfe, 24, Pembury Road, Clapton, London, N.E.

November 10 to 13.—Cambridge and District Photographic Club. Sec., T. J. Sowdon, Sunny Side, Guest Road, Cambridge.

November 23 to 26.—Southampton Camera Club. Sec., S. G. Kimber, Oakdene, Highfield, Southampton.

November 29 to December 2.—Lancaster Photographic Society. Entries close November 20. Sec., Thomas Holt, 4, Parliament Street, Lancaster.

December 4, 1909, to January 1, 1910.—Southport Photographic Society. Entries close November 15. Sec., J. McLellan, 2, Pilkington Road, Southport.

December 31, 1909, to January 8, 1910.—Wishaw Photographic Association. Entries close December 18. Sec., R. Telfer, 138, Glasgow Road, Wishaw, N.B.

1910.

April 5 to 9.—Sheffield Photographic Society. Secs., J. A. George and J. R. Wigfull, 14, Parade Chambers, Sheffield.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents were made between October 11 and 16:—

REPRODUCTION.—No. 23,343. Improved negative or positive for reproducing drawings and the like. John Wellesley Ross, 173, Fleet Street, London.

RADIOGRAPHY.—No. 23,455. Method of taking photographs with Röntgen rays. Friedrich Dessauer, 40, Chancery Lane, London.

LENS.—No. 23,491. Improved lens. William Thomas Coulson, 181, Maple Road, Penge, London.

SHUTTERS.—No. 23,493. Improvements in photographic shutters. Arthur Charles Smith, 26, Hanover Street, Peckham, London.

PLATES.—No. 23,538. Improved means applicable for use in exposing, developing, and fixing photographic plates. George Gatton Melhuish Hardingham, Clun House, Surrey Street, Strand, London, for Henry John Barclay, Cape Colony.

CAMERAS.—No. 23,575. Improvements in and relating to photographic cameras. Andrew Macfarlane Dunn, Avorlon, Meikle-riggs, Paisley.

CAMERAS.—No. 23,728. Improvements in or relating to photographic cameras. William Berrell, 33, Chancery Lane, London.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

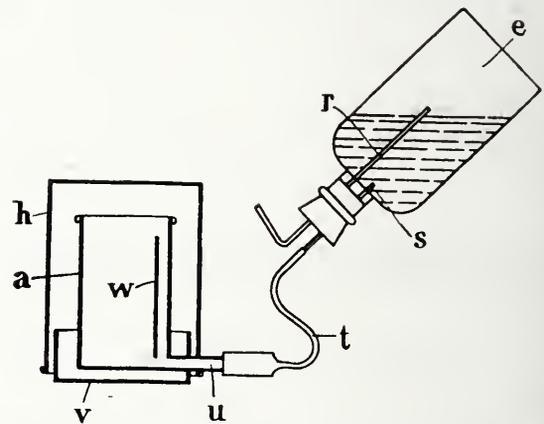
The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

DEVELOPING APPARATUS.—No. 20,396, 1908 (September 28, 1908).

The invention relates to an improved apparatus for developing photographic plates or films. It consists of a light-proof box or tank, the lower part of which is placed in communication, by means of a flexible pipe, with a vessel containing the necessary developing solution, so that by displacing the container sufficiently above and below the tank the solution would enter or escape. In previous arrangements of the type the container has been of special construction and the solution poured into it from an ordinary bottle.

Now the ordinary solution storage bottle is also employed as the container. This is effected by connecting the flexible pipe to a stopper which is adapted to fit into an ordinary bottle. An ordinary bottle thus serves both as a container and a storing bottle.

In the form of construction shown in the drawing, the tank *a*, which serves for receiving the plates *w* and the liquid for treating



them, has at its bottom a short pipe *u*, to which the vessel *e* for filling the tank *a* is connected by means of a tube *t*. The tank *a* is placed in a second receptacle or tank *v*, through the wall of which the pipe *u* passes. Over the entire apparatus there may be placed a lid or cover *h* in such manner that it forms a light proof joint all round the tank *a* and at the place where the pipe *u* passes through the lid or cover.

In this form of construction the vessel *e* is a bottle having stopper provided with two holes, through one of which a tube *r* passes and extends to about the middle of the bottle, whilst second tube *s*, to which the tube *t* is connected, only just projects through the hole in the stopper.

If the bottle *e* is held in the position shown in the figure it is discharged into the tank *a*, air entering through the tube *r* into the bottle. If the bottle is then placed below the level of the bottom of the tank *a* the liquid runs back into the bottle.—Fel Trüstedt, 82, Berlinerstrasse, Charlottenburg, Johannes Wegener, 137, Invalidenstrasse, Berlin, and Ulrich Wegener, 16, Invalidenstrasse, Berlin.

New Trade Names.

WESTMINSTER (DESIGN).—No. 315,243. Chemical substances used in photography. The Westminster Photographic Exchange, Ltd., 119, Victoria Street, London, photographic chemists. July 1909.

R.P.S. HOUSE EXHIBITION.—An exhibition of the photographic work of Mr. Arthur Marshall, A.R.I.B.A., F.R.P.S., will be opened at 35, Russell Square on November 2.

Analecta.

Extracts from our weekly and monthly contemporaries.

An Adaptation of the Chromium Intensifier.

I have recently been using an adaptation of the well-known chromium intensifier (writes Mr. R. A. Chrystal in "Photography and Focus" for October 26), which I have not seen mentioned in any photographic paper. It consists of making use of the staining properties of the pyro-metol developer. The negative is bleached and washed as usual, then re-developed with normal pyro-metol developer. . . . It is then dipped in water, no more, and stood up or hung up so as to allow the developer to oxidise in the film. In one or two minutes it will have been stained green, the depth depending on the length of exposure to the air. I find that this method surpasses all others I have tried for increasing contrast, as, besides considerable actual intensification, there is great apparent intensification due to the green stain. This method enables one to avail oneself of the advantages of pyro-metol in cases when it is not admissible as the original developer, such as in tank development.

Restoring Old Bromide Paper.

Probably all photographers (writes Mr. A. H. Garner in "The Amateur Photographer and Photographic News" for October 26) experience from time to time the annoyance of finding that their stock of bromide paper, or part of it, has gone stale, and gives fogged, unhealthy looking prints, which are not improved materially by any tinkering with the exposure and development. The following is a quick and easy method of restoration. Mix a weak bath of potassium permanganate, and acidify this with sulphuric acid. Soak the paper in this for a minute, rinse, and transfer to a weak bath of sodium sulphite, leave for another minute, rinse, and make the exposure. The image will develop up clear and strong without trace of fog. In fact, fog seems difficult to get in the developer. Strength of solutions does not seem to be a matter of great moment, but in order to give the method a definite basis the following is suggested as suitable:—

First Bath.

Potass. permanganate.....	5 grs.
Sulphuric acid	30 minims.
Water	10 ozs.

Second Bath.

Soda sulphite	20 grs.
Water	1 oz.

It is necessary to mention that this preliminary treatment reduces the speed of the paper, so that a test exposure will be necessary. A fast bromide paper will require perhaps twice as much exposure, a slower one, probably less than twice as much, as the untreated paper. A trial slip soon determines the best exposure.

New Books.

"The A.B.C. Guide to Autotype Carbon Printing." London: The Autotype Company and Dawbourn and Ward, Limited. 1s. net. In this revised edition of the well-known handbook by the late R. Sawyer the Autotype Company have placed their wide technical knowledge of the carbon process at the service of those working this most admirable photographic method. After a brief historical introduction, a few words are said on the selection of types and on the principles of the single and double transfer methods. Equipment occupies only a few words, whilst the making of the sensitising baths and the manipulation in using them is dealt with in great detail. The use of actinometers and a description of various types and of the merits of each occupy the next section, which is followed by a chapter dealing with development. The variations in treatment needed in working the double-transfer process follow, and the latter part of the book is devoted to the carbon printing-room and equipment for those who work the method on a commercial scale. Both amateur and professional workers of

the carbon process will find the volume free from matter which is not essential to successful practice: in a few words, the authors have emphasised the essential details in carbon printing.

"The Art of Theatrical Make-up." By Cavendish Morton. London: Adam and Charles Black. 5s.

When years ago we saw Mr. Cavendish Morton as the soothsayer in Mr. Tree's "Julius Cæsar" we had never seen him off the stage, and therefore our appreciation of him as a master of make-up was afterwards all the more unqualified. Since then readers of the weekly illustrated papers have had the opportunity of seeing, in a number of Mr. Morton's photographs of himself in different characters, the perfection to which he has brought his art of characterisation, to say nothing of his photography. The present volume is a magnificent demonstration of both. We are given photographs to the number of about a score showing the author "made-up" as the most diverse characters; at the same time in many instances the stages by which these triumphs of characterisation have been secured are shown. The subject is one for which photography is eminently fitted to be the illustrator, but the illustrations are a good deal more than mere camera records; each photograph gains immeasurably by its lighting and composition. Compare the author as Pierrot on page 80 with the portrait of him as Shylock on page 53, or as Iago and Othello on pages 66 and 67 respectively. Perhaps the greatest testimony to Mr. Morton's genius, as an impersonator, is the outdoor portrait of him as Sir Thomas More (page 124), in the Chelsea Pageant last year. Photographers, equally with actors, will derive an immense amount of benefit from a study of the ways in which characters of quite diverse type are treated, and we can recommend this volume most cordially to all who employ the camera for portraiture. As for the author's chapters on the technical make-up, they are brief and to the point, and doubtless provide the information which the theatrical impersonator requires.

"London." By Alvin Langdon Coburn. With an introduction by Hilaire Belloc. London: Duckworth and Co. 25s. net.

So far as we know, Mr. Coburn, in this volume, must be credited with striking a new note in art publishing in that he has issued, through Messrs. Duckworth, a collection of twenty photogravure reproductions of his pictures without relegating any of the work of making the plates or taking the impressions to any other hand. We thus have preserved in these photogravure facsimiles the artist's intentions free from the sophistication which frequently creeps in at the hands of the commercial plate-maker, whose well-intentioned efforts at improvement do not always meet with appreciation. The photogravures measure each 8½ x 6½ inches, and are each mounted on a plain light brown board of 16 x 12 inches. Whether we are to correct our impressions of London from these photographs by Mr. Coburn is another matter. To the present writer London is probably as new an acquaintance as it is to Mr. Coburn, but we certainly cannot admit that the impressions of the majority of the plates are those which constitute the real beauty and fascination of London. If we were to accept the artist's version of "Kensington Gardens, November," as an impression of that most delightful corner of the London parks, famed as a spot of pleasant shades and children's playgrounds, we are compelled to give the go-by to every agreeable recollection we may have of walks in Kensington Gardens. Again, Westminster Abbey, confined behind trees and lamp-posts, is a rendering totally foreign to the position of the Abbey as a landmark in London, whilst we can hardly believe that Mr. Coburn's version is defensible on the grounds of its composition. For London Bridge, in its light tones, and with a truthful rendering of the atmosphere of the Pool, we have nothing but admiration, and Leicester Square on a wet evening is also London to the life, but Mr. Coburn's impression of St. Paul's from the river, of the Temple, and of the Houses of Parliament impresses us as showing a lack of the sense of what constitutes the true glory of these features of London. Mr. Hilaire Belloc's introduction will be read with a great deal of interest. It gives London the place which historically it takes in England, and it shows us in a true perspective the relations of the different towns which make up the modern London.

We might add that the originals of the twenty photogravures are now being shown in the Goupil Gallery, 5, Regent Street.

"The Sinclair Handbook of Photography." Edited by James A. Sinclair. London: James A. Sinclair and Co., Limited. 1s. net.

The very beginner who wishes to start his photography with the greatest chance of success will thank Mr. Sinclair for this volume, and equally the advanced worker can hardly read through its pages without deriving a great deal of information. The book is divided into twenty-three chapters, some few of which are anonymous. The majority are contributed by writers who have made the subjects particularly their own. Among these may be mentioned the article on hand cameras by James A. Sinclair, on flashlight photography by F. J. Mortimer, on carbon printing by H. W. Bennett, and on the Autochrome process by R. Child Bayley. Pigment and oil processes receive a degree of attention which they do not meet with in any other photographic text-book. Thomas Manly writes on ozobrome and oil-ozobrome, R. Demachy on the oil process (described in the contents by an unfortunate printer's error as "the old process"), Mr. Sinclair adds some further notes, whilst the bromoil method is dealt with by C. H. Hewitt. J. C. S. Mummery concludes this orgy of articles on artistic-pigment methods by a very clear description of his manipulation in gum. After these excursions into the intimacies of practical work, we are brought to a calmer frame of mind by the last chapter on law for photographers by E. B. F. Christian, whose theme is, of course, chiefly copyright. The volume gains an added interest by the inclusion of portraits of the authors, and we can heartily commend it as a text-book which contains scarcely a redundant paragraph, and every chapter of which is devoted to a popular branch of present-day photography.

"TRAVEL AND EXPLORATION."—In the November number of "Travel and Exploration" (now edited by Mr. Eustace Reynolds-Ball), Dr. M. Aurel Stein, the famous Asiatic explorer, continues the narrative of his remarkable journey across the Taklamakan Desert. In an article entitled where "East meets West," Mr. Warden Page gives an impressionist sketch of "the European capital" of Morocco. Tangier is a well-worn subject, no doubt, but the writer treats it from an original and novel point of view which invests it with fresh interest. Dr. W. T. Beeby has found a new topic in the mediæval games of North Italy, in which will be found much interesting information. In "Albenga—an Ally of Carthage," a little-known Riviera city of considerable historic interest is well described. We are next taken to the Far East, Mr. Scheltema concluding his narrative of a visit to Tuan Gadis, an ex-Queen of Sumatra. In "Armchair Travel" the most important travel-books of the month are reviewed at some length.

New Materials, &c.

Christmas and New Year Mounts. Sold by Jonathan Fallowfield, 146, Charing Cross Road, London, W.C.

The new list of mounts for the forthcoming season, issued by this old-established firm, runs to twelve pages, and illustrates in a large number of half-tone reproductions the many varieties of folder and slip-in mounts specially designed to accommodate photographs sent as Christmas greetings. While it would be invidious to name particular mounts where there are so many of excellent design, we may perhaps specially refer to Nos. 325 and 327, both folder mounts of linen-surface paper measuring 6½ in. by 3 in., and containing a white inset for the reception of the print. Each mount bears outside a small coloured picture appropriate to the Christmas season, and the mottoes on the two are "Hearty Wishes" (No. 327) and "Every Good Wish" (No. 325). The price in each case is 2s. per dozen, 20s. per gross. Another very tasteful pattern is No. 300, a white Whatman card with a shaded grey deckel-edge, and bearing the gilt motto "Christmas Greetings." This is a slip-in mount with a circular opening 2½ in., the white embossing, gilt decoration, and grey silk binder being all in very nice accord. The price is 2s. 9d. per dozen, 30s. per gross. Colour in the decoration is extensively used on the outside of many of the Fallowfield mounts this year with very good effect. We should mention, also, that mounts

for quite small photographs, from postage-stamp size upwards, are issued by this firm in very great variety. A calendar mount No. 313 deserves mention for its excellent design in brown tints. It provides an oval space for a C.D.V. photograph and carries a tear-off calendar, the price being 3s. 3d. per dozen, or 36s. per gross. Messrs. Fallowfield's list also prices and illustrates the "Bordalace" mounts and the "Photo-fans," both novelties of special application to the photographer's Christmas trade.

WELLINGTON CHRISTMAS POSTCARDS.—Messrs. Wellington and Ward, in accordance with their usual custom, are issuing their series of postcards (bromide, S.C.P., P.O.P., and self-toning), with greetings appropriate to the Christmas season. The cards are issued in regulation (5½ x 3½) and "court" sizes, and are put up in 1s. and 6d. packets.

New Apparatus, &c.

The Phillips Photographic Focussing Scale Chart. Made by W. H. Phillips and Son, 98, Truro Road, Wood Green, London, N.

A very useful chart, allowing of a focussing scale for any lens from 3 in. to 10 in. focus being prepared without any calculation for distances from 5 ft. to 100 ft., has been drawn up by Messrs. W. H. Phillips, and is issued by them at the price of 2s. 7d., post free, in cloth covered case. The chart may also be used as a means of ascertaining the focal length of the lens. This is done by first focussing the lens on an object at a great distance, and marking the position of the lens front on the fixed baseboard of the camera. An object at 5 ft. distance is then focussed, and a second mark made on the baseboard. On comparing the distance between the two marks with the distances on the chart representing the focal extension for 5 ft. and 100 ft., the focal length of the lens being examined may be picked out among those given.

"Cooke" Series II.A *f*/3.5 Portrait Lens. Made by Taylor, Taylor and Hobson, Ltd., Stoughton Street, Leicester.

This new addition to the series of "Cooke" lenses applies the well known construction adopted in these objectives to the production of a portrait lens of the very highest aperture—namely, *f*/3.5. The lens is made only in one focal length—namely, 12 in., intended for making cabinet portraits, and at full aperture it covers the half

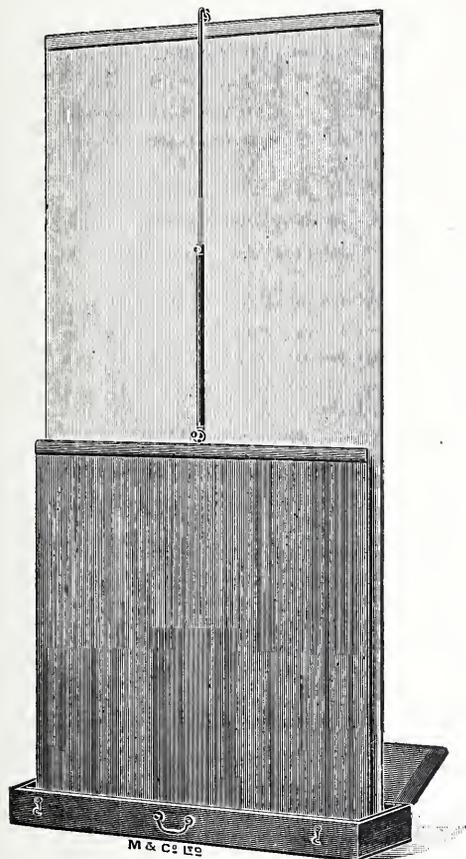


plate perfectly. A lens of this large aperture and focal length necessarily of considerable size, the glass being nearly 3½ in. diameter, and the outside diameter of the flange measuring 5½ in. The lens is supplied with iris diaphragm, whilst the front portion is capable of being separated from the back elements, so as to give a certain amount of diffusion, the makers providing an automatic stop when reverting to the sharpest possible definition. The price of this new "Cooke" is £18.

The "Freckleton" Portable Shading Screen. Made by Marion & Co., Limited, 22 and 23, Soho Square, London, W.

This new and portable accessory for the portrait photographer is equally serviceable in the studio or on the many occasions when a portrait is made at a sitter's home. It consists of a shallow box containing two screens, one of semi-transparent engineer's tracing cloth and the other of an opaque green cloth. Each of these

about 3ft. 6in. in width, and is mounted on a spring roller. The box is fitted with a triple-extension metal rod giving a total height, when extended and fixed, of 8ft. It is erected in the space of a few seconds and either of the screens is supported on it to this full height in the same time; or both may be used together, the opaque screen usually partly extended, where it is necessary to cut off light



in the lower part of the sitter. The containing box thus forms a solid base or support for the screens, which latter, of course, may be replaced by the ordinary background material, when the screen then becomes a very useful accessory to the amateur portraitist of head and shoulders or three-quarter length figures. The price of the apparatus complete, with two screens, as above described, is £1 15s.

CATALOGUES AND TRADE NOTICES.

MARION PLATES.—Messrs. Marion have just issued a booklet of prices and illustrations and formulæ relating to their dry plates. It describes the distinctive feature of each of the eleven varieties of plate, and among other formulæ gives a recommended one for stand development. The booklet is sent free on application to 22-23, Soho square, London, W.

NEWTON'S LANTERN LIST.—Messrs. Newton and Co., 3, Fleet street, may justly claim to retain their pre-eminent position in the lantern trade by the issue of this large list of slides, which runs to over 500 closely printed pages, including a description of sets of slides which, so far as we know, is not approached by any other firm's showing. Educational subjects, relating to every branch of knowledge, are here classified; travel, history, religious pictures present a large number of sets—in fact, it is difficult to name a subject which cannot be found in Messrs. Newton's comprehensive catalogue. The list is sent post free for 1s.

L.C.C. NOTICES.—Willesden District Council has granted certificates that proper means of escape from fire have been provided in the premises of the following firms:—Messrs. T. Illingworth and Sons, photographic factory, Rucklidge Avenue; Imperial Dry Plate Company, works, Ashford Road. The contract of Mr. Jas. T. Hawkins, 38, St. John's Road, Penge, to provide lantern operators and accessories to the L.C.C., was to expire on November 17. It has been renewed to August 31, 1910.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, OCTOBER 29.

Paisley Philosophical Institute. "French Slides," A. E. Staley & Co.
Lincoln Amateur Photographic Society. "Sports and Pastimes with the Goetz Anschutz Folding Camera."

SATURDAY, OCTOBER 30.

Kinning Park Co-operative Camera Club (Govan). Outing to Hillington Road.

MONDAY, NOVEMBER 1.

Southampton Camera Club. *Amateur Photographer and Photographic News* Prize Slides.
Catford and Forest Hill Photographic Society. "Stereoscopic Photography." C. P. Goetz, Ltd.
South London Photographic Society. "The Englishman's Home." Gilbert H. Lovegrove.
Leek Photographic Society. Monthly Lantern Night.
Stafford Photographic Society. "The Newest Printing Methods." Griffins & Sons, Ltd.
Walthamstow Photographic Society. "Ensyna." F. Marshall.
Lancaster Camera Club. "Ensyna." F. J. Stedman.

TUESDAY, NOVEMBER 2.

Royal Photographic Society. Exhibition of Photographs. Arthur Marshall.
Leeds Photographic Society. "Preparing the Exhibition Print." T. Lee Syms.
Hackney Photographic Society. "Combination Landscape Printing." B. C. Wickison.
St. Helens Camera Club. "What Can be Done with a Hand Camera." C. P. Goetz, Ltd.
Glasgow Southern Photographic Association. "Bird Notes by the Way." Hugh W. Wilson.
Worthing Camera Club. "Homeward Across the World." A. H. Dunning.
Manchester Amateur Photographic Society. Lantern Slides. A. G. Thisleton.
Blackpool and Fylde Photographic Society. "Modern Photographic Apparatus and Exhibition of T. P. Prize Slides." R. Hesketh.

WEDNESDAY, NOVEMBER 3.

Sale Photographic Society. "Through the Low Countries." Messrs. Peddar and Pilkington.
Darwen Photographic Society. "French Slides." A. E. Staley & Co.
Croydon Camera Club. Lantern Evening for Members' Slides.
Borough Polytechnic Photographic Society. "In and Around St. Albans." F. C. Boyes.
Edinburgh Photographic Society. "Silhouette Photography." Andrew H. Baird.

THURSDAY, NOVEMBER 4.

Liverpool Amateur Photographic Association. "Real Orthochromatism." S. E. Bottomley.
L.C.C. School, Bolt Court, E.C. "Manuscript Sources of Book Decoration." G. H. Palmer.
Leigh Photographic Society. "An American Tour." Miles F. Burrows.
Rudley, Farsley, Calverley, and Bramley Photographic Society. "Portraiture." H. Crossley.
Watford Camera Club. 1. "Competition." 2. Set of Slides, "The Yorkshire Coast."
New Mills and District Camera Club. "Modern Photographic Apparatus and Exhibition of T. P. Prize Slides." R. Hesketh.
Todmorden Photographic Society. "What Can be Done with a Hand Camera." C. P. Goetz, Ltd.
Richmond Camera Club. "Ensyna." F. Marshall.

Commercial & Legal Intelligence.

PICTORIAL POSTCARDS.—At Marylebone last week, before Mr. Paul Taylor, Agnes Allen, of Praed Street, Paddington, newsagent and seller of sweetstuff, was summoned to show cause why forty pictorial postcards, alleged to be obscene, seized by the police, under a special search warrant, should not be destroyed. Other summonses charged her with exposing to view in the shop window pictorial postcards said to be indecent. Flora Seigel, confectioner, of Praed Street, was similarly summoned in respect to 607 postcards, and also for exposing some of them to view in a shop window.

Mr. Muskett, in opening Allen's case, expressed the hope that the magistrate would support the efforts of the Commissioner of Police to put down the traffic in these pictorial postcards, which was regarded as being of a very degrading and pernicious character. For more than five years the Commissioner had been making these efforts, he said, and until recently they were attended with a great measure of success, for the magistrates, appreciating the gravity of the offence, inflicted very substantial penalties, and ultimately took to sending the offenders to prison.

Mr. Freke Palmer submitted that, while the postcards were for the most part vulgar, they did not come under the designation obscene.

Mr. Paul Taylor imposed upon the defendant a fine of £20, with

£3 3s. costs, or in default two months' imprisonment, and made an order for the cards to be destroyed.

In Seigel's case it appeared that some of the cards were reproductions of fine art studies. Mr. Paul Taylor observed that he regarded some of them as artistic productions of the beautiful originals, but at the same time he did not think that they should be sold, and he should require the defendant to give her assurance that she would not sell them any more. He should order the destruction of the whole of the cards with the exception of these studies, and fine the defendant £40, with £3 3s. costs; in case of default she would have to undergo four months' imprisonment.

News and Notes.

ROYAL PHOTOGRAPHIC SOCIETY.—On November 9 the president, Mr. J. C. S. Mummery, will deliver an address, entitled "The Influence of Painting on Photography."

R.P.S. LECTURES.—The following is the closing lecture to be delivered at the New Gallery: Saturday, October 30—"Westminster Abbey," by S. G. Kimber.

RÖNTGEN SOCIETY.—On December 2, Prof. A. W. Porter, B.Sc., will read a paper on "Some Effects of Electrical Discharges on Photographic Plates."

THE SOUTHAMPTON EXHIBITION.—Entries for this exhibition, which comprises technical and colour, as well as pictorial, exhibits, close November 12. Entry forms can be obtained from the hon. secretary, S. G. Kimber, Oakdene, Highfield, Southampton.

BIRMINGHAM PHOTOGRAPHIC SOCIETY.—Mr. Lewis Lloyd having resigned the secretaryship of the above society, the post is now filled by Mr. S. Wortley, of 10, Newhall Street, Birmingham, to whom all future communications should be addressed.

TRAILL-TAYLOR MEMORIAL LECTURE.—The twelfth Trill-Taylor memorial lecture will be delivered at the Royal Photographic Society, 35, Russell Square, W.C., on Tuesday, November 23, by Professor A. W. Porter, B.Sc., F.R.A.S., who will take as his subject "The Growth of the Photographic Image."

ARC-LAMP DEMONSTRATION AT MANCHESTER.—Messrs. Marion are holding a special demonstration at the Grosvenor Hotel, Manchester, from November 2 to 15, where they are showing the Boardman multicarbon "Northlight" and all their other novelties in labour-saving appliances, and will be glad to receive visits from all interested.

THEFT OF N. AND G. CAMERAS.—At the London Sessions, sentence of three years' penal servitude each was passed on two men, known to the police for previous offences, for feloniously receiving a number of cameras and other articles, valued at £345, which had been stolen from the premises of Messrs. Newman and Guardia, of Rathbone Place.

JOURNALISTIC ENTERPRISE.—If we may judge from one example, American newspapers will soon have to take a back seat in favour of a French photographic journal, a specimen copy of which was recently received at the office of the "British Journal of Photography," addressed to "Monsieur Glaisher," President of the Photographic Society of Great Britain, London.

SIR BENJAMIN STONE, member for East Birmingham and hon. photographer in ordinary to the House of Commons, retires from Parliament at the next election. During the fourteen years he has been at Westminster Sir Benjamin Stone has won the respect and goodwill of all sections of members, and it is proposed to entertain him at a farewell luncheon. Liberals, Nationalists, and Labour members are associating themselves with his Unionist colleagues in the movement in his honour. The gathering is to be held on the 4th of next month.

THE PHOTOGRAPHIC CONVENTION AND THE KENT SURVEY.—Members of the Photographic Convention are earnestly requested to contribute to the photographic record and survey of Kent permanent prints (platinum or carbon) from some of the negatives which they made during the Photographic Convention of this year.

The survey of Kent was well represented by a loan collection in Mr. Bothamley's exhibition at the Convention, and the pictures that it receives are well and carefully housed and indexed in the very fine museum and library at Maidstone. Members who can contribute such prints are invited to send them direct to J. H. Allechin (curator), The Museum, Maidstone.

"THE BEAUTIES OF NORWAY."—The Thursday evening winter lectures in connection with St. Bartholomew's, Dalston Lane, were opened in the Lecture Hall on October 21, when Mr. F. A. Bridge gave an account of his tour in Norway. He described the "land of the midnight sun" in breezy fashion, with many a humorous touch, and brought home some of the wondrous beauties of its mountains, valleys, and fjords by means of magnificent photographs which he had secured. He also showed some exceedingly fine specimens of colour photography. There was a large audience, and his lecture was greatly enjoyed. At the close he was accorded a hearty vote of thanks on the motion of the vicar, the Rev. E. S. Brühl.

PHOTOGRAPHY IN PETERBOROUGH CATHEDRAL.—Writing to the "Times" in reference to an article in that publication, the Dean of Peterborough says:—

"In your article to-day upon this subject it is stated: 'In the case of cathedrals in this country, application has to be made to the dean of each. . . . At most it is necessary to apply by post a day or two beforehand. To avoid disappointment this should always be done.' If the information thus given is as incorrect generally as it is in one particular case, it is not only I who have reason to protest against an invitation published *urbi et orbi* to bombard a dean with superfluous petitions. In this cathedral, at any rate, so long as the exigencies of public worship and decencies which befit a place of worship are duly observed, nobody is hindered from taking photographs, and no 'permit' is required. The desire to take photographs is, I suppose, one of the forms in which interest in what ought to be of interest and public concern finds natural expression, and as such, in my view of the matter, should be welcomed and encouraged.

"The question of Sunday photographing stands, I think, apart. The Sunday services, ranging as they do from early morning until late evening, leave but brief intervals of rest to those who must be in charge, while it is open, of a cathedral building."

AMERICAN PROFESSIONAL PHOTOGRAPHY AT DRESDEN.—It is the unexpected that always occurs (writes "Abel's Photographical Weekly" of the awards to American professional photographers at the Dresden Exhibition). When Pirie MacDonald, early in the year picked the photographers whose pictures he desired to represent American professional photography at the Dresden Exposition, he was fully of the opinion, based on promises made to him by the Exposition authorities, that the collection of pictures sent in by him would be placed *hors concours* or *honoris causa*, or whatever the call it. It was on that basis that he undertook the job, an unprofitable one for him in any case, for there were bound to be hear-burnings and murmurings. Judge of Mr. MacDonald's consternation, then, when along comes a voluminous sheet bearing the honour list of the Exposition and with some nine of the American photographers named for diplomas carrying gold medal honours and fourteen on the silver medal list.* I understand that Mr. MacDonald feels rather badly about the whole matter, as the giving of awards has made many of the participants feel that they were handicapped by not knowing that they were submitting pictures in open competition with the world, and that, with that knowledge, they would or could have made a better showing.

Personally, I don't think much of such a claim, for any man would not submit his very best to this Exposition was not giving square deal either to himself, to Mr. MacDonald, to the Dresden Exposition, or to the cause of American professional photography.

Judged by the accepted standards of our own National Convention exhibitions, the honour list is peculiar. It shows that the Continental valuation of a photograph differs somewhat from our own. And yet there is not the slightest exception one can make to names in the gold medal class. There both the Continental jury and a jury of American photographers would agree, but I think over here, would have placed quite a few of the silver medal pictures in the higher class.

However, the thing is done now, and it only remains for

honoured ones to accept the awards in the spirit they have been given, and to remember that American professional photography took more than its share of honours in its class. Mr. MacDonald is not to blame for any breach of faith or misunderstanding. He acted squarely in the matter from the very beginning, and gave to the world the finest collection of representative American portraiture ever got together.

NEW GERMAN REGULATIONS REGARDING DUTY-FREE SPIRIT.—According to the "Chemist and Druggist," freedom from excise duty is accorded in the case of spirit designed for technical uses, including vinegar making, polishing, heating, cooking, and lighting: also spirit employed in hospitals, lying-in, and other similar establishments, or used in public scientific institutions; the spirit is in general to be denatured according to certain prescribed methods (see below), but in certain instances may be used without denaturing. The use of alcohol in the manufacture of such medicinal preparations as when finished no longer contain spirit is regarded as a technical use, and by medicinal preparations is to be understood not only those for human beings, but also all veterinary preparations. Freedom from tax is withheld in the case of spirit already on the market (im freiem Verkehr), or which contains more by-products of fermentation than one-hundredth part of the weight of contained alcohol. The authorities reserve the right of making exceptions. Denaturing is either complete, i.e., such as to render the spirit undrinkable, or partial, i.e., such as is accompanied by other measures of precaution against misuse. Complete denaturing (provided no other regulations be made by the Federal Council) is effected by adding to every 100 litres of the alcohol 2.5 litres of a mixture of 4 measures of wood spirit and 1 measure of pyridine bases—this is the *general denaturing mixture* (Allgemeines Vergällungsmittel), to which when being made must be added 50 grms. each of oil of lavender and oil of rosemary per litre of the mixture. Complete denaturing may also be carried out by adding 1.25 l. of the general mixture, 0.25 l. of crystal violet solution (strength not stated), and 2 to 20 l. of benzol per 100 l. alcohol. For partial denaturing the following special mixtures (besondere Vergällungsmittel) must be used in the quantities given per 100 litres: (a) For industrial use of all kinds, including the manufacture of medicines named under (d) and (e) and other medicines in which spirit does not exist in the finished product; 5 l. wood spirit and 0.5 l. pyridine bases. (b) For manufacturing brewing glaze and preparing rubber goods: 20 l. shellac solution (1 part shellac to 2 parts alcohol of at least 90 per cent.). The shellac solution must be made under official supervision. (c) For manufacture of celluloid, pegamoid, and synthetic camphor: 1 kilo. camphor and 2 l. turpentine, or ½ l. benzole (d) for manufacture of following: Here follows a long list of pharmaceutical products, such as sulphuric ether, aldehyde, chloral hydrate, scammony, and other resins, alkaloids, glucosides, etc.; further, photographic preparations, collodion, coal tar dyes and their auxiliary and intermediate products, surgical bandages, etc.; 10 l. ether (sulphuric), or 1 l. benzole, or 0.5 l. turpentine, or 0.025 l. bone oil. For manufacture of white lead and acetates (e.g. of lead, etc.), 1 l. benzole or ½ l. turpentine, or 0.025 l. bone oil. For manufacture of acetic acid or vinegar for use above there are special formalities prescribed. Collodion for technical use and made from denatured spirit must contain at least 10 per cent. of nitrated cellulose. (e) For manufacture of chloroform, bromoform, iodoform, and ethyl bromide and brominated iodised fats for medicinal use: 300 grms. chloroform or 300 grms. iodoform or 300 grms. ethyl bromide. (f) For manufacture of vinegar a variety of alternative mixtures are allowed, ranging from 200 l. of 3 per cent. acetic acid or vinegar of that strength to 50 l. of 12 per cent. acetic acid with 100 l. of water, or 30 l. of 10 per cent. acetic acid, 70 l. water, and 100 l. beer. (g) For manufacture of coloured varnishes, stamping and other inks ½ l. turpentine and 0.025 l. bone oil. (h) For manufacture of parquet flooring wax, painters' pitch (resin), etc., ½ l. turpentine. (k) For manufacture of various kinds of varnishes: 2 l. wood spirit and 2 l. petroleum-benzine or ½ l. turpentine. (l) For scientific preparations for educational purposes, 1 l. technically pure methyl alcohol and 1 l. petroleum-benzine. (m) For solid soaps: 1 kilo. castor oil and 400 grms. caustic soda liquor or caustic potash liquor. (n) For lanoline, etc.: 5 petroleum-benzine.

Correspondence.

- *• We do not undertake responsibility for the opinions expressed by our correspondents.
- *• Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

MR. SHAW AND THE LINKS.

To the Editors.

Gentlemen,—Mr. Bernard Shaw has the habit of saying things apparently nonsensical on the surface, but that have a deep underlying truth which those who will patiently think through the surface persiflage will duly find and appreciate.

But there are very many who only resent the surface quibble and refuse to try and see if so clever a speaker and so genuine a thinker could mean other than nonsense. Your reporter seems to have been in some such haste when he refers to Mr. Shaw's example of the carriage-painter, and says that Mr. Shaw's ideal is the smooth and shiny, etc., etc.

It seems quite evident to me that what Mr. Shaw meant to convey, and did indeed plainly say, was that the man who had painted the carriage he saw when he left the Royal Academy had learned his business, knew his trade, had mastered his tools and materials, and was able to do what he set out to do.

The carriage-painter has to so paint his carriage body that it will present a perfectly even surface of great beauty and finish, and will resist rain and weather and hard knocks; this he is able to do from a long apprenticeship, a thorough knowledge of his tools and materials, and a precise knowledge of the end in view; in a word, he has an intelligent idea of what to do and a thorough hand-training in how to do it—*technics in excolsis*.

So much for the craftsman's work Mr. Shaw saw *outside* the Academy; but what of the craftsmen's, or artists', work *inside* the Academy, or at any rate the vast majority of them?

Do they, as did Van Eyck, learn the full use of their tools and materials? When the artist, I mean the painter, sets out to paint sunshine or rain or some elusive atmospheric effect, or some deadly true presentment of local colour in detail or interior work, does he know how to lay on his paint so as to accurately and truthfully and suggestively convey that to us? I wish Mr. Shaw had given one exception, say Clausen, just to show that it was the average exhibitor he was trouncing; but he was perfectly right in saying that the enormous majority of people who paint do not begin to know what mastery of tools and materials means; that they are totally unable to either understand or use them in the same degree of perfection as the painter *outside* the Academy; one is a master of his work, the other the amateur—the butcher.

"The light that never was on land or sea"

appears to be the ideal of the vast majority of both painters and photographers, shown in the too common absence of ability to either visualise or convey real light or atmosphere.

FREDERICK H. EVANS.

"STRAIGHT" PRINTS VERSUS THOSE OBTAINED OTHERWISE."

To the Editors.

Gentlemen,—It is a great pity that such an amount of feeling exists between the advocates of these two phases. That there is a total difference in the work of each cannot be denied, and much of this feeling is, in my opinion, and I believe in the opinion of a good many others, due to the pictorial few who from a ghost of a photograph build up a powerful picture with so much deleted, and so much added, that there is no resemblance whatever to the image formed on the ground glass of the camera.

The straight men are also in arms, and rightly so, when some beautiful photograph is rejected by the hanging committee of some exhibition because it is considered automatic or too systematic in manipulation; while they themselves are in favour of ozobrome or bromoil.

The Royal Academy of Arts is at the disposal of those people who are the cause of such rejection. In the first place because their "paintings" are very often beautiful, and secondly because

the Royal Academy does not accept photographs. If, on the contrary, the exhibition committees wish to continue accepting such work, let them have a special show for the often beautiful work done by the amateur as is evidenced by the excellent show-cards produced as a result of some money competition by the paper manufacturers, and by the editors and judges of photographic periodicals, who are ever willing to give equal encouragement to the "straight" worker. I would impress upon those people who dislike straight work that it is not so easy as they suppose to produce straight prints worthy of pictorial merit.

A visit to an exhibition two or three years ago revealed gems produced by the camera and the man, while now they seem to be produced by the man only. In this case how can they be photographs?

East Dulwich, S.E.

P. FREDERICK VISICK.

PHOTOGRAMS OF THE YEAR.

To the Editors.

Gentlemen,—In recognising your critic's lengthy and kindly remarks upon "Photograms of the Year," may I assure him—he "remembers no other review than our own"—that the presidential address at Canterbury was discussed at some length in columns other than yours.

It is satisfactory to hear that he did read the address, which makes it the more surprising that he should have devoted his best rhetoric to demolishing (as if it were mine) a position exactly opposite to one that I held, and setting in its place (as his own) the thing for which I contended.—Yours faithfully,
H. SNOWDEN WARD.

A DISCLAIMER.

To the Editors.

Gentlemen,—It has been brought to our notice that certain persons, calling themselves the Rotary Photographic Enlargement Co., are canvassing from house to house for orders for enlargements. We have been advised of this matter by householders in the North of London, who were under the impression that the canvassers were sent out by our company. We need hardly say that we know nothing whatever of this concern, and we have never, of course, had anything to do with this class of business.

One of our correspondents sends us a card printed as below:—

The Rotary Photographic
ENLARGEMENT COMPANY.

Branches (London and Provinces).

Branch Office: S. Studholme, Stoke Newington.

We are, Dear Sirs, yours faithfully,

THE ROTARY PHOTOGRAPHIC CO., LTD.

IRIDESCENT MARKS ON SULPHIDE-TONED BROMIDES.

To the Editors.

Gentlemen,—In your issue of August 27 you ask for any experience of iridescent marks on sulphide-toned bromides.

Some years ago I had a large batch of prints spoilt in this way, but from the description in the "B.J." the marks I experienced were of a much worse nature. There was very considerable iridescence in the darker parts. I traced the cause to the use of stale sulphide solution; in fact, the last remnant of the made-up solution. A friend had some trouble since, and on inquiry I found he had in this case also reached the bottom of his sulphide bottle. The last end of a solution of sodium sulphide is frequently of a dirty-green colour, and, of course, should never be used in such condition. I am referring to the usual case where a fair amount of stock solution is made up, lasting possibly many months. The remedy is obvious.—Yours faithfully,
HAROLD SMITH.

Johannesburg, October 4th, 1909.

THE "LITTLE GALLERY" AT BROCKENHURST (SOUTHWESTERN) STATION.

To the Editors.

Gentlemen,—Some few years ago I called attention in these pages to a small collection of portraits, by the late Mrs. Julia Cameron, that had found a rather curious resting-place in a waiting-room at

Brockenhurst Station, in the New Forest. At the time I wrote they were in a somewhat uncared-for condition, and I could not discover any one who seemed interested enough to look after them. On a recent visit to the New Forest I again "did" this Little Gallery, and, to my great satisfaction, I found that the pictures had been most judiciously remounted and reframed, and were altogether in excellent condition. A dark art mount has been laid over the original white cardboard mount, and where any note in Mrs. Cameron's handwriting appeared on the original mount an aperture in the cut-out mount permits of its being seen.

As I was quite curious to know who had taken the matter in hand I captured a stray station official, who goodnaturedly told me that Mrs. Cameron herself had "been down" (*sic*) and seen to them! I thanked him for his information and "tried again" on another platform. This time it was a gentleman in the Isle of Wight, "who comes here reg'lar." There was nothing to cough at in this. But, later on, when mentioning the matter to an acquaintance in Brockenhurst, he said they had been reframed by subscription. Whoever it was that took the matter in hand, he deserves the thanks of all interested in the "old masters" of photography, and I feel sure you will not begrudge me a small portion of your space wherein to call attention both to the existence of the Little Gallery and to its generous renovator (or renovators).

The prints are dated 1870, and appear to be on plain salted paper but on this point I cannot be certain. They are, however, in very good condition. The portraits are:—Robert Browning, Lord Justice James, Charles Darwin, Sir Henry Taylor, D.C.L., H. W. Long fellow, A. Tennyson, Sir J. F. Herschel, G. F. Watts, two Bishop of Winchester, and a second portrait of Sir Henry Taylor. The portraits of Tennyson and Watts are very fine. Ten in number.

One cannot help the reflection that waiting at railway station might be made quite a pleasant interval in railway travel if most stations possessed a Little Gallery of good work. Personally, should be only too glad to supply a railway waiting-room with dozen framed pictures, printed in some permanent process, for by so doing I should feel that I had gained what appears most lacking in photography at the present day, a sphere of future usefulness at a home.—I am, gentlemen, yours faithfully,
G. T. HARRIS.

Sidmouth, S. Devon.

FIXING BATH FOR BROMIDE PRINTS.

To the Editors.

Gentlemen,—In your issue of September 3, under "Ex Cathedra" a drawback of the acid-fixing bath is mentioned—viz., the risk of exhaustion being unnoticed. Personally, I find that the acid-fixing bath (for bromide prints) is a practical necessity. In ordinary use it is not practicable to wash prints thoroughly after developing, and I think one maker says five or six changes. I believe I am right in saying that a mere rinse is the usual practice. In such cases an acid bath is almost a necessity.

There are several ways of easily noticing exhaustion.

1. *The plain acid-hypo.* If a test with blue litmus paper does not give the red colour, distinctly and at once, the acid is certainly exhausted, and it is time to make up a new bath. It will be found that the acid is exhausted before the hypo, when the prints are simply rinsed after developing as mentioned. I am referring to the metol-hydroquinone developer. I have not experimented in this direction with a non-alkaline developer (amidol). Litmus paper is cheap and handy.

2. *Acid-alum-hypo.* If an acid fixing bath is used for hardening chrome alum should be the agent employed. The prints should give that "rubbery" feel to the touch, after a short immersion, less than a minute; and while this is so the bath will not be found to be exhausted. With this bath also there is a change later. The colour of the bath is a very deep blue-green, but clear. On being exhausted the bath is muddy, and, if left, a coloured deposit will settle at the bottom, leaving a clear, colourless solution above. I believe, even at this stage, a considerable quantity of hypo remains, but it is obviously more than high time to renew the bath.

At this stage would be long after the time of the former test mentioned had passed. The bath referred to is the one on page 780 of the "Almanac," which contains a quarter of an ounce or more of chrome alum to the pint.—Yours faithfully,
HAROLD SMITH.

Johannesburg, October 4th, 1909.

Answers to Correspondents.

- * All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- * Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- * Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
- * For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

- E. McGeachie, Photographer, Pier Road, Dumoon, N.B. Five Photographs of Harry Lauder, and One of a Group containing Harry Lauder, Mrs. Lauder, and Mr. Vallance.
- J. P. Clarke, 34, Castle Street, Llangollen. Photograph of Avelyn Tanqueray, Esq.
- L. E. Richards, The Studio, Suffolk Road, Lowestoft. Photograph of the "Kessingland" Monoplane.
- A. Russell, 6, Wild Street, London Road, Liverpool. Four Photographs of the Sailing Vessel "Kynance."
- S. A. Chandler & Co., 132, Above Bar, Southampton. Two Photographs of the Marathon Race at Bournemouth.
- J. L. Hart, 52, Gainsborough Road, Crewe. Photograph of Group representing "Butterflies," and Photograph of Group representing "Butterflies and Flowers," both at Crewe Pageant, August 8, 1909.
- G. Boucas, 195, High Road, Ilford. Photograph of Little Girl and Dog.

COLOUR-SENSITISING DRY-PLATES.—1. Will you kindly tell me the most suitable dye for sensitising ordinary dry-plates so that their subsequent monochromatic rendering may be as true to nature as possible? The dye should be reasonably easily procurable. It should be simple to use, and should allow of the treated plates being kept some time. 2. I should also like to know if all ultra-violet light from a subject is cut off by a glass lens—and if not, how much is? Will you give me the answer to the latter alternative in wave-lengths ($\mu\mu$)?—PERCY A. TUCKER (Germiston, Transvaal).

1. For full instructions see formulæ in the "B.J." Almanac ("Orthochromatic Formulæ"). A good formula for panchromatic plates is:—

Pinacyanol (1-1,000 solution in alcohol) ...	2 ccs.
Pinaverdol (1-1,000 solution in alcohol) ...	3 "
Water	250 "

Bathe for three minutes and wash for ten minutes in total darkness. If the washing is thorough and the plates are stored in cool, dry place they will keep satisfactorily. The dyes are made by Meister Lucius and Brüning, obtainable from Fuerst Bros., 17, Philpot Lane, E.C. 2. No lens cuts out all the ultra-violet light, the amount cut out depends upon the glass used. Thus microscope cover glass cuts off some of the ultra-violet, while the Jena glass, specially opaque to ultra-violet, allows some to pass beyond 4,000 A.U., which may be regarded as the limit of visibility. Watson's Actinolex lens, made of glass specially transparent to ultra-violet, cuts off at about 3,200 A.U., while Zeiss Protar, Cooke Process, and Goerz Double Anastigmat cut between 3,500 A.U. and 3,600 (Newton and Bull, "R.P.S. Journal," 1906, page 282). Mees and Sheppard show ("Theory of Photographic Processes," page 326) that without and with a screen cutting out the ultra-violet at 3,950 the ratio is as 1 to 2.46 of skylight; using a piece of plate-glass cutting at 3,300 (comparable to a lens) the ratio is as 1 to 1.35.

M. NOTMAN AND SON (Montreal, Canada).—We should recommend you to try one of the enclosed arc lamps, which you will find very actinic. The lamps can be supplied for either direct or alternating current if you specify what you require when ordering, and we think in a studio the size of yours you will do well to get a large size lamp. You will be able to use the same arrangement of light reflected from white screens. You will need to hang the lamp as high as possible, as the arc is a couple

of feet below the point of suspension. You will find this type of lamp quite applicable for printing purposes, and if it is hung over a pulley with a counterpoise weight you will be able to lower it to the floor for convenience in printing. You will not find it necessary to cut off all direct light, nor to throw the whole of the light on to the white reflecting screens. The direct light, however, must be diffused, and for this purpose there is nothing better than a head screen, covered with engineer's tracing linen.

PAINTING BACKGROUNDS.—Could you kindly reply the following demand in the text portion of your paper intended for answers to correspondents? I am painting my own background, but cannot get with oil-colour that beautiful extra matt finish some German and Swiss background painters reach. Could you help me in the matter?—J. MARYNEN (Brussels).

The trouble is due to your using ordinary oil paint, the oil in which causes the colour to dry glossy. To get a matt surface flattening colour must be used. The following will give what you desire:—Mix white lead, lamp-black, and venetian red (or other colour), as sold at oilshops ground in oil, with turpentine to the consistence of ordinary oil paint, or rather thinner, and then add about one-third its bulk of jappanner's gold size. This will dry with a dead surface. The background should previously be painted with oil paints.

COPYING COLOURED MS.—Where a coloured manuscript has to be copied for reproduction by the three-colour process in collotype is more than one negative required—and if so, would you advise as to screens in copyright?—"JOANNI."

Certainly three negatives have to be made. Sets of the three filters are supplied by Sanger-Shepherd and Co., Gray's Inn Passage, London, W.C., and Wratten and Wainwright, Croydon.

TOXO, W. JONES, AND OTHERS.—In our next.

C. J. T.—We are much obliged to you for your letter, but both expedients have been frequently advised in the past.

G. J. PITT.—As you were engaged for a week's trial you are entitled to a full week's pay, and you should sue the people in the County Court for the balance due to you. It is a mean action on their part to try to avoid payment.

PHOTOGRAPHING SHOP FRONTS.—Will you kindly tell me the best way to photograph a shop window, so as to get rid of reflected light? This window is opposite a street, and the back of it has mirrors in each panel.—E. B.

If you can cover the mirrors or dull the surface with, say, a light coating of starch paste, it will help in removing the reflections of objects across the street. If this cannot be done we suggest that you try making an exposure by night by flashlight, which will leave the "reflectable" objects unilluminated.

LENS ON REFLEX CAMERA.—I have a $\frac{1}{2}$ -plate focal-plane reflex camera, to which is fitted a — lens 7.2in. focus, wide angle. It has obtained some very good negatives with this lens and camera, notwithstanding that the makers of the camera inform me that I will be unable to use a lens of such short focus on a reflex camera, and must obtain one of about 9in. focus. Can you inform me how I get such results with this lens? I may say the lens is in a sunk mount, which is in beyond the surface of camera front.—REFLEX CAMERA.

The makers' recommendation to you is made in reference to the mechanical construction of the camera, not to the covering power of the lens. Some reflex cameras will not take a 7in. focus lens in the half-plate size, but if they will there is no reason why a 7in. lens should not be used. A lens of this focal length, particularly of the aperture of $f/8$ or $f/6$, which we suppose yours to be, will cover a half-plate perfectly.

SEMPER EADEM.—The best form of washer for films is one in which the latter are placed in sheaths, and, thus mounted, washed in the same way as plates. Messrs. Houghtons supply a well made apparatus of this kind, the sheaths being given a curved form, so that they retain the films firmly. For prints (which, unlike films, have no sharp corners) there are a number of good washers which do the work of keeping the prints in motion satisfactorily, so long as prints are of moderate size—e.g., not larger than whole-plate.

For larger or even for whole-plates there is nothing better than transference by hand of prints from one dish to another.

DOUBLE-POSE PHOTOGRAPHS.—Would you kindly inform me how to take photographs of a sitter in two or more positions on the same card? A friend of mine would like to be photographed shaking hands with himself.—P. SEYMOUR.

This is done by means of a shutter placed in front of the lens or at a short distance from the plate, one half of the shutter exposing one half of the plate and the other half the other. The subject changes his position between the two exposures. Any dealer can supply.

MARKINGS ON ISO PLATES.—A little while ago I was trying some iso plates backed (plates old), and when developing I rubbed away some of the backing, so that I could see density when developing. On fixing plates and looking at them in white light I found the marks in the image just when I had rubbed away backing, showing exact smears, etc. Would you be so kind as to explain this?—S. H. W.

Without seeing the plates we should say that the result is due to fogging action of an unsafe dark-room light.

BOOK ON PHOTO-ENGRAVING.—In your issue of Friday last, 22nd, you mention the name of Mr. N. S. Amstutz, the author of the "Photo-Engraver's Handbook." I should deem it a great favour if you could inform me as to where I could procure that book, and the price of the same.—J. H. CAMFIELD.

From Messrs. A. W. Penrose and Co., 109, Farringdon Road, London, E.C.; price, 12s. 6d.; post free, 13s.

SPECTROSCOPE.—Where can I obtain a spectroscope that is used for testing three-colour filters, and about what would the cost be? Also, is there a book on the same? Who is it published by, and the price?—F. J. WHITE.

Messrs. Browning (Strand), Penrose, Sanger Shepherd, Griffin, and Hilger (Camden Road) all supply spectroscopes of various types and patterns, and you should consult one of these firms. The cost may be anything from 10s. upwards. You would probably find all you want in R. A. Procter's "The Spectroscope," or C. R. Wood's book with the same title. Messrs. Browning, in the Strand, also have a handbook on the spectroscope. All these are cheap books. We cannot give bookseller or publishers of the first two, as the books are not at present available.

CATHAY.—Boake's sulphite was the kind mentioned. Any dealer can obtain it for you.

DRYING CUPBOARD.—Can you oblige me with sketch or description of a method of heating air before it passes into a drying-box (wood)? I want to command a temperature of 80 to 90 deg. Fahr., in a box of 18in. high by 15in. square. There is a strong outward draught, and bathed plates are in question. Electricity is not available.—D. I.

If you want to draw a current of warm air through the box, the simplest way is to connect the air inlet with a pipe that is twisted into a coil and immersed in a vessel of hot water. You can use small compo tubing for the purpose of making the coil. The tank may conveniently be a biscuit tin filled with water that is kept hot by a gas-burner underneath. Another method is to take a strong tin or iron box (a biscuit tin is again quite serviceable if the joints are rolled and not merely soldered), place it on a tripod with a burner underneath, and then stand the drying-box on the top. By regulating the burner you can easily attain a steady temperature of about 80-90deg. in the drying cupboard, which, of course, must have inlets for fresh air. A description and drawing of a simple drying-box which would serve your purpose are given in "Ferric and Heliographic Processes" (Dawbarn and Ward, 2s.).

WATER-COLOUR.—Apply to the Secretary, Royal Academy of Arts, Burlington House, London, W.

PRESS.—From what you say we judge that the rust has eaten deeply into the steel plate of the rolling-press, in which case it will probably be cheaper to get a new one than to have the present one re-polished. The press-maker, after seeing the plate, will advise you better on this point than we can. When a rolling-press and its plate has to be stored away out of use for a long

time the plate and rollers should be heated and then rubbed over with beeswax. There is then no fear of rust, even if they are kept in a damp place.

J. H. BONE.—The chief advantage of a 10 x 8 R.R. lens, when used for whole-plates, is that it will cover the plate better with a larger stop than a whole-plate one would do. But it must be kept in mind that it will not include so wide an angle of view as the latter would do. That, however, is lot of much moment in taking outdoor groups.

R. J.—You are quite right. Your competitor is acting illegally in styling his process "patent" when he only obtained a provisional protection for it. By doing so he renders himself liable to a penalty of £20. No one must apply the term "patent" to anything for which a patent has not been granted. That applies to photography as it does to anything else.

AMBER VARNISH.—I wish to obtain some amber varnish that dries cold, such as used to be employed for collodion glass positives and negatives in the days when the collodion process was the only one used. I have asked for it at several of the dealers' in London, but none could supply it. Some even said that they had never heard of it, or that there was no such thing.—T. A. CONWAY.

As you cannot obtain the varnish, the only thing to be done is to make it yourself. This you can do by dissolving amber in chloroform to the consistency desired. Chloroform is somewhat costly to use, but that made from methylated alcohol is much cheaper than that made from the unmethylated spirit, and it answers quite as well for varnish-making. What is now used for collodion positives is dammar, dissolved in benzole, and it answers the purpose quite as well for glass positives as that made with amber and chloroform, and, of course, is much cheaper.

COPYRIGHT.—I shall be obliged if you will be good enough to enlighten me as under. A friend has two very fine engravings, and he will be kind enough to lend them to me to copy for specimens for the reception-room. The pictures, I know, are copyright, but I do not intend to sell any copies; all I want them for is to fill up space. I conclude that I shall not be infringing the law. Am I right?—COUNTRY PHOTO.

No; you are decidedly wrong. It is illegal to copy a copyright picture for any purpose whatever. It is also illegal to exhibit publicly a copy of a copyright picture. The Copyright Act is very far-reaching, and completely covers what you propose to do.

SOUTHAMPTON CAMERA CLUB.—The society's year-book, 1909-10, is to hand, and contains all the necessary information for the use of members in a concise and compact form. The winter programme comprises an attractive list of fixtures for the forthcoming session, the varied character of which should appeal to all classes of photographic workers, and ensure a good attendance at all meetings. An interesting feature of the book is the frontispiece, which is a reproduction of a photograph by the secretary, Mr. S. G. Kimber, entitled "Monday," and affords another proof of the versatility of this indefatigable camera worker.

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SUMMARY.

Mr. H. Essenhigh Corke contributes an article dealing with the making of portraits with white backgrounds, a form of portrait photograph now much in vogue and popular, particularly with lady sitters. (P. 855.)

Mr. Rhymer Cook, in an article on page 857, describes the most visible methods in making photographic copies of coins or medals or catalogues, note headings, etc.

The suggestion is made in an editorial note on page 854 of the usefulness of a small clock-dial affixed to a developing or hypo tank. In this, the time at which plates or prints are to be removed can be indicated.

"L.C.C. Training in Photography," "The Fixing Bath for Bromides," "Toning Lantern Slides," "Mr. Shaw and The Links," are among other subjects under "Correspondence." (P. 865.)

In some notes on page 854 a number of cautions are given as to the care of negatives in damp weather.

At the Brighton Police Court last week the amenities of a studio that town formed the subject of a case. (P. 864.)

In reference to the recent issue of a "Monthly Circular" by the affiliation of the Royal Photographic Society, we publish an article on page 858 questioning the usefulness of this publication and criticising some of its contents.

Of hyperfocal distance. (P. 859.)

A patent for animated photography in natural colours has been taken out by Mr. Otto Pfenninger. (P. 860.)

Mr. C. Welborne Piper has made a note of the fact that a plain solution of potassium bichromate, if given time, will intensify a negative to a considerable extent. (P. 857.)

"COLOUR PHOTOGRAPHY" SUPPLEMENT.

Mr. J. H. Pledge published a microscopic and spectroscopic examination of two new forms of colour screen-plate, one the "Dioptrichrome," patented by M. Dufay. (P. 81.)

Mr. Welborne Piper has made an analysis of possible patterns of colour screen-plates in reference to their greater or less opportunity of giving rise to overlap of colour during the successive stages of their manufacture. The plate consisting of parallel bands is superior to all others in this respect. (P. 84.)

Dr. Miethé has recently given some particulars of his methods in taking three-colour photographs from a balloon. (P. 86.)

Some further details of the Stobbe rapid bleach-out method are given on page 88.

EX CATHEDRA.

Insects and Photographs.

In our "Answers" column a query will be found relating to prints that have apparently been spoilt by the attentions of some unknown insect with a taste for gelatine. The print is marked with small white spots which run together in intricate spirals and patterns of all shapes. There is distinct evidence that the spots are dug or nibbled out through the film of the P.O.P. image down to the substratum. In fact, the marks of a sharp angular-pointed mandible are quite apparent under the microscope, though their minuteness also suggests that the creature responsible was one of very small size. It is unusual to meet with this kind of trouble in the case of prints, though it is not an infrequent mishap with negatives. There can be little doubt, however, that the source of the trouble is the same in both cases. Negatives left about on shelves and not stored in boxes are often subjected to the attacks of insects, and there is no reason why prints kept in an equally careless manner should not meet with the same fate.

* * *

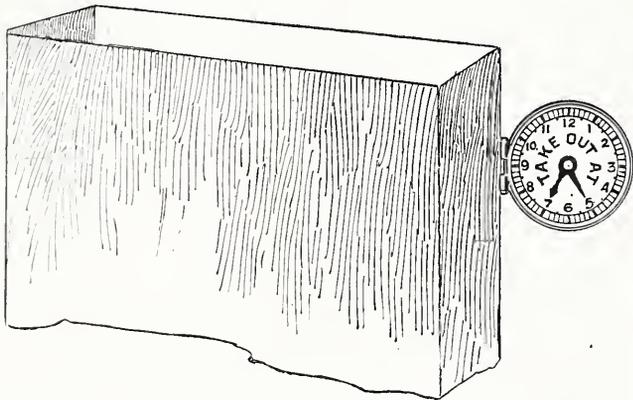
Warm-Toned Lantern Slides.

The succession of lantern slides seen upon the screen at the New Gallery during the R.P.S. Exhibition affords an opportunity of studying a great variety of slides from the technical standpoint. One theory which struck us forcibly this year was the fact that the modern craze for various tones of a more or less warm character is apt to lead to as unpleasant results as the old-fashioned black tones. Simple black and white slides put a severe strain on the eyes in the course of an hour or so, but so also do slides of an aggressively warm tone, while to us a constant change of tone such as we see sometimes is extremely irritating. Photographers generally seem slow to recognise the fact that in a monochrome process such as photography it is only very occasionally that anything is gained by the introduction of decided colour. The moment a departure is made from a neutral tone there is the risk of making a blunder, and the problem of selecting the best colour for a monochrome picture is not one that the photographer is likely to solve satisfactorily unless he has had previous training in colour effects. It is a matter of common experience that the ordinary person who makes no pretence at art knowledge generally shows a marked preference for the rich neutral "photographic purple" of a gold-toned P.O.P. print, and his instinct does not lead him far wrong when it tells him that this is one of the most satisfactory tones for a photograph. A good dark sepia platinotype, or an "engraving black" carbon print, has a tone of a similarly well-appreciated type, while a grey platinum print seldom fails to secure many admirers. In all these cases the tone has the same characteristic of

quiet unobtrusiveness, and with lantern slides tones of similar quality are again the only ones that give universal satisfaction. A red tone is more aggressive on the lantern screen than in a framed picture, and the risk of its quite spoiling the result is far greater. Nowadays, unfortunately, we see few slides of the rich dark purplish-brown neutral tone which at one time everyone aimed at, and the alternating appearance of black tones with washed-out browns and glaring reds is a poor substitute for a succession of quiet slides.

A Development Tank Accessory.

One of those useful devices which should appeal to those practical workers who now make a practice of using the developer in a tank quite apart from what their views may be as to the advantages of development for a fixed time, is a clock dial, fitted with hour and minute hands. Such a dial, in conjunction with an ordinary watch or clock, saves a good deal of attention in the dark room, the worker at the time of pouring on the developer setting the dial on the tank to the time when the plates should be approaching a state of completion, or, if the time method is being



used, setting the clock to the actual time of development which is being adopted. This plan saves the mistakes which are very easily made if the worker's own watch is referred to at the time of starting development and the memory relied upon in the matter of the time at which the plates should be removed. Makers of developing tanks might very easily provide a small dial of this kind which could be hinged to the lid or body of the developing tank—according to its type of construction—and would always be at hand.

SOME DAMP WEATHER CAUTIONS.

MOISTURE in the atmosphere is often quite an unsuspected source of trouble to photographers, though many may not be aware of the full extent of its results. In our variable climate the air is always charged with a certain amount of it. At times it is not sufficient to cause inconvenience, yet on many occasions it becomes a source of trouble. During the continued spell of wet weather which has been experienced in all parts of the kingdom the past few weeks, the air has contained an unusually large proportion of moisture: on some days the atmosphere has been completely saturated with moisture, as proved by the daily weather reports issued by most of the newspapers. For some days in succession the readings of the wet and dry thermometers have been identical, showing that the atmosphere was completely saturated with watery vapour. As the winter advances, the humidity of the atmosphere may be expected to continue, and therefore it may be of service to some to point out some of the effects of excessive atmospheric moisture in the air in connection with photographic work generally.

Everyone knows that platinum paper must be kept absolutely dry, otherwise it will quickly deteriorate; also that the negatives, printing frames, and pads for the latter must be absolutely dry during the time of printing, or first-class results will not be obtained. If a tube of the paper be opened in an absolutely dry atmosphere it will suffer no harm, but if it be opened in a place where the air is almost saturated with moisture it will suffer more or less injury from moisture, particularly if it has been stored in a cold place previously.

Carbon tissue also may be damaged in a similar way, for it is well known that dry gelatine has a great affinity for moisture. The latter is quickly absorbed by it, and will greatly affect its keeping qualities both before and after printing. If, after exposure, the prints are kept in a humid state the so-called "continuing action" will go on very much more rapidly than when they are quite dry. This fact often leads those who are inexperienced in the carbon process to surmise that the prints have been overexposed in the printing, whereas the cause should be sought in the time elapsed between printing and developing. The drying of carbon tissue, after sensitising, is much retarded by excessive moisture in the air; the room in which it is dried must be warmed, otherwise, as a consequence, the solubility of the tissue, as well as its keeping qualities, will be considerably impaired.

We will here digress for a moment to say a few words on the condensation of moisture in the air. Most persons have noticed that when tumblers, wine glasses, and the like are brought from a cold room into a warm one, where a number of persons are assembled, and the air of the apartment is therefore moist from their breath, that dew forms upon the surfaces of the articles. But if the glasses had been as warm or warmer than the room, there would be no condensation whatever. Again, in the case of lantern entertainments, one often sees that a slide on the screen after a minute or two gradually becomes dimmed by moisture condensing upon it, or in some instances on the condensers. This is, among other causes due to the glass being of a lower temperature than the moist atmosphere, and all experienced lanternists take the precaution to warm the condensers as well as the slide before the show commences.

If lenses which have been kept in a cold room are brought into a warm studio, moisture will at once condense upon them and dim their surfaces, and it will be impossible to obtain a brilliant image. This kind of thing is often troublesome when the photographer has to photograph the interior of an artificially heated conservatory or greenhouse. Although there may be comparatively little moisture in the outer atmosphere there is always a considerable amount in buildings of this kind, and as a result dew at once begins to condense on the surfaces of the lenses and thus prevents a brilliant image being obtained until the glasses have been thoroughly cleaned. The condensation may, however, be avoided by warming the lenses, say, by placing them for a time close to the hot-water pipes in the building. Most experienced photographers when they have work of this kind to do, take the precaution to warm the lenses before starting, and then carry them in their pockets so as to avoid their cooling as far as possible.

A very prolific source of trouble due to moisture in the air is the staining of negatives. We are frequently asked how to remove silver stains from negatives that have been printed from on *damp paper*. As often as not, however, the stains are due not to the paper, but to the negative itself being damp at the time the paper was put upon. At the present season of bad light printers have to make the most of every day, and thus the frames are placed out in the open air. Even if this is not done, the places

ch they are exposed is often little better than a shed, is very cold: consequently the negatives get very d also. When they are taken indoors for the paper to be changed, the moisture in the warm room immediately condenses on the cold negatives and on fresh paper being placed in the frame, a film of moisture becomes imprisoned between it and the negative. Some of this being absorbed by the negative and some by the paper, it will readily be seen that after several changes have been made under these conditions the film of the negative has, in all probability, absorbed a considerable amount of moisture and possibly some silver from the paper. This will eventually result in the negative developing stains, though nothing is noticeable at the time. If negatives, after being printed from in these circumstances, are put away without the precaution being

taken to dry them thoroughly, they may readily show, perhaps months afterwards, stains, which are often attributed to their use of damp paper, whereas it was actually the negative that was damp and not the paper. It goes without saying that when negatives are varnished with a spirit or a celluloid solution, they are far less susceptible to the evils of moisture. When they have a thoroughly protective coating, any condensed moisture on the negative is absorbed by the paper, but the print does not suffer therefrom unless it is kept an unduly long time between printing and toning. In conclusion, we would advise everyone after printing in cold weather to warm the negative thoroughly so as to drive off any moisture they may have absorbed before storing them away. If that were always done we should hear less about stained negatives.

THE USE OF WHITE BACKGROUNDS.

At the present time white-background work is exceedingly popular among the better-class clients of the average professional, and such work is produced, I suppose, by most photographers. Those who have not yet adopted this style will find it a good business drawer, but like any other new work

which I will first deal with. Firstly, when ordering a white background for this purpose the photographer should stipulate that it should be a distinctly blue-white, and should have no tendency towards a cream colour. In fact, I find that a distinctly pale blue is even better than pure white. When using the background it should if possible be arranged in such a position that it can be lighted quite independently of the sitter. As strong a light as possible should be thrown on to it, and, if



Fig. 1.



Fig. 2.

possible, it should be tilted towards the skylight instead of being placed perfectly perpendicular.

The lighting of the sitter for such work will naturally depend upon the particular theme of the worker, but for most subjects it will be found better to avoid any great contrasts, and to light the sitter with a full flat lighting, and if very delicate work is desired a reflector upon the shadow side should certainly be employed.

Very fine effects closely resembling pencil drawings can be made of profile heads by placing a black reflection close to the sitter instead of the usual light-coloured reflector. This has the effect of throwing a black shade on to just the outline of

requires a little practice before it becomes easy to produce. Having made a specialty of such work for some time past, I have found out one or two little wrinkles which I hope may be of use to my fellow workers.

The point which will be found most difficult is that even the best of white backgrounds will not, as a rule, photograph as a pure dead white, with the result that when the prints are made the background usually prints as a light grey. There are one or two dodges in the making of the actual background

the profile, and very little after work on the negative will produce results similar to fig. 1.

It is, of course, imperative that for the best results the



Fig. 3.

sitters should be in light clothing, and this fact combined with the use of a full light and the lack of necessity for modelling will allow of very brief exposures, which is always an advan-



Fig. 4.

Prints from the untreated negative (4) and from the same after blocking out the background in the way described in the article.

tage. It is, however, particularly with the whiteness of the background that I now wish to deal.

I do not know just how some workers manage to get purity in the whites, but most photographers to whom I have men-

tioned this matter have told me they have to block the background out. My own method will be found somewhat uncommon, and I trust prove useful. The negative is placed in the printing frame in the usual manner, and then the front of the frame covered with a piece of cardboard, in which is cut a hole rather larger than the part of the negative occupied by the figure just as an ordinary vignetting shape is attached. This hole is then covered with a piece of tracing-paper. The frame is then held up to the light, and the background painted over on the tracing-paper so as to make it quite opaque. The method of doing this will be quite clearly seen in the two small illustrations (figs. 2 and 3).

Any sort of paint will serve for this purpose, such as yellow red, or black water-colour, but perhaps the cheapest method to procure a pound of either yellow or red ochre at the merchant's in the form of a dry powder, and use this with water and just a little gum to prevent it flaking off. Care should be taken to gum the negative into the frame with small strips of paper, or when attending to the painting it will be forgotten that the frame is tilting backwards, and the negative will fall out.

The chief advantage of this method is that the negative itself is not painted upon, and therefore the hard cut out appearance so often seen is avoided. The printing frames used for this purpose should be as shallow as possible, thus avoiding the light spreading and ensuring more accurate results. With a very little practice it will be found possible to block out even such small spaces as between chair legs in this manner, and very much quicker than when actually working on the negative.

Considerable control over various parts can also be exercised by applying light washes of the colour, and thus lightening any excessively heavy shadows, etc.



Fig. 5.

The printing of such subjects should be carried out in a place where the light descends fairly evenly and not from a tall building, which would tend to make the light fall in one direction to a certain extent. In fact, the best

to place the frame in a deep box in a similar manner to that employed when printing from a cracked negative, or easier still, the prints may be made on bromide paper, and thus the short exposure allows the frame to be held at just the right angle to the light. The operation can, with a little practice, be

so carefully carried out that a black background can be entirely vignettted away into a pure white background, and also this method is far quicker as well as softer than actual blocking out.

H. ESSENHUGH CORKE, F.R.P.S.

A NEW METHOD OF CHROMIUM INTENSIFICATION.

THE chromium method of intensification is now well known and very popular, perhaps more so than any other method; it is, however, not generally well known that there is a simpler though much slower method of producing a somewhat similar effect. We need only immerse a negative in a plain solution of potassium bichromate to obtain an appreciable amount of intensification in an hour or so, while several hours' immersion produces a strong effect. Of course the plate requires washing to get rid of the yellow bichromate stain in the shadows. If dried at this stage we obtain an intensified image that is slightly brown in colour. If we immerse in a developer before drying we obtain a much darker and stronger image, while if we apply a hypo bath instead of a developer the extra density disappears, and the final result is much the same as the original image. A

chromium compound of some kind is deposited in or upon the image, but what it is cannot well be determined. It appears to be different from that produced with the ordinary process of chromium intensification and also different from that found in the ozobrome process. It slightly resembles chromic hydrate in some respects, but it is impossible to say that it is the hydrate.

The defects of the process are that strong intensification requires twelve or more hours' soaking in the bichromate, while the final result never seems to be so clean or so black as that produced by the ordinary method. It also seems coarser grained. While I do not recommend the process as having any advantages over the ordinary bleaching method, it is still an interesting one to note from the scientific point of view.

C. WELBORNE PIPER.

PHOTOGRAPHING COINS AND MEDALS.

It occasionally happens that an apparently simple thing in photography is not so easy to carry out successfully as at first sight it may appear to be to those who have had no practical experience in that particular direction, though the thing may be simple enough to those who are familiar with that class of work. It is a no very unusual thing for the ordinary portrait photographer to be called upon to photograph medals, perhaps gained at some recent exhibition, to be afterwards used for advertising purposes, and, when he has done his work to the best of his ability, to find it is not to the satisfaction of his customer, simply because it does not show the design, or, maybe, an inscription on it, sufficiently distinct to answer the purpose for which it is required. Such a result is disappointing to the customer, and also to the photographer, as he has failed to please.

In nine cases out of ten the failure in getting what was required has been entirely due to the lighting of the originals, and nothing else. It has failed to show the design and lettering in the proper degree of relief. It may show it all, it is true, but only as a mere flat surface, and does not convey the idea that it is in more or less high relief. It is our object here to give some practical hints that may be of service to some who are inexperienced in this class of work.

Camera Arrangements.

In the first place, the medals must be secured in position on a suitable background, but it is obvious that the means by which they are secured must not show in the photograph. If the photograph is for reproduction by a mechanical process, in which a reversed negative is necessary, and a reversing mirror or prism is at command, the work is much simplified, as one can only to arrange the things on a sheet of cardboard of suitable tint on the floor, and point the mirror or prism downward, instead of, as usual, sideways. If the prism or mirror is not available, the copying may still be done on the floor, if the camera be arranged so that it points downwards and at right angles to the medals. Then we get, of course, a non-reversed negative, and it is this that is the more generally required. In

either of these methods of procedure it is essential that the greatest attention be paid to the lighting of the originals, for on that the result entirely depends. It must not be from the top, or no relief will be shown in the picture. The dominant light must fall on the medal from the side, and that at a considerable angle to the axis of the lens, or there will be but little relief in the reproduction. This can easily be managed with sheets of brown paper arranged so as to stop off all top light, and the side light from one side.

Mounting Coins Vertically.

In most instances it will be more convenient to the ordinary portrait photographer to copy the objects vertically, and when that system is adopted there must be some means of securing the medals firmly in position. As a rule, their owners will not permit of any kind of cement being used for the purpose, as it might impair the polish on the new medal; therefore some other means must be adopted. A simple one is as follows:—Take a tolerably thick mount of suitable tint, lay the medal on it, and, with a fine-pointed pencil, trace round the edges. Then cut out the centre with a sharp knife, keeping slightly within the pencil-mark. The medal is then pressed into the opening, where it will be held securely. In fixing it into the card, it should not be pressed flush with the mount, otherwise the medal itself will not show in actual relief. The medal, or medals, having been made secure in the mount, and that affixed in a suitable position in the studio, the next point for consideration is the lighting of the object. The best conditions of lighting will be obtained by placing the medal at the side of the window of an ordinary room, or by imitating such lighting in the studio.

If the electric light—arc lamp—is available, that will be very suitable for the illumination of the originals, as it is easy to arrange the rays from it in any direction to suit the subject. If the shadows appear too strong, they may be softened by moving the lamp a little more to the front, or by placing it at a rather greater distance from the object, so as to make the lighting less abrupt.

The best negatives of medals and the like are obtained with a

very full exposure, and a well-restrained developer, so as to get a vigorous image with full details. Backed plates, especially with silver objects, will greatly assist in this direction, and they should always be employed.

Usually a photograph of the obverse and the reverse of a medal is required in one picture. Obviously, they cannot both be taken at the same time; but, if the camera has a repeating back, they may both be done on the same plate by reversing the medal in its mount and then making a second exposure. In practice it will often be found more convenient to take two separate negatives, join them and print them on one piece of paper. The background is blocked out with black varnish; the two negatives are then cut down so that, when placed side by side, they are just the right distance apart. They are then arranged together on the glass of a printing-frame, and the edges secured to it with strips of gum paper. A slip of black paper is then stuck over the juncture, and all is then ready for printing from in the ordinary manner. Very frequently, when medals are required for advertising purposes, electrotypes are made from them, both of the obverse and the reverse sides. When that is done it is obvious that both sides can be photographed at one and the same time.

Photographing Old Coins, etc.

In the above notes we have been dealing more especially with what we have assumed to be comparatively new medals, but it may sometimes happen that ancient coins—gold, silver, or copper—have to be photographed, of which, by reason of their age and the wear they have had, but little of the original figuring can be seen. Here we come to a much more difficult work than the foregoing, for it may be that not only has the design and lettering become almost obliterated, but the surface of the coin is more or less oxidised in parts, while other portions are comparatively bright and reflective. With such subjects as these it is next to impossible to get presentable photographic reproductions. Yet very successful ones are seen in most of the works on numismatics. It may not be generally known, but it is a fact all the same, that these photographs are not taken direct from the coins themselves, but from plaster of Paris casts made from them. In this way is the difficulty got over. The plaster takes no heed of the colour of the coin or of its more or less bright or dead surface. In taking these casts, as a rule, the plaster of Paris is slightly tinted with a dark pigment, such as burnt sienna or umber, but only just sufficient to take off the glaring white of the plaster. When gold, silver, and copper coins are to figure in the same illustration, the plaster should be tinted accordingly—the copper the darkest, the gold a little lighter, and the silver lighter still. When this is done in making the casts the photographic reproduction will indicate to a great extent the difference between the three metals.

The plaster of Paris used for this work must be of the special kind used by modellers, as that sold at oil-shops is much too coarse for the purpose. Although the plaster casts aid the photographer very considerably, the lighting of them is still a most important matter, and it must be done on the same principle as described for photographing direct from the originals, or success will not be attained.

RHYMER COOK.

IMPERIAL INTERNATIONAL EXHIBITION, 1909.—Dallmeyer lenses and apparatus, which have been exhibited in the Machinery Hall, have been awarded a Commemorative Diploma. It will be remembered that at the Franco-British Exhibition, held last year, two grand prizes were awarded to Messrs. J. H. Dallmeyer, Ltd.

MICRO-CINEMATOGRAPHY.—According to newspaper reports, M. Jean Commandon, a young French savant, by combining an ultramicroscopic instrument with a cinematograph, and by running the latter at a speed slightly less than the normal, has been able to obtain photographs in which microbes so small as to be invisible to the eye in the ordinary microscope are seen moving in their natural surroundings.

THE R.P.S. AFFILIATION "CIRCULAR."

THE Executive Committee, which administers the affairs of the Affiliation of Photographic Societies, has commenced the issue of a "Monthly Circular," the first number of which, dated October, appears with 16 pages of text in a cover bearing four pages of advertisements. The contents of the "Circular" are an introductory article on "Our Aims and Objects": a review of the current "Red Book" particulars of Affiliation competitions: announcements of forthcoming society exhibitions: a list of the bookings of Affiliation lectures: an illustrated notice of Mr. J. C. S. Mummery, the first of a series on "The Men who do the Work": notes on society matters: a report of "Red-Book Night" at the R.P.S. Exhibition, and lastly, the "Photographer's Gazetteer," under which heading are given particulars (of places and districts) which are being accumulated under the "Consular" scheme of the Affiliation.

Members of Affiliated societies will naturally be interested in the announcement of the particular service which the "Circular" is to render. This we learn is the communication of "just that personal touch which would bring home to every society secretary the usefulness and importance of united action among the many societies of which we are composed." If this be so it would seem that the first "personal touch" is being deferred for No. 2 of the "Circular," since anything less personal than the "Circular's" announcements it would be difficult to imagine. And when all societies have been personally touched to such an extent that they realise this usefulness and importance, what, we wonder, is the contemplated "united action?" We hope nothing revolutionary hangs behind this dark saying. Not another "reform" of the R.P.S., or anything to strike a blow at the regulations for the admission of Fellows. It all sounds ominous and portentous of history in the making. However, anything may happen in succeeding issues, since (paragraph No. 3 of "Our Aims and Objects") "it is impossible at this time to forecast in detail the exact lines on which the 'Circular' will run, but broadly we may state that all matters of interest to secretaries . . . and indeed, all matters affecting purely society life will be dealt with."

These and other passages rather suggest that the "Circular" is for the reading of secretaries of Affiliated societies. The contents certainly sustain this view, but, on the other hand, the report that the "Circular" is issued to the number of 3,000 belies this charitable assumption—there are about 160 Affiliated societies. Assuming the correctness of the view that the Executive Committee proposes addressing itself to members, as well as to secretaries, thus creating fresh interest in its propaganda—an altogether admirable project—we may legitimately speculate as to the means adopted for bringing it into the hands of members. Apparently the method which is relied upon is that of distribution of the "Circular" at meetings of Affiliated societies, for although among the staff of "The British Journal of Photography" membership of Affiliated societies is represented to a total of six, no copy of the "Circular" reached through these "personal" channels. It would seem that some more direct mode of transit is needed to ensure that members, and particularly those to be stimulated by the "Circular," obtain it. It is probable, too, that the help of members of Affiliated societies would be more effectively enlisted were it more definitely explained in the "Circular" what form that help is to take, and to what end it is to be directed. Paragraph No. 7 of "Our Aims and Objects" returns to this theme, but not very illuminatingly when it says:—"The Executive feel that there is much promise of substantial usefulness in our effort, and rely on the various societies giving us every assistance they can to carry our project to a successful issue." They add (paragraph No. 9), in a last impassioned appeal which has again the better of grammatical construction, "All we need is the personal help of every member of an Affiliated society in making the 'Circular' well known, and assist us in making our scheme one of mutual helpfulness."

Supposing that this aim has been reached, and that every member of every Affiliated society is in possession of the "Circular," what will they find?

1. They will find a review or notice of the 1909-10 "Red Book" which was issued last May. As every member of an Affiliated society received, or should have received, the "Red Book" at the time of its publication, and as every person joining an Affiliated society since then should also have received one, it is difficult to see the relevance of this "notice." It would have been more to the point

had certain errors in the weights and measures section of the "Red Book," pointed out at the time in our pages, been notified for the benefit of those who do possess it.

2. They will learn that the 1908 Affiliation prints, with Mr. W. J. Morgan's criticisms, are still proving a popular society fixture: that only four entries were received for the Affiliation lecture competition, and that the lantern-slide competition secured 529 entries, representing 37 societies.

3. They will learn the rules for the 1909 prints competition.

4. They will see a list of forthcoming society exhibitions, but they will not be able to tell at which of these exhibits other than those by members are admitted. The list is stated to be one of open exhibitions "so far ascertainable," which phrase we presume implies that the societies have been applied to for the information. Therefore we are surprised to see that in a number of instances the particulars contradict those obtained from the societies by ourselves for insertion in the "British Journal Almanac." The Leicester and Leicestershire Photographic Society and the Windsor Camera Club write us positively that they will not hold an open exhibition, whilst the following societies, on being asked to give the date of their exhibition or the month in which it is usually held, providing only that it contains open classes, refrain from filling up this line in the entry form:—Photographic Society of Ireland, Acton Photographic Society, Maidstone Institute and Camera Club, Dover Institute Photographic Society, Hampstead Photographic Society, Sidcup Camera Club, Dukinfield Photographic Society. Yet all these societies are included in the "Circular's" list as those with open exhibitions "so far ascertainable," and in one instance, that of the Doncaster Camera Club, the date of the exhibition is given as November 16 to 19, and a little power down as "not yet fixed." While it may be debated whether an increase in the number of open-class exhibitions is desirable it is at any rate essential for the usefulness of such a list that it shall draw a distinction between those confined to members only and those with open classes.

5. They will learn the bookings for the Affiliation lectures, and thus obtain useful guidance as to the choice open among the very excellent series of illustrated lantern lectures. Secretaries of societies would therefore make a note of this list on pages 6 and 7 of the "Circular."

6. They will see a view of the R.P.S. Exhibition taken from "The Amateur Photographer." Surely it is not suggested that in the "Circular" this reproduction will come before the eyes of any who have not seen it in our contemporary.

7. They will see a "notice" or "character sketch" of Mr. J. C. Mummery. Perhaps we can best describe it as an "appreciation" from the social standpoint of the popular president of the Royal Photographic Society, somewhat in the manner of the paragraphs dealt with to social lions by "Modern Society." This article is supposed to be No. 1 of a series "dealing month by month with an individual society, its method of work as regards programme, exhibition, outings, and other interesting particulars, and we open this phase of our work by a short sketch of our genial R.P.S. president, Mr. J. C. S. Mummery." (Paragraph No 5 of "Our Aims and Objects.") Somehow we feel we would rather have had Mr. Mummery's views on society politics than the unknown writer's supererogatory compliments. Mr. C. F. Inston is to be the subject for No. 2 of the "Circular." The latter will be worth getting if C. F. I. can communicate the secret of the success of the L.A.P.A.

8. They will have their attention called to the tasteful hanging of the R.P.S. Exhibition, to Mr Hall-Edwards' scheme for an exhibition of technical photography, and to the transference of open-class exhibits from one society to another.

9. They will see a report of the Affiliation night at the R.P.S. Club on the occasion of Mr. W. R. Bland's refreshing criticisms of the Affiliation prize lantern-slides, and

10. They will learn that the compilation of the "Photographers' Getteer," made possible by the Affiliation "Consular" scheme, "is making distinct progress." It is now stated that the notes (on places and districts) contained in the "Red Book" is a "very brief summary" of the information placed in the possession of the "Chief Consul," Mr. C. F. Oakden, by the 81 "Consuls." We have, on a previous occasion, expressed our view of this "Consular" scheme, participation in which is certainly a tribute to the generosity of the 81 Consuls if not to their discretion.

Those who, like ourselves, have watched with interest the valu-

able work done by the Affiliation of Photographic Societies desire to know our view of the newly issued "Circular," let us say that we appreciate as much as anyone the value which certain portions of it have for the secretary of any society, Affiliated or not. We must admit that this valuable matter is not a large proportion of the whole, and we think it might quite well appear in the monthly "Photographic Journal" of the Royal Photographic Society, where it would be assured of being brought before every secretary of Affiliated societies with almost clockwork regularity. If the "Circular" is intended, however, for individual members of societies, then we think it essential that it should be brought directly into their hands either from the headquarters of the Affiliation or through the local secretary, irrespective of the members' attendance at the meetings. Apparently the haphazard method of distribution which is relied upon will not at a favourable estimate bring the "Circular" into the hands of more than half the membership of Affiliated societies. In journalism, not to say in the advertising business, a sound motto is that a public does not appreciate what it gets for nothing. That is, we believe, a principle which is the basis of every successful publication, and we would commend to the Executive of the Affiliation the question of making a charge for their publication. They would thus reap the two-fold benefit that the issue would be upon a better financial basis, and that every copy sold would be evidence of a reader who at any rate had given practical manifestation of his interest in the "Circular" by buying it.

OF HYPERFOCAL DISTANCE.

"The reader is told how to calculate the hyperfocal distance."—
Extract from a review of "The Red Book."

I PONDER as I lie in bed
At early morn and evening late,
With wearying insistence,
On all that I have ever read,
That tells one how to calculate
The hyperfocal distance.

My mind with chemistry is fed;
Of art and optics I could prate
For hours with proud persistence;
But on one point my brain is dead.
In vain I pore and cogitate
On hyperfocal distance.

I throw it off; but back am led
To sterile thoughts, with aching pate.
The point still makes resistance.
Aloud I cry that hope is fled,
There is no way to calculate
The hyperfocal distance!

But, lo! a little book of Red!
Societies Affiliated
Do give it its existence.
Its pages through are quickly sped.
Hope doth my bosom agitate
For hyperfocal distance.

Ah! Joy! O Dr. Evershed!
Who at a certain page doth state
(Without expert assistance)
In nutshell neat the question dread.
And clearly doth illuminate
The hyperfocal distance.

ROYAL INSTITUTION.—The 84th Christmas Course of Juvenile Lectures, founded at the Royal Institution in 1826 by Michael Faraday, will be delivered this year by Mr. William Duddell, F.R.S., his subject being "Modern Electricity." The Course, which will be experimentally illustrated, commences on Tuesday, December 28, at three o'clock, and will be continued on December 30, 1909, January 1, 4, 6, and 8, 1910.

A DEVICE FOR EMPTYING LOW-LEVEL WASHING TANKS.

A WRITER in the "Scientific American" describes an attachment for a tap supplying water from a company's mains, whereby water lying in tanks, etc., may be drawn off. By providing a simple form of ejector at the tap and connecting one inlet of the ejector to a short piece of hose leading to the sink, the water may be very easily drawn out of the tank into the sink, even though the latter be at a higher elevation. In the accompanying sketch, there is shown a simple contrivance of this character, in which the ejector is formed of a block of wood adapted to be detachably secured to the tap. The ejector includes two passages intersecting at an angle and having a common outlet as shown in section in

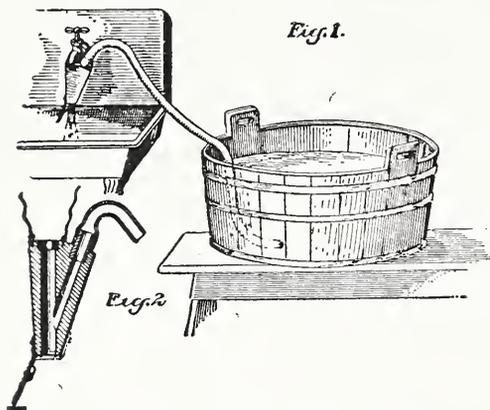


Fig. 2. One of these passages receives a stream of water under pressure from the tap, and the escape of this water from the lower end of the ejector tends to draw water out of the tank through the hose and to deliver the latter to the sink.

The same device may be used for refilling the tank. To secure this object, it is merely necessary to close the lower end of the ejector with a plug or in any other suitable manner. As shown, a short rubber plug is connected to a strap tacked to one side of the block. By inserting the plug within the open lower end of the passage and securing the free end of the strap to a button on the opposite side of the block, as shown in dotted lines, the water will be caused to flow from the tap down through one passage and up through the other to the hose and thence to the washing-tank.

Exhibitions.

FOLKESTONE CAMERA CLUB.

THE first exhibition to be held by this society was open to the public on October 27 and 28, and achieved a degree of success which is highly creditable to the society which started its career only a few months ago and has rapidly risen to a membership of over seventy. For a large part of this success credit must be given to the hon. secretary, Mr. G. C. Sheaff, and the assistant hon. secretary, Mr. Hamilton Smith. The Rev. F. C. Lambert, acting as judge, made the following awards:—

The Mayor's silver cup, for best picture in the exhibition.—G. W. Perkins.

Club's silver plaque, for second best picture in the exhibition.—Hamilton Smith.

Class A—Landscape and Seascape.—G. W. Perkins, silver plaque; Hamilton Smith, bronze plaque; G. Lewis, diploma; J. H. Lewes, diploma; F. C. Skidmore, diploma; H. F. Jackson, diploma.

Class B—Architectural.—T. Hesketh, bronze plaque; G. H. Sheaff, diploma; Hamilton Smith, diploma; G. W. Perkins, diploma; M. R. Hornsby, commended.

Class C—Portrait and Figure Studies.—G. W. Perkins, silver plaque; Hamilton Smith, bronze plaque; G. H. Sheaff, diploma; Hamilton Smith, diploma; Miss Ivy Weston, diploma; C. Clark, commended; C. R. Ogden, commended.

Class D—Still Life and Animal Studies.—C. Clark, bronze plaque; Hamilton Smith, diploma; G. W. Perkins, diploma; M. R. Hornsby, diploma; G. H. Sheaff, commended; C. Clark, commended.

Class E—Lantern Slides.—G. W. Perkins, silver plaque; F. C.

Curtis, bronze plaque; H. R. Hornsby, diploma; Hamilton Smith, diploma awarded for special printing border on slide.

Class G (Beginners' class)—Any subject.—G. H. Sheaff and J. H. Lewes, 1st prize; P. W. Knowles, 3rd prize; G. H. Sheaff, diploma; M. R. Hornsby, diploma; M. R. Hornsby, commended; L. W. Browne, commended; E. Fullagar, commended; P. W. Knowles, commended.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents have been received between October 18 to October 23:—

PRINT WASHERS.—No. 23,853. Improvements in device for washing prints and the like. Washington George Rounds, 111, Hatton Garden, London.

NEGATIVES.—No. 24,029. Improvements in process for producing photographic negatives by means of mechanically constructed figures for use as prints. Georg Friedrich Luticke, 49, Burlington Avenue, Kew, Surrey.

CINEMATOGRAPH AUDIENCES.—No. 24,070. Means for regulating the admission and retiral of cinematograph audiences. John Alexander Colquhoun, 45, Station Road, Brixton, London.

DAYLIGHT DEVELOPMENT.—No. 24,085. Improvements in daylight photographic developing tanks and the like. Rodolpho Luchsinger Caballero, 60, Queen Victoria Street, London.

CAMERA.—No. 24,337. Camera fitted with a revolving front, carrying a lens and shutter. Sidney Newman Sedgwick, St. Mary's, Bishopstoke, Hants.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

CINEMATOGRAPHY IN COLOURS.—No. 5,945, 1909 (March 12, 1899).

The invention refers to patents in this direction of Lee and Turner (No. 6,202, 1899), Davidson (No. 23,863, 1899), Jumeaux and Davidson (No. 3,729, 1903), Davidson (No. 27,418, 1904), Pfenninge (No. 322, 1905), Smith (No. 26,671, 1906), and Davidson (No. 453, 1908). In the present invention colour discs are used in place of ordinary colour filters or colour screens, each colour disc revolving on its centric or eccentric axis, generally side by side and partly overlapping each other; but the colour discs can also be superposed on one axis and so revolved on one axis, and, whichever way the colour discs are then revolved, they will filter the light as required by the additive method of colour photography, and so provide new means for taking and exhibiting cinematograph pictures, by a two-colour system, by an intermediary system between a two- and three-colour system, and also by a three-colour system.

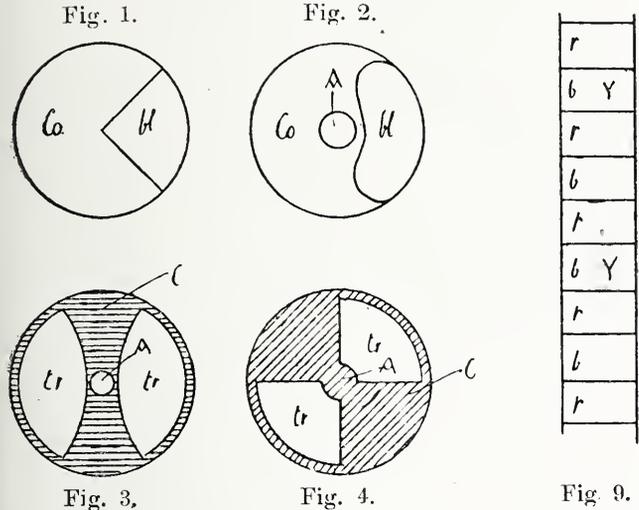
Figs. 1 and 2 represent the new colour disc, which is at the same time a colour filter. Each disc can hold one or several colour filters but in a general way a disc is formed so that it holds only one colour-filter. The disc is of any suitable material, but glass seen a good support for the colour-filter. One-third to one-fourth (*bl*), more or less, of this disc is generally blank (perfectly transparent) and in that case, when the disc holds only one colour-filter, the blank can be formed by cutting away. The colour-disc is therefore formed by a coloured part, *co* and another part *bl*, which latter is generally blank, but can also be coloured, and (if *bl* coloured) is then of a different shade to the main or principal colour on the part *co*. This colour disc may have an opening at *A*, that it can be attached to a revolving axis. The disc can be fitted into a casing best suited for certain requirements.

Two or more such colour discs, each of a different colour, are the components of the present invention for cinematography in colour by the additive method of colour photography. To a two-colour system, a system of intermediary colour-changing movement, shown in Fig. 7, can be added. The colour disc can be adapted to a colour movement, in which the colour discs are revolved on one or on several axes. If three different colour-discs are revolved

one axis or on several axes for the purpose of a scientifically correct three-colour system, then the blank spaces and the coloured spaces of each colour-disc have to be specially arranged or spaced to suit that purpose.

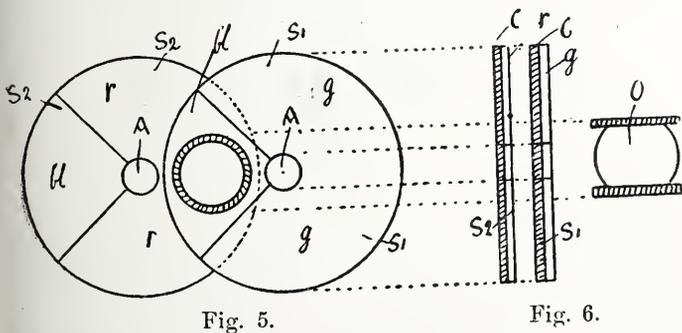
Figs. 3 and 4 show the forms of casings; other forms suggest themselves; *tr* is open or cut out, and *C* is open or solid, *A* is the place where the fixing to the revolving axis may take place.

Figs. 5 (front view) and 6 (side view) show how one can place two circular colour discs in front or at the back of a lens, *O*, disc



S 1 being of green, blue-green, or blue colour (*g*), and disc *S* 2 of red, orange-red, or orange colour (*r*).

Figs. 5 and 6 are repeated in Figs. 7 and 8, with the addition of an eccentric disc *S* 3. This disc *S* 3 is also a colour-disc. Actually it is part of a circular disc, and one can therefore also use a circularly shaped disc in its place; this disc is wholly or partly coloured, say in yellow, or any other colour desirable. The colouring of this disc may be homogeneous, or grating-like, or broken up mosaic-like, to suit the purpose, all in one colour or more than one colour. This third colour-disc does not necessarily revolve with the same rapidity as the other two discs, but can be made to revolve, with or without a casing, so that the other discs are overlapped by it at intervals and in such a manner that the succes-



sive exposures will be influenced, as shown in Fig. 9 or in any similar way.

In Fig. 5 the two colour-discs have the blank space (*bl*) towards the left side. In that case "red" of the disc *S* 2 will be shown in the light cone of the lens *O*. If now we revolve the two discs so that blank (*bl*) is at the top, as shown in Fig. 7, we shall find "red" of disc *S* 2, and "green" of the disc *S* 1, superposed together over the lens *O*. Red and green together form what the colour photographer calls a safe light; by these two colour filters the actinic light is prevented passing. These two-colour filters act, therefore, together precisely the same as an opaque shutter. The third turning movement will show the colour filtering to be that opposite to the one shown in Fig. 5, therefore "green" of the disc *S* 1 will be made to act as light filter to the light cone at *O*. And in the fourth revolving movement, when the blanks (*bl*) are opposite to that shown in Fig. 7, another safe-light, formed by red and green, will be before the focal plane of *O*. The next turning movements are simply a repetition of the above four movements of light-filters and safe-lights acting in succession. Instead of revolving the discs in the same direction, both to the left side or

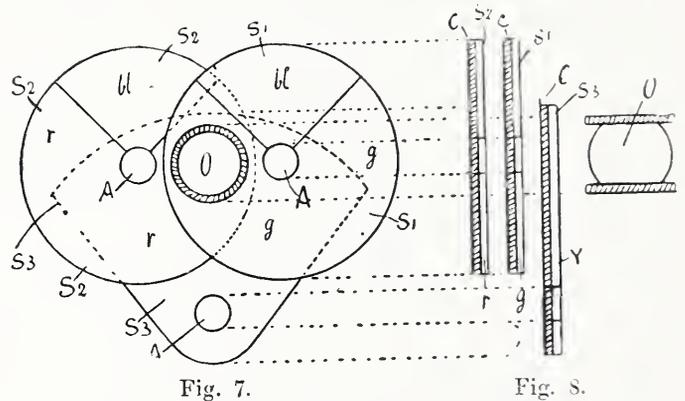
both to the right side, the discs can also be revolved towards each other, one to the left side and one to the right side—the result is exactly the same, or the two discs can be mounted together on one axis, but so that a green space is opposite a red space, and so that both coloured spaces are separated by safe-light.

Generally speaking, if now the third colour-disc *S* 3, which we can suppose to be coloured yellow, passes at intervals through the light cone formed by *O*, when red or blue, or when the colours used in disc *S* 1 and disc *S* 2 are separately over the focal plane, or behind or in front of lens *O*, then red will be coloured to the filter colour orange-red, and blue to blue-green respectively.

To effect the exposures through the discs holding the different colour filters, the mechanical movement can be so arranged that the colour-discs are revolved continually, and then the change of film in the focal plane takes place when the safe-lights are interposed into the light cone; or, the mechanical movement can be so arranged that the colour-discs are wholly or partly stationary during the exposure, but the film in the focal plane and also the colour-discs are moved on when an auxiliary shutter is interposed into the light cone.

By adding a supplementary colour-disc to other two-colour cinematograph apparatus and applying this supplementary colour-disc similar to the disc *S* 2 or *S* 3, one is obviously in a position to improve the respective method.

Two of the colour-discs (say a red and a green disc) can also be fitted, and revolved together on the same axis in such a way that



they act as one shutter, holding two colour-filters and two safe-lights, instead of two colour-filters and two opaque metal spaces. Two of the colour-discs can also be fitted together in such a way that they resemble one colour disc or resemble one colour disc bound up with one transparent cover disc.

With the apparatus in conjunction with a cinematograph camera one is able to take the negative-colour-records for cinematography in colours. Positives printed from negatives thus obtained are projected by a projecting apparatus, to which the apparatus has been fitted, the light-action operating the reverse way. It is taken for granted that the cinematograph operator places behind the colour-discs the right colour records, when we shall have cinematography in colours, and if not in absolute colours of nature, we shall, nevertheless, have a fairly true representation of the objects photographed in their original colours. Otto Pfenninger, 105, Hythe Road, Brighton.

The following complete specification, etc., is open to public inspection, before acceptance, under the Patents Act, 1901:—

DAYLIGHT DEVELOPMENT.—No. 24,088. Daylight photographic developing tanks and the like. Luchsinger Caballero.

New Trade Names.

RADIUM.—No. 316,015. Photographic plates and photographic films (undeveloped). Isidore Bernard Davidson. Marlborough House, Basterfield Street, Golden Lane, London, E.C. Fine art publisher. September 1, 1909.

DEVULES.—No. 316,415. Chemical substances used in photographic development. Oppenheimer, Son. and Co., Ltd., 179, Queen Victoria Street, London, E.C., manufacturing chemists. September 18, 1909.

MEGOMO.—No. 316,555. Chemical substances used in manufactures.

photography, philosophical research and anti-corrosives. Nobles and Hoare, 3, Cornwall Road; Stamford Street, London, S.E., varnish and japan manufacturers. September 24, 1909.

Analecta.

Extracts from our weekly and monthly contemporaries.

Silhouettes as Decorative Greeting Cards.

No special photographic procedure is necessary for making silhouette pictures (writes E. W. Jackson in the "Photographic Monthly"). They may be made, in fact, in any ordinary room, by simply photographing the objects against the light, but for best obtainable results we may go to a little more trouble and proceed as follows:—First, procure an old packing-case, such as an empty sugar-box, and knock out the top and bottom. Over one end fasten a sheet of white tissue paper, next place the box on a table near a window with the tissue-paper background towards the window so as to get a good amount of strong and even light. A window facing north is to be preferred, but if the sun does not actually shine on the tissue-paper screen this is not essential. The camera is now placed at the other end of the box, the lens, of course, pointing inside, and the apparatus is complete and ready for use. The flowers, leaves, or whatever we are photographing should usually be placed about half-way inside the box, but if a slight amount of grey tone is desired in the picture (and this is thought by some to be a relief from a large amount of featureless black) the objects may be placed close to the tissue-paper background, or a slightly longer exposure will give a similar result. An opaque cloth may be thrown over the front of the camera, extending to the box; this is to prevent any light entering the lens which does not first come through the tissue-paper screen. A few trials will soon enable one to determine what objects are suitable for this class of photography.

A Reversing Hood for Reflex Cameras.

In some notes on reflex cameras in "Photography and Focus" for November 2, a writer advocates a revolving hood on a reflex camera:—"Figure study work makes one wish that the hood were reversible. We have reversing and revolving camera backs, some of which cannot be brought into use when the plate is ready for action. It seems to me that a reversing hood would often be as great a boon, and should not be difficult or costly. The reflex then could easier be used pointing across the body; and its use, owing to the photographer not facing his model, would not be so perceptible. It could be used at 'eye-level' (also pointing sidewise). The hood could often be revolved when one had not time to close the dark slide, and turn the reversing or revolving back, and this would sometimes make for quicker work. The hood could be used also when the camera was being brought into use as a stand instrument, allowing the plate to be kept ready for instant exposure. Lastly, a revolving hood, fitted to an old-fashioned non-reversing back reflex, would make it, for most purposes, the equal of the latest."

New Materials. &c.

Gevaert Gaslight Paper. Made by Gevaert, Ltd., 26 and 27, Farringdon Street, London, E.C.

A further member of the series of papers manufactured at the Gevaert factory, and now being actively marketed in this country, reaches us in the shape of the gaslight paper known among Continental users of the Gevaert products as "Ridax." In offering a gaslight printing medium to British workers the company have evidently recognised the widespread use which is made of this medium among both amateur and professional workers. The former usually require a paper which gives an enhanced degree of contrast, inasmuch as many negatives are too lacking in contrast to give a really good print on bromide. For such negatives the "Normal" grade of the paper is the one which we would recommend, since it affords a degree of vigour and contrast which certainly in our experience of it makes the very best of a negative which is itself lacking in these qualities. For those, however, who adopt a gaslight paper not primarily from

this motive, but for its ease in manipulation, the "Special" grade is preferable on account of the softer results obtained with it and is the variety which those making a thoroughly good negative will probably elect to use, particularly for portrait and group subjects. Both papers are issued in a variety of surfaces and thicknesses, of which the standard may be taken as the "Thin Matt Smooth" (designated as A), the "Cream Tinted Rough and Smooth" (F and H), and the "Semi-glossy" or "Carbon Surface" (K). The four other varieties, namely, the "Thin Matt Rough" (B), the "Thin Glossy Mauve" (C), the thick or card papers—matt, glossy, and semi-glossy—(D), the "Special Rough White" (E), and the "Cream Special Rough" (G), are the remaining variants of the paper, the qualities of which may be frequently utilised to advantage although, for the generality of work, we believe that the A, F, H, and K should prove amply sufficient. In all instances the paper develops very quickly to a fine black colour in the customary metol-hydroquinone developer, which is that which we used for our trial of the papers submitted to us.

There is one further characteristic of the Gevaert emulsions which will specially appeal to both amateur and professional workers, namely, the production of warm-black to brown tones by means of a diluted developer of the ordinary formula, or preferably a glycin formula made up with the well-known paste prepared according to the method of von Hübl. This preparation, which is very readily made up, keeps for an indefinite time, and is diluted in the proportion of $\frac{1}{2}$ oz. to 15 ozs. of water to make the working developer. For success in obtaining these warm tones by direct development a negative of good contrast is a *sine qua non*, and the warmth of tone may then be adjusted within wide limits by giving a longer time of exposure and a greater or less dilution of the developer. In the case of the above glycin formula it is stated that with the standard dilution mentioned above the exposure only may be varied and a series of warm tones obtained with one and the same solution. In our experience, however, we found it advisable to increase the dilution with the exposure and to add further bromide. In this respect, as well as for its normal qualities of fine colour of image and excellent gradation, the Gevaert paper will repay a trial by those who adopt the gaslight method of printing, or whose business it is to place a paper of reliable quality in the hands of amateur workers. The paper is supplied in packets of cut sizes, in rolls of 12, 25, and 40 inches width, and in gross boxes, all at the standard prices.

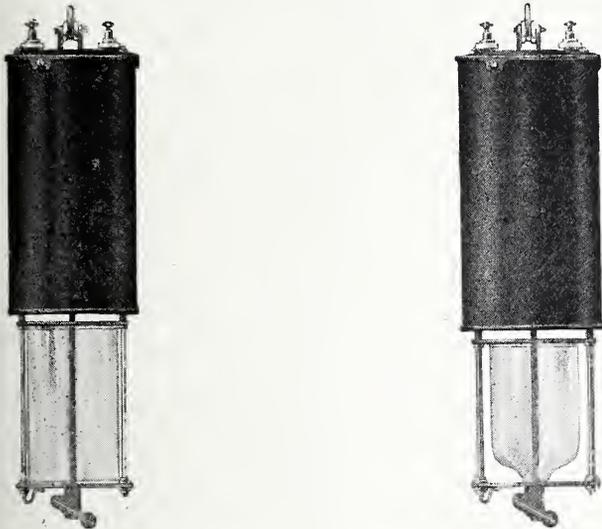
New Apparatus, &c.

The Ensign Arc-Lamp. Sold by Houghtons Limited, 88-89, High Holborn, London, W.C.

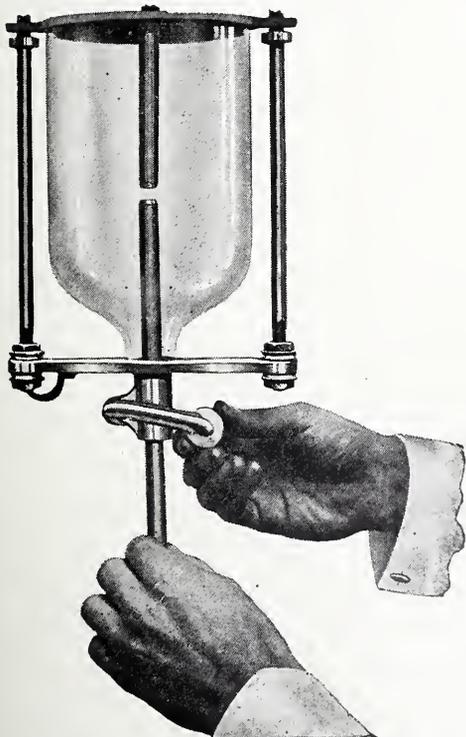
In the most readable presentation of the use of artificial light in the studio, which Messrs. Houghton have just issued under the title "Light in the Studio," they insist on the absolute commercial necessity of the means of taking photographic portraits at any time of day or night and regardless of the weather. That topic, as our readers know, is one which we have many times emphasised in the past, and one, too, which we on one occasion have illustrated by an exhibitio at these offices showing the remarkably excellent portraiture turned out by artificial light. Of late, portraiture by artificial light, and particularly by arc-light, has become so much more general that there is no need to say "remarkably." For all ordinary purposes of professional photography arc-light has proved a perfect substitute for daylight, and at the same time one which is now not an expensive luxury, but within the means of even the small photographer, who by its aid, is enabled to meet a form of competition which is largely based on the ability to take a portrait at any time. Messrs. Houghtons point out the commercial advantage of the arc with almost poignant insistence, but there is not a passage in their argument with which we are not in absolute agreement, for which reason we recommend every professional photographer who is not now a user of arc-light to apply for a copy and consider for himself if his own business may not count upon immense improvement by aid of the modern method of studio lighting. The booklet, to be sure, is issued in reference to a new arc-lamp which Messrs. Houghtons are just issuing, but is none the worse for that, since the arc is a very good

ne and deserves the confidence which the vendors justly claim should be reposed in it as a bringer and improver of business.

The "Ensign" arc-lamp, we must explain, is of the enclosed or violet type, producing a light very rich in ultra-violet rays, and therefore possessing a photographic intensity which is very much greater than would be judged from the brightness to the eyes. Intensity of action on the photographic plate is, of course, the chief essential in a lamp for studio portraiture and printing of negatives, since upon it hinges the question of short exposures. But it is not



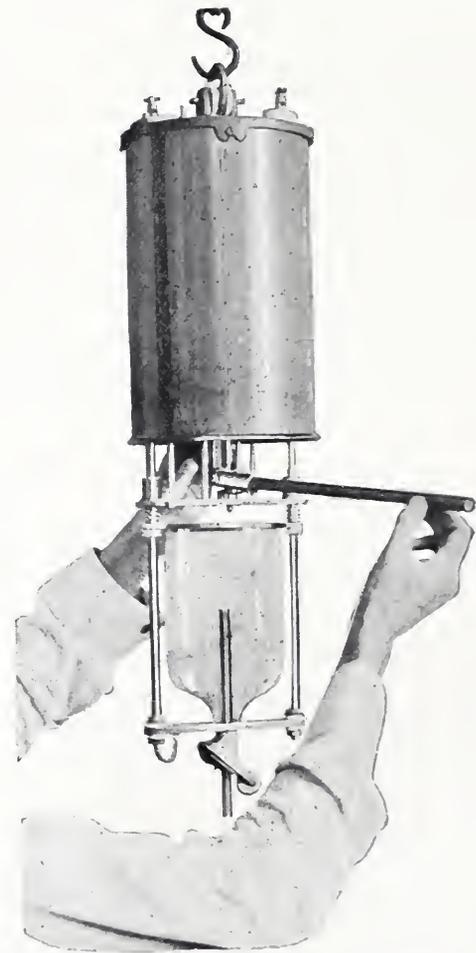
the only factor in the making of an efficient arc-lamp. A second and almost equal qualification is handiness, rapidity of handling, and convenience in use, since upon these depend the speed with which the photographer may bring the light into the most perfect working condition. In this respect, too, the Ensign lamp represents the height of efficiency. As the two first illustrations show, it is made in two patterns—A, with a metal base, and B, with a clear glass chimney-shaped base for the arc chamber. In each pattern the device



changing the carbons and adjusting for combustion of the latter one which is most rapidly employed. The two second drawings show the manipulation which is necessary. When altering the position of the lower carbon or removing this latter altogether, the lever is only to be depressed, when the carbon is at once released. In the case of the upper carbon, the latter is inserted into its holder, as shown in the fourth drawing, and then at once placed in position above the glass chamber. The necessary compensation for combus-

tion is made with the lower carbon, and is done without waiting for the lamp to cool, so that time is not wasted in bringing the lamp just right for working. In thus adopting this very simple hand adjustment the makers have secured freedom from complication of parts, whilst they have sacrificed nothing in the way of ready and rapid working. The lamp is made in three sizes, taking 10, 12, and 14 amperes respectively, each size being made in both A and B patterns, and also for continuous or alternating current. The prices are from £4 15s. to £7 10s. complete, including a variable resistance by which the power of the light may be still further intensified quite conveniently immediately before the exposure.

We should be only misleading any reader who is unacquainted with arc-light portraiture if we were to let him suppose that he has but to hang an arc of this kind in his studio, and, hey presto! he is prepared to make satisfactory portraits. Without what Mr. Samuel Weller would doubtless have described as the "usual trimmings," the arc-lamp is a bad light for portraiture. The light needs diffusion by breaking up or de-concentrating by both reflection and passing through a diffusing screen, that is to say, the outfit of the user should include both an umbrella reflector and diffusing screen suitably attached to the lamp. These very necessary accessories are sup-



plied by Messrs. Houghtons specially for use with the "Ensign" arc. We may, therefore, put down as a model outfit the following apparatus:—

	£	s.	d.
1 lamp, say medium size, continuous current.....	5	5	0
1 tripod support for lamp	2	7	6
1 umbrella reflector	3	10	0
1 diffusing screen to fit on arc-lamp	0	7	6
1 metal shield to cut off all direct light from arc...	0	5	0

£11 15 0

Thus for the sum of £11 15s. the worker obtains an equipment which suffices for a very large proportion of the regular work of a portrait studio. If he does not himself fit up the reflector, he may purchase a stand for the latter, complete with cords, pulleys, and castors, allowing of it being readily moved about the studio, for an additional £2 5s., whilst when using the lamp for printing purposes

a framework rotating on ball bearings and accommodating eighteen whole-plate and 36 half-plate printing frames will cost him £3.3s., say less than £20 in all. The last-named appliance is a particularly labour-saving piece of apparatus, since it gives to the printer the same speed and certainty in his work as it does to the operator in his, and, where a business feels it necessary to restrict its purchase to one lamp only, serves equally well for both purposes. But we have said enough, we hope, to justify our recommendation of application to Messrs. Houghton for their booklet "Light in the Studio."

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, NOVEMBER 5.

Clapham Carlton Camera Club. "Large Prints from Small Negatives." W. F. Slater.
Sutton Photographic Club. "Architectural Photography." A. P. Hoole.
Glasgow Eastern Photographic Association. "Ensyna." F. J. Stedman.
Cowla's Co-operative Society. "Autotype Carbon." Demonstration.

SATURDAY, NOVEMBER 6.

St. Peter's School of Natural History, York. Photographic Society. "Sports and Pastimes with the Goerz-Anschutz Folding Camera."

MONDAY, NOVEMBER 8.

Walsall Photographic Society. "Large Prints from Small Negatives." W. F. Slater.
Equitable Photographic Society. "Modern Photographic Apparatus and Exhibition of T. P. Prize Slides." R. Hesketh.
City of London and Cripplegate Photographic Society. "Flashlight Photography." F. C. Hart.
Marylebone Camera Club. "A Trip through South Devon." E. Markwell.
Leek Photographic Society. "Photographic Facts and Fallacies." T. W. Hawksworth.
South London Photographic Society. Jumble Sale.
Derby Photographic Society. "The Carbon Process." T. A. Scotton.
Southampton Camera Club. The Affiliated Societies' Prize Slides.
Dewsbury Photographic Society. "Autotype Carbon." Demonstration.
Kidderminster and District Photographic Society. "Autotype Carbon." Demonstration.
Larkhall Camera Club. "Autotype Carbon." Demonstration.

TUESDAY, NOVEMBER 9.

Royal Photographic Society. The Presidential Address. "The Influence of Painting upon Photography."
Halifax Camera Club. "Modern Photographic Apparatus and Exhibition of T. P. Prize Slides." R. Hesketh.
Glasgow Southern Photographic Association. "Ensyna." F. J. Stedman.
Widnes Photographic Society. "What Can be Done with a Hand Camera." C. P. Goerz, Ltd.
Glossop Dale Photographic Society. "Large Prints from Small Negatives." W. F. Slater.
Worthing Camera Club. "Round about Glasgow and Edinburgh." J. G. Potter.
Manchester Amateur Photographic Society. Members' Slides.
Leeds Photographic Society. "Collections and Recollections of the Land o' Cakes and Plump Spates." Thos. E. Green.
Govan Camera Club. "Autotype Carbon." Demonstration.
Wath and District Photographic Society. "Autotype Carbon." Demonstration.
Keighley and District Photographic Society. "Autotype Carbon." Demonstration.

WEDNESDAY, NOVEMBER 10.

Manchester Amateur Photographic Society. "The Romance of Architecture." James Shaw.
Crompton Camera Club. "Large Prints from Small Negatives." W. F. Slater.
Rochdale Amateur Photographic Society. "Modern Photographic Apparatus and Exhibition of T. P. Prize Slides." R. Hesketh.
Balham Photographic Society. "Ensyna." F. Marshall.
Edinburgh Photographic Society. Lantern Section, Members' Slides. "British Architecture—Early English Gothic." R. Berry.
Croydon Camera Club. "Telephoto Work." Ernest Marriage.
Borough Polytechnic Photographic Society. "Bromide Enlarging." P. Carden.
North Middlesex Photographic Society. "Some Old Towns in Normandy and Brittany." Chas. H. E. West.
Sale Photographic Society. Print Criticisms.
Stoke Photographic Society. "Autotype Carbon." Demonstration.

THURSDAY, NOVEMBER 11.

L.C.C. School, Bolt Court, E.C. "Art in Relation to Commerce." Will Rothenstein.
Longton and District Photographic Society. "Autochromes and Lantern Display." W. Partridge.
Dover Photographic Society. "Dutch Slides." A. E. Staley & Co.
Watford Camera Club. R.P.S. (Affiliated) Slides, 1909.
Handsworth Photographic Society. "Photography by Artificial Light." J. W. Baker and E. G. Collins.
Liverpool Amateur Photographic Association. "The Thames Valley." J. McIntosh.
Queen's Park (Glasgow) Photographic Society. "Ensyna." F. J. Stedman.
Brighouse Photographic Society. "Modern Photographic Apparatus and Exhibition of T. P. Prize Slides." R. Hesketh.
Bolton Camera Club. "Large Prints from Small Negatives." W. F. Slater.
Weybridge and District Photographic Society. "Autotype Carbon." Demonstration.

Commercial & Legal Intelligence.

AMENITIES OF A BRIGHTON STUDIO.—Djornette Plummer, of Brighton, was summoned at Brighton Police Court last week for using threats towards Benns Piltin, 5, Brighton Place, a photographer, on October 22.

The Magistrates on the Bench were the Mayor (Alderman Slingsby Roberts) in the chair, Alderman Colbourne, Mr. Horton-Stephens, Councillor Mellor, and Alderman Sendall.

Mr. E. M. Marx appeared for the complainant.

Complainant, a native of Finland, stated that on October 13 he settled terms with defendant as to a dispute about his situation, and it was agreed that witness should work for him for six months at 30s. a week. The first day after the settlement defendant used abusive language to witness and threatened him. On Saturday week defendant said to him, "If you wish to be healthy go away or I will make you ill." He also said, "I shall press you so long until you fall ill, and then you will have to leave." On Friday defendant sent witness to King's Road for a camera, and when witness asked him what camera it was he wanted, he abused witness and ran after him. He was in such a hot temper that witness believed he would have knocked him down if he had not gone away. Later in the day defendant called him opprobrious names in German, and taking up his walking-stick and putting it against his face, said, "If you say one word I'll smash your head in pieces." It was the stick produced, and witness believed it was loaded, adding, "If he struck me on the forehead with that I am sure I should not have come up any more." Defendant was hot-tempered, and witness was afraid of him.

Defendant, who is a man of colour, was cross-examining with the view of showing that complainant did not come to work at the time appointed on the 13th, and that he had to remonstrate with him, when the Mayor intervened to point out to him that all he need deal with were the threats alleged to have been used by him on October 22.

Replying to defendant, complainant denied that when sent for the camera he stood arguing about it and refused to do as he was told instead of fetching it as soon as possible because defendant had a train to catch. Complainant admitted that he was told to stay at the back of the premises and not go into the shop; and asked about occasions when he was in the shop, complainant said he did not go to the back "lest defendant should kill him."

Charles Cyril Mather, who attended on subpoena, said that on the Friday he was working for defendant as manager and saw defendant raise his stick, put it up to complainant's face, and threaten to smash his face, saying, "If you value your face and your place be quiet or I will smash your face."

Cross-examined, he said he had had orders given to complainant to stop in the back, but he did not always stay there. Defendant was seldom at the shop, but they never knew when he was coming.

Answering other questions by defendant, witness said in opinion complainant had something to fear.

Defendant: Why had he something to fear?

Witness: You gave me instructions when he started that I was to "give him hell and work him to death."

What did you say to that?—I laughed.

Answering Mr. Marx, witness said the place at the back was an old workshop, and not fit for anyone to stay in.

In defence, defendant went into the witness-box and said he had several photographic businesses, and on this day sent complainant from the West Street shop to the King's Road shop for a camera. He had first to complain that he was in the shop instead of at the back. Instead of going for the camera at once, complainant argued about it for some time. After he had brought it he "told me back again." Witness was catching a train, and had his coat and stick in his hand, but he denied raising his stick or threatening him in any way.

Cross-examined, he said all he told Mather was that complainant was to do what work he wanted. He denied using the words Mather had alleged, or that he told complainant he had better go away if he wanted to be healthy. As to the place in which defendant was told to work being unsuitable, the premises had only been tenanted temporarily.

After giving evidence, defendant also addressed the Bench, and

at complainant's object in these and other proceedings had been dictate to witness, so that he could do as he pleased instead of obeying witness's orders.

Defendant was bound over in the sum of £10 to keep the peace for six months, and ordered to pay £2 14s. costs (including an advocate's fee) or fourteen days.

AN INVENTOR'S AFFAIRS.—Loss by experiments in connection with patent rotary washing photographic machine was one of the causes ascribed for the failure of George Simper, trading as Mudge and Simper at 10, West Street, Southampton, tin-plate worker. The gross liabilities were put at £601, and the assets at £170. At the first meeting of creditors on October 27, the matter was left in the hands of the Official Receiver.

News and Notes.

MR. SNOWDEN WARD'S LECTURES.—The full prospectus of these lectures on the "Marvels of Photography," "The Humour and Pathos of Dickens," "Shakespeare at Home," and "The Canterbury Pilgrimages," is now obtainable from Mr. Ward, at Hadlow, Kent. Correspondents in America, where Mr. Ward will lecture during the first few months of next year, should address inquiries to 122, East Twenty-fifth Street, New York, U.S.A. The themes of the lectures, it will be seen, are intimately linked with some of the most absorbing phases of English history and English literature, and in each instance the lecturer and his wife stand unrivalled regards the photographic illustrations which they have acquired. Mr. Ward has also prepared an evening of science entertainment (with photography as its subject), into which he introduces a large proportion of demonstration. Mr. Ward speaks from a wide first-hand knowledge of his subjects, and his lectures, both literary and semi-technical, represent the happiest union of personal research and licentious expression.

A STUDIO WARDROBE.—"What do you use that lace curtain for?" asked a visitor in a photograph gallery.

"That isn't a curtain," said the photographer, as he folded up the coarse length of cheap lace; "that's classic drapery for my lady clients who pose as beauties. Look at this, and this."

He pointed to several pictures in the show case where girls who are gotten up to look like actresses or professional beauties had their photographs on exhibition.

"These girls haven't enough money to buy a piece of lace even as cheap as that. They are all employed at the very humblest and poorest paid work, but you would never guess it to look at their pictures. After Miss H—, my assistant, has draped them in that lace, they look as if they had just stepped out of a ballroom or a picture frame. Here is one coming now. Look at her."

She was a bright-faced, olive-skinned foreigner, dressed in a light brown alpaca dress that was hideously unbecoming. Her black hair was strained away from her face in hard braids. She disappeared with Miss H— into a retiring-room, soon to emerge another person. The tight coat-sleeves of her dress were pushed up to her elbow, and her high corsage so folded in to show a round slim throat.

The lace was belted at the waist-line and puffed at the shoulder. The hard braids were let out and left a fluffy effect of crimped hair, transferring an ordinary girl into a very pretty one. The operator then took her in hand to pose for her picture.

"She will send that picture home to her friends in Norway or Sweden, and they will all see how improved she is," said the photographer, with a pardonable glow of pride, "and it doesn't cost them a cent extra for all that fixing up. I have an old fur-lined circular lampshade in my wife's that I use as a background for a winter picture."

"It looks as if the girl had just unfastened it and comes out splendidly, and it gives them an air of comfort and elegance combined. It's a great scheme and sells lots of pictures; but don't give it away to the girls might not like it."—*Detroit Free Press.*

MR. W. R. BLAND.—We read in a Derby newspaper that Mr. W. R. Bland is retiring from the management of the Derby branch of the Union of London and Smith's Bank, after a service of forty-three years. Photographers in all parts of the country who have enjoyed Mr. Bland's pictorial work, no less than his frank criticisms of photographers, men and matters (not to mention photographic pressmen), will wish him many years of leisure and more opportunities for engagement in his favourite pursuit.

Correspondence.

*• We do not undertake responsibility for the opinions expressed by our correspondents.

*• Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

THE PHOTOGRAPHIC SECTION OF THE L.C.C. TRADE SCHOOL.

To the Editors.

Gentlemen,—It has come to my ears that a rumour is current in photographic circles that the L.C.C. have placed me—as instructor of the photographic section of the Trade School, Queen's Square—on the retired list. May I use your valuable columns to contradict the rumour and to make known that I have myself placed my resignation in the hands of the Council, as I do not consider that under present existing conditions at the Trade School it is possible either to turn out efficient workers or practical assistants for the trade.—I am, dear sirs, faithfully yours,

BRENDA JOHNSON.

10, Chepstow Place, Bayswater, W.

FIXING BATH FOR BROMIDES.

To the Editors.

Gentlemen,—We note correspondence and Mr. Smith's letter, and suggest that by far the best way for fixing bromide prints is to use an acid fixing bath, and to take particular notice of the amount of area fixed in same. Thus, for postcard work and similar sized prints a certain quantity of acid fixing bath should be used for a given number of cards, and when these have been fixed the solution should be thrown away.

We have adopted this principle in our postcard departments, both hand and automatic, and also for our enlargement and prints department for a large number of years, and have been very well satisfied in every way with the results thereby obtained. The workpeople in charge of the fixing of the prints have to make a note when they have finished every batch as to what has been fixed, and these are calculated out every day, and when the baths have fixed the determined quantity they are replaced with fresh baths after a day's work ready for the next day.—Yours faithfully,

October 29, 1909.

THE HALIFAX PHOTOGRAPHIC COMPANY.

PHOTOGRAPHING THE CURVATURE OF THE EARTH.

To the Editors.

Gentlemen,—Referring to the question of mirage in connection with the "flat earth" photographs, I may say that the suggestion in the opening paragraph of your latest issue has been repeatedly made, but not, as far as I am aware, by anyone who has visited this particular spot. I have in all visited Salters Lode three times, and when there was no general haziness could always see the sheet or bridge through a telescope from Welney. It was also easy to see underneath Welney Bridge from Salters Lode. On one occasion a large surveying level was carefully adjusted on the camera platform, and the lower portion of the sheet was clearly seen against the intersection of the cross wires of the telescope. I should like to add that I feel no special interest in the subject, but only undertook the work in the ordinary way of business on behalf of my employers, Messrs. J. H. Dallmeyer, Limited, to whom Lady Blount had been directed as being experts in telephotographic matters.—Yours faithfully,

EDGAR CLIFTON.

[There need not be any general haziness to render the phenomenon of refraction visible. It is not an exceptional effect, but a universal one that has always to be taken into account when making observations over great distances. In the case of the canal, the effect is no doubt greater than the normal amount, owing to the fact of the observation being made so near the surface of the water. When using a surveying level the distances taken at each observation are usually very short, only a few hundred yards or so, and then refraction can be ignored, but occasionally circumstances make it impossible to set up the instruments repeatedly, and long-distance observations have to be utilised, in which case a correction for refraction is always made. No competent surveyor would dream of taking a six-mile observation without applying the correction, for only in the case of zenith observations can it be dispensed with. The proximity of the water, of course, renders it very difficult, if not impossible, to apply the proper corrections in levelling along the

course of this canal, but it might be utilised as a level datum for a series of observations made at some distance from it, and then its convexity could be demonstrated and measured.—Eds. B.J.]

TONING LANTERN SLIDES.

To the Editors.

Gentlemen,—In your issue of Friday last a correspondent mentions that he has obtained good results with blue toning following chromium intensification. As chromium in my hands has always given a pure black tone I fail to see the object of this; with mercury the tone is sepia, which with the blue sky is very effective.

The following way of getting green tones has not, I think, been published; in fact, I believe it to be original:—

A black-toned slide on the thin side is bleached in bromide and ferricyanide bleacher as usual, and darkened in ammon. sulphide (also called hydrosulphide) and very well washed. It is then put into blue toner and carefully watched, when in two or three minutes it will become green, the yellow of the sulphide image and the blue together forming green. Almost endless shades can be obtained, according to length in blue toner. I find it well to varnish slide with sandrach varnish, as it makes the colours brighter and more transparent.

BLUE TONER.

Iron ammon. citrate	1 grm.
Potass. ferricyanide	2 grms.
Nitric acid	3 m.
Water	2 ozs.

SANDRACH VARNISH

Gum sandrach	1 oz.
Chloroform	8 ozs.

Apply cold.

—Yours faithfully,

10. Annesley Park, Rathmines, Dublin.

October 26, 1909.

R. L. BOYD.

MR. SHAW AND THE LINKS.

To the Editors.

Gentlemen,—Your readers must choose between Mr. Evans's and my own estimate of Mr. Shaw's notions upon carriage painting as applied to oil pictures. Mr. Evans admits himself one of those who "patiently think through the surface persiflage." A fine thing he's arrived at when he is through! His lengthy exposition is quite unnecessary. We all know what Mr. Shaw meant. We are only divided as to whether he spoke from conviction. If he *did* (which I refuse to believe) then he and Mr. Evans are destitute of the merest glimmerings of what artists aim at. The carriage surface is a thing they do *not* desire. Who does—except Mr. Shaw and his prophet? Artists are concerned with matters that apprenticeships of seven, or seven hundred, years could never teach. The biggest fool of them all could get a smooth and shiny surface if he wanted it. But he could not paint a picture by such means, which are those of many coats, each one rubbed down with emery before the next goes on. Imagine, gentlemen, a picture painted by such methods! Does not the "persiflage" by which Mr. Shaw wins his plaudits begin to look rather sorry stuff? The varnish of a carriage door is the antithesis of the peculiar qualities of artists' paint. The varying manner in which the paint is laid on holds the painter's greatest resources. He calls it "handling." Moreover, modern painting is not early painting. Its ideals are quite different. Modern painting is absolutely incompatible with a house-painter's ideals. A picture is not a carriage-door. We do not splash our pictures with mud every day, nor expose them to hail, rain, and storm. If we did, an easily cleanable surface might be worth consideration. As to permanence of colours and grounds, a respectable artist's colourman can in these days look after that much more effectively than the painter himself can.

THE WRITER OF THE ARTICLE.

"STRAIGHT" PRINTS VERSUS THOSE OBTAINED OTHERWISE.

To the Editors.

Gentlemen,—Will you allow me to say, on the point raised by Mr. P. Frederick Visick, that all photographers know it is only once in 100 exposures that photography will, by a straight print from a straight negative, give an absolutely true rendering of the scene before the camera, and that even the image on the ground glass

is often robbed of much of its beauty by having passed through the lens? If a photographer *sees* a picture, and, after photographing it, judiciously retouches his negative or print, until he has produced exactly the effect he *saw*, he may not only produce a photograph, but one which gives the life and beauty of the scene better and truer than any black and white artist can ever hope to do.

If to gain this end he has to shade portions of his bromide print, or keep back some part of his bromoil, he is, in my humble opinion, faking in each case, and as both bromide and bromoil are photographic mediums he is quite justified if his finished photograph is an absolutely true rendering of what he *saw* with his *eyes*, and not what his camera saw.—Yours faithfully,

JOSEPH L. STEPHENS.

97, Freemason's Road, Custom House, E.

Answers to Correspondents.

PHOTOGRAPHS REGISTERED:—

- J. Wilson, 17, Springmell Street, Manchester Road, Bradford, Yorkshire. *Photograph of Mr. John Hartley.*
 R. G. Arnold, Stafford Street, Market Drayton. *Photograph (Combination) of a Placed Group of Fifty-six Children of the Market Drayton Baby Show September 9, 1909.*
 G. Wade, Market Street, Wymondham, Norfolk. *Photograph of King Edward VII Motoring through Wymondham, October 25, 1909. Photograph of Crowd after the King had gone through Wymondham.*

DRAWING REGISTERED:—

- W. R. Wilcockson, 508, Holloway Road, London, N. *Drawing of an Airship in Flight with wording top and bottom.*

REVERSAL METHOD.—Each week brings me the good old "B.J.," the oldest, freshest, and best of them all, and each week it gives me something to think on, something to profit by. Many of the formulæ and methods, curious or useful, have enabled me to experiment to the betterment of my knowledge and appreciation of the beauties, mysteries, and wonders of photography. One process that I tried out recently has not worked out according to plan and specifications, and I write to ask for further and more definite information, if it be not expecting too much from your indulgence. Not long ago you printed an article from a German source, from "Mittelungen," I think it was. It was the description of a method of copying books and manuscripts, by the aid of a mirror directly on bromide paper. The author is made to say that the negative image is desired as a positive, he stops development with a 3 per cent. acetic-acid solution, washes, and with a copper chloride solution removes all the reduced silver, leaving a bromide of silver image, which on being exposed is replaced in the developer and gives a positive image. My trials with a copper chloride solution and a second development invariably resulted in bringing back the image that should have been dissolved out; other words, there was no reversal, as is the case with Mr. Carnegie's bichromate process. Where is the trouble? What the "copper chloride solution," mentioned in the article, composed of? Thanking you in advance for your assistance.—L. R. FRANK, Chicago, Ill., U.S.A.

Copper chloride will not dissolve silver, only convert it to chloride of silver which is afterwards redeveloped with the rest of the film. There appears to be an omission in the article here. After the use of the copper chloride the image could easily be removed by a bath of ammonia, which would dissolve the chloride of silver without touching the bromide; or, as an alternative, 10 per cent. solution of sodium sulphite can be used. This will remove the chloride quickly without appreciably affecting the bromide, but it should not be allowed to act too long. If ammonia is used you must wash well before re-applying the developer. Our experience is that the Carnegie reversal method is the best.

F. AND C. (Detona, Ontario).—There are so many sources of supply that we can best refer you to the advertisement pages of the "British Journal Almanac," from the classified index to which you can judge at once. The 1910 Almanac will be published December 1, close to which date you should be able to obtain in Canada, say, from Messrs. The W. H. Hogg Co., Montreal, J. G. Ramsey and Co., Toronto.

SEPIA TONING.—1. Kindly let me know where I can get a good formula for toning gaslight postcards sepia. 2. Also formula

used in preparing plate glass for making glossy postcards.—
BYRON HARMON (Banff, Canada).

1. There is no better formula than the following, which works with most gaslight papers:

- A Ammonium bromide 100 grs.
- Potass. ferricyanide 300 grs.
- Water 20 ozs.

Keeps moderately well if kept in the dark. Use over and over again until it begins to bleach slowly, i.e., takes longer than two or three minutes.

- B Sodium sulphide, pure 300 grs.
- Water 20 ozs.

Should be mixed fresh for each batch of prints, and any left thrown away. Wash for a minute or two between A and B, for about twenty minutes after B. 2. A suitable preparation for glazing gelatine prints is:

- Beeswax 20 grs.
- Turpentine 1 oz.

- or,
- Spermaceti wax 20 grs.
 - Benzole 1 oz.

A few drops are rubbed over the glass plate with a piece of flannel, and the glass then polished with silk rag or chamois leather.

GREEN TONING.—I have a quantity of green toning to do, and desire to use the vanadium formulæ given in the "Almanac." I have mixed all the chemicals as directed, and obtained clear solution, but I cannot dissolve the vanadium chloride. This I mixed, 20grs. in 20min. hydrochloric acid, made hot with 2ozs. hot water, but it would not dissolve. I then tried it in 1oz. hot hydrochloric acid, but still it would not dissolve. I tried several ways, even boiling it, but no result. I may mention my experiments were with the vanadium by itself, not mixed with the other chemicals. I should feel it a favour if you could help me. Do you think I have not got vanadium supplied me, or what proportions of acid, water, and salt must I use, and how long does it take to dissolve? As I require several gallons of this toner, would you kindly advise me if I can keep stock solutions and what parts to keep separate? I note on page 795, "Almanac" 1907, C. W. Somerville advises vanadium to be kept in solid form and dissolved in 20min. acid, but this I have failed to do.—W. JONES.

It is difficult to reply satisfactorily in a few words. Cold or dilute hydrochloric acid is not much good. You ought to try first evaporating the mixture you have already got to a pasty mass on a water bath. Then, after cooling, add about half its weight, of pure, strong hydrochloric acid, and evaporate again to a pasty mass. To get at the weight of vanadium chloride for calculation you ought now to dry as far as possible in a desiccator over sulphuric acid in a vacuum (about twenty-four hours). Then add one-third the weight to hydrochloric acid (strong), warm gently, and the addition of an equal bulk of distilled water, should make a convenient stock solution all clear blue. To make a green toner on a subsequent occasion, you must repeat all your manipulations exactly as you did before, or you will be very likely to fail, as the exact relative proportions of iron to vanadium and other constituents are very necessary to make a satisfactory green toner. In fact, it is "a deed of some art." If you are not a fairly expert chemical worker, we are sure it is one of those cases where it would be cheaper in the long run to buy one of the green toners on the market.

DOOMY.—In the circumstances you had better write Messrs. R. J. Moss and Sons, 98, Snow Hill, Birmingham, for particulars of an acetylene outfit for studio use.

DEPTH OF DEFINITION.—Kindly inform me how to calculate the depth of definition of a photographic lens, a disc of confusion of 0.1mm. being assumed.—Toxo.

We assume from your question that you want a general rule for finding the permissible movement of the focussing screen back or front of its position for critical focus. This is very simple. Multiply the diameter of the circle of confusion by the ratio of the stop number in use, and the result is the depth of definition when focussing on infinity—that is, the distance by which the camera can be racked in or racked out without losing focus. Thus with $f/8$ and a circle of confusion of 0.1mm. you can rack in or out to the extent of .8mm., which means that the total depth of definition available is 1.6mm. If you wait to allow

for the case of focussing on near objects find the depth of definition for infinitely distant objects in the way just described, and then multiply the result by the total distance from plate to lens node and divide by the focal length. If you have a focussing scale you can do this very simply. In this case measure the extra extension (or extra focal distance) of the camera beyond the infinity mark, divide this by the focal length, and multiply the depth of definition by the result plus 1. To give an example: Suppose we have a 5in. lens working at $f/8$, and that when we have focussed sharply on a near object the camera is extended half an inch beyond the infinity mark. The depth of definition when focussing on infinity is by the rule given, .8mm. Dividing the $\frac{1}{2}$ in. extra extension of the camera by 5in., we get 1-10; therefore, .8mm. multiplied by 1 1-10, which is equal to .88mm., is the depth required. We can therefore rack the camera either in or out for a distance of .88mm. without losing focus. It should be noticed that the fraction 1-10 is also the scale of reduction of the image, in the ratio of image to object, and if we express this by the symbol r , then the depth is always equal to the depth of definition for an infinite distance multiplied by $1+r$. If depth of field is wanted instead of depth of definition page 934 of the "Almanac" gives full particulars.

PRINTS DAMAGED BY INSECTS.—I enclose a photograph printed on — matt P.O.P. toned with gold in phosphate bath. This was taken and finished and delivered to customer in November last year. It has now been returned to me by customer, with two other copies, all of which are gone spotty in the same way as this one. If you look closely into the spots I think you will see that the entire film or image in emulsion has been removed, and, unlike spots caused by chemical deterioration, appear sunk into the print. My own impression is that some insect or other has been feasting on the gelatine, and that this alone is the cause. I have traced photographs put through in the same batch and same lot of paper, and they are perfectly clear. I have done hundreds of prints on this particular paper and never had one fade in any way. All work being done under my personal supervision, I know that washing and fixing were properly done. My customer insists that it is the chemicals. I say it is some mechanical removal of film from paper by what I do not know; but under a strong magnifying glass it is distinctly visible, as minute little "pits" into the print. Then another argument in favour of insects is that all the spots run from outside into the middle, and the middle is least touched. I feel sure it is not the manipulation, but the work of some wretched mite. If you can express an opinion or confirm mine I shall be very grateful.—T. H.

We have not the slightest doubt that these marks are caused by insects nibbling at the film, for in many of the spots the marks of their mandibles can be seen. The film has been dug out with some sharp instrument, and the holes look like chalk that has been chipped repeatedly with a needle point. It is not unlike the work of wasps in some points, but the effect seems too minute for their formidable jaws. Possibly "blackbeetles" are responsible. We should advise you to send the print to Mr. Martin Duncan, who may be able to identify the work of some particular insect, and will, in any case, be interested in the effect. Address, The Martin-Duncan Laboratory, 34, Bradley Gardens, Ealing, W.

LIGHTING.—"The Lighting in Photographic Studios," by P. C. Duchochois, 1s. If you can get it, No. 2 of "The Photo-Miniature: The Pose in Portraiture," is an excellent little book, but out of print. 6d.

ANXIOUS.—We do not know anything of the firm now. It used to be at Regent House, Regent Street, W., but so far as we know is not now in business in London. Better address one of our American contemporaries such as "Wilson's Magazine," 289, Fourth Avenue, New York, U.S.A.

OZOBROME.—Could you give me the number and dates of Ozobrome specifications, and in what issue of the Journal will I find them? —T. DAVIES.

There is only one. No. 17,007, 1905. B.J., June 29, 1906, p. 513. See also B.J. Almanac, 1907, p. 802.

"TRUE-TO-SCALE" PROCESS.—I should be glad if you could enlighten me on the gelatine printing process called "Velography," Ordoverax, or "Westgraph True-to-Scale Process," and many

other similar names, whereby a mass of gelatine compound is melted until in a liquid state, and then run on a sheet of zinc till a thin film is procured, and, when this has set, a ferro-prussiate print is made from an engineer's tracing, and, without washing, is pressed into contact with the gelatine mass. The parts of the print protected by the lines of the drawing are, of course, left yellow, and these parts "etch" the gelatine so that it will take up printer's ink; a piece of tracing linen is then laid on the mass and pressed lightly into contact, the result being a tracing equal in every respect to the original. I have purchased such an outfit, but lately the results have not been as good as previous. Would you kindly enlighten me if possible? 1. The second melting of the gelatine when run on the zinc was not so successful. The gelatine had become a little tacky, but had "fair" results. Why the tackiness? 2. Latterly the gelatine "etched" well, but would not take ink. Why? 3. Do you not think there should be some chemical added to make the etching take ink? 4. Would you kindly tell me the action between the ferro salts and the gelatine mass? 5. Where a line on the drawing is not so dense as to prevent the "ferro" salts from being reduced, as in the case where stencils have been used for the "Drawing No.," these lines get a blue tinge on them, and they will take up the ink, whereas a solid line on the tracing which leaves the line on the blue print yellow will not take the ink. This seems to me to bear out my question No. 3, that the chemical action of the gelatine has become exhausted and needs a chemical addition—say, after each alternate melting; otherwise the action can only take place as described by a slight reduction of the "ferro" salt, which was not so when the gelatine was first used. The makers of the jelly say, "add loz. of water to each lb. of jelly at each melting," which I have done. Also I have tried without the water being added, thinking that it was the water that would not let the "etching" take ink, but this is not so.—"VELO."

1. It is probable that the tackiness may be due either to overheating when re-melting, or the too high temperature of the room where you work. We cannot otherwise account for it. 2. Impossible to say, except, as you surmise, that the small amount of chemical in the gelatine composition has become altered in nature from either the keeping or the re-melting. 3. We do not know that it is advisable to add fresh chemical, but we should think that a certain proportion of new unused composition should be added at every re-melting, and this we understand is what the makers of such compositions usually recommend. 4 and 5. We are afraid we are unable to tell you what the action is between the ferro-salts and the gelatine mass, but it is evident it is some such action as tends to the insolubilisation of the surface of the gelatine.

METOL HYDROQUINONE.—I would be much obliged if you could favour me with a formula for a metol-quinol developer (not containing more metol than necessary), and suitable for general amateur use, that I can make up, ready for dilution, to "1 part developer, 6 parts water, for plates." I have tried several, but the water will not take up the soda; my latest being, 12grms. metol, 45grms. hydroquinone, 1½oz. sulphite, 1½oz. carbonate of soda, and 5 grains potass. bromide, in 4oz. bottle. The result is fairly satisfactory, except the dirty colour is objected to, a clear solution being required.—CONCENTO.

We do not know of a one-solution developer of such a high degree of concentration, and we suggest that it would be better to have a two-solution developer, so that one part of each solution can be added to six parts of water. In the formula you give the carbonate would be in the second bottle, and the solution in the other would then be quite clean.

TELEPHOTO WORK.—I am thinking of taking up telephotography. I have a Goerz-Anschutz ½-plate hand camera, with box extension (which brings up total extension to 14in.), and a Dagor 7in. lens. I had intended to buy the Goerz attachment corresponding to this lens, but I believe this limits magnification to about 6x. Do you think it preferable to get a Staley-Wheeler convertible tele-lens, which gives high and varied magnifications, I believe, within the same compass?—TELE-NOVICE.

If limited to one extension you must use different negative combinations to secure different degrees of magnification. You had

better consult the firm mentioned as to the degrees of magnification obtainable with their attachments for a 14in. extension. You would find a magnification of 6 quite large enough for most purposes, and a smaller one of 3 or 4 would be more generally useful.

C. YATES.—So far as we learn it is not a trying climate. If you care to send us a stamped and addressed envelope we will give you the address of one or two dealers out there who would, no doubt, be pleased to give you their experience.

A TRIAL ENGAGEMENT.—We advertised in your journal for an operator and retoucher, and we engaged one whose references we considered satisfactory. After two days we paid him off, as his retouching was disgraceful. We might mention that his first negative was a cabinet vignette, and, after three attempts, which wasted three hours, it had to be taken off. To give the man every opportunity of showing his ability, we judged his work at the end of the second day when we paid him off, and told him he had misrepresented himself, giving him the two days' money. This being the case, is he justified in demanding the remaining four days?—"EMPLOYER."

Yes; we should say that the man is entitled to his full week's pay. He, it appears, was engaged on a week's trial, so that you could test his abilities and see if he suited your class of work. Apparently he did not, and you could have discharged him at the end of the week without notice. If you can prove that he obtained the trial engagement by wilful misrepresentation, it is possible that he will not recover. That, however, is a matter that the county court judge will decide.

COPYRIGHT.—I should esteem it a great favour if you could give me your opinion on the following case. About three years ago I asked a person to bring his little girl to be photographed for a specimen. They turned out all right, and I gave him some free pictures for his trouble. About a year after I sold a picture of the same subject to a firm for reproduction. The pictures have recently been put on the market by the above firm. Now the father has threatened me, through his solicitor, with an action for damages unless I pay compensation. I may add that he ordered, about a month after he had received the free copies, some more photos for which he paid at the rate of a shilling a month. He has, I believe, registered the copyright as his, but has not done so more than a month ago. Now, seeing that I sold the picture two years ago, can he proceed against me for the infringement committed before registration, or am I liable for the continued publication by the firm after registration? I believe the copyright is mine, but I fear I may have some difficulty in proving it. As action is threatened, and I am not in the financial position to contest same, it would be a considerable relief to me to have an authoritative opinion at your early convenience.—"ANXIOUS."

If the facts be as stated, and you were not paid for taking the portrait, the copyright in it is yours, and you can register it if you like. The fact that the father has now registered the copyright goes for nothing, as it was not his to register, and that the solicitor should know. It looks like "bluff" on his part. The fact that the father subsequently bought some copies of the portrait makes no difference whatever.

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SUMMARY.

Dr. H. D'Arcy Power has brought to a working condition several processes of two-colour printing in bromide, a method which he strongly advocates as providing the photographer with the means of strengthening his pictorial work by the introduction of colour contrasts. (P. 872.)

In an editorial article on p. 870 the principles and methods relating to the hanging of a photographic exhibition are dealt with.

The Presidential address delivered by Mr. Mummery last Tuesday evening at the R.P.S. is reported on p. 882.

A night of night photography with the North Middlesex Society is described more or less accurately on p. 883.

Mr. Marshall's photographs at 35, Russell Square and the exhibition of the Hackney Photographic Society are noticed on p. 878.

An American inventor has devised a system of cinematography in which the pictures are stationary and the audience moves; it is for application to tube railways! (P. 870.)

Sir Benjamin Stone, in retiring from Parliament and the informal office of "hon. photographer," was last week entertained at luncheon and presented with an address. (P. 875.)

The "Architect" has just obtained particulars as to permission to photograph in the English cathedrals. (P. 876.)

Colour screen-plates, films, and cinematographs figure under "Patent News." (P. 878.)

"Mr. Shaw and the Links," "Keeping Films," "Damage of Negatives by Insects," and other vital topics occur under "Correspondence." (P. 885.)

A useful means of subduing the background when photographing machinery is mentioned on p. 875.

A new manual of line-engraving, the proving of half-tone blocks, etching aluminium, and other process topics figure under "Photo-mechanical Notes." (P. 877.)

The London County Council having met with little response from employers in the way of granting opportunities for part-time classes their assistants are contemplating an additional year of compulsory education in a trade school. (P. 870.)

Some of the methods of two leaders of American professional photography have been published. (P. 874.)

There are signs of a less dishonest form of the "free portrait." (P. 869.)

EX CATHEDRA.

The Semi-Free Portrait. From a letter addressed to us by a correspondent in Tunbridge Wells we see that some improvement is discernible in the methods adopted by the "free portrait" fraternity. The old ruse of a portrait for nothing, followed by the demand to purchase a frame, is apparently now too well known to deceive the public any longer, hence the canvasser is now found to be pursuing a less crooked policy and offering at a price of "from 10s. 6d. upwards" a framed "superb crayon drawing." Our quotations are made from the card of receipt for a photograph handed to the wife of our correspondent by the agent of a firm emanating from South Wales. The time-worn dodge of excusing the alleged lowness of price on the ground that a new studio is being opened in the canvassed district is still put forward, and as an address in South Wales is given it may be that the parties intend to abide by their offer. But the "superb crayon drawing" is no doubt the usual cheap enlargement, and the profit to its exploiters depends on the ability of the canvasser to sell a frame at a price more or less disproportionate to its value. Photographers who are harassed by this form of competition require to take notice of these modified tactics, otherwise they may in an unguarded moment make statements which they may have occasion to regret.

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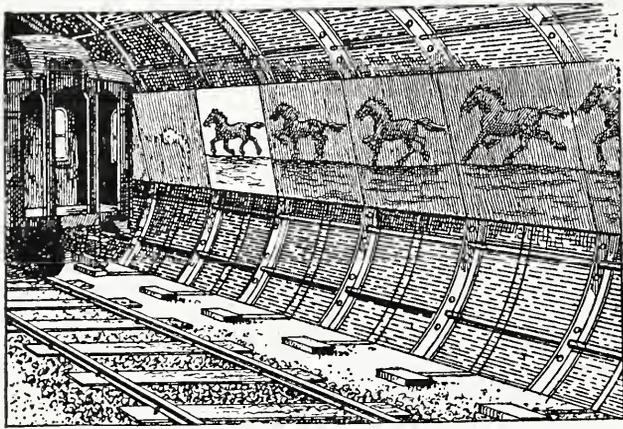
How Not To Advertise. We are glad to see our contemporary, "Abel's Photographic Weekly," commenting on an instance of a very wrong kind of advertising indulged in by a photographer of Cincinnati. The latter issued an announcement in the Press of his town to the following effect:—"The possessor of the only first prize in the city awarded by the National Photographers' Association of America is the title which —, the — Street photographer, proudly bears. The medal, which was awarded to him at the annual convention of the Association at St. Louis, is about two inches in diameter and almost a quarter of an inch thick, the metal being solid gold. On one side are two heads in relief and the name of the Association, while the reverse side bears the name of Mr. —, with the date. Mr. — also has the honour of being one of the very few photographers in the world whose pictures have been approved and hung in the Royal Art Gallery in London." "Abel's Weekly" states that the medal awarded in 1894 was of silver, so that disposes of the "corroborative detail" worthy of Pooch-Bah, whilst as for the "Royal Art Gallery" of London, which has selected our medallist for signal notice, surely this is honour by implication for the R.P.S. We do not believe these fantastic—to use a polite word—methods are at all representative of the American professional, for the latter, as a rule, does not give himself away if he can help it, and.

though he appears to unbend at Conventions, takes a decorous line in his dealings with customers.

* * *

The Tube Railway as a Cinematograph.

The writer who in a recent article on photographic methods in advertising emphasised the greater use of the cinematograph, did not perhaps know of a suggested application of animated photography which assuredly is ingenious enough. An inventor, according to the "Scientific American," has devised a scheme for the cinematograph entertainment of those who travel by tube railway. The motive of his idea can scarcely be other than that of revenue as a means of advertisement. His plan is certainly original. He reverses the order of things which prevail in an ordinary cinematograph. The pictures are stationary, it is the spectators who move and thus view the successive elements of the picture. He proposes to mount a continuous band of pictures at each side of the subway, and have these pictures successively illuminated by means of lamps



placed behind them. The circuits of the lamps would be successively closed by means of a shoe upon the subway car, engaging contact plates at each side of the track. We leave to some of our mathematical readers the pleasure of calculating the "period" and number the pictures must have; say, to entertain the passengers from Holland Park to Bond Street.

* * *

The L.C.C. and the Teaching of Photography.

The apprenticeship question in its relation to technical schools is the subject of an exhaustive report by the Education Committee of the London County Council. As regards photography, there is only one class in existence, and this is for girls only. The Committee some time ago made an effort to get employers to allow their apprentices to attend technical classes in the day time, but it is stated that there is not much prospect of establishing part-time classes on any scale commensurate with the need. The Council themselves have, however, set the example to employers by introducing a scheme whereby all youths and boys in their service are to be allowed a certain time off in order to attend education classes. Failing the co-operation of employers in a system of part-time classes, the Committee suggest several steps, including an additional year of compulsory education at a school of an industrial type after the age of 13, an extension of the curriculum of the elementary school to various kinds of manual training, and compulsory half-time classes, under which scheme all employers would be placed under statutory obligation to allow their employees under 17 years of age time off to attend continuation classes. The Council have no power in such a matter, but the Committee recommend them to report to the Board of Education suggesting such a scheme.

A New Gaslight Paper.

We read in an American contemporary a few mornings ago of the purchase by the Eastman Kodak Co. of the Artura Photo Paper Co. of Columbia. A few minutes afterwards a Californian reader of the "B. J.," Mr. George H. Knight, of San Francisco, paid us a call and produced an albumful of prints made, as it happened, on "Artura." They showed us the remarkably fine green tones obtained by direct development of this paper, the introduction of which to English workers will no doubt follow in due course. Our visitor informed us that the paper is issued in varieties other than that of the green tones he showed us, whilst the surface texture is obtainable also in several grades, of which the semi-glossy excellently suits the green toned prints which we examined.

* * *

A Stereoscopic Slide of a Comet.

The current number of "Popular Astronomy" contains an interesting article by E. E. Barnard entitled "On the Erroneous Results of a Stereoscopic Combination of Photographs of a Comet." Such photographs are of course taken singly with an interval of an hour or so between the exposures. The writer expresses doubts as to the accuracy of the results owing to the fact that the form must have changed to some extent between the two exposures, hence he suggests caution in accepting all that the stereoscope appears to show. Precisely the same defect exists in other cases in which stereoscopy is similarly employed. For example, stereoscopic views of clouds have been made in just the same way, and it is obvious that a change in the form of the clouds between the two exposures must seriously impair the accuracy of the final results. Such slides may be interesting, but they may also be very deceptive as scientific records, and therefore it is necessary to be cautious in interpreting their indications. An interesting departure in the printing of this article is the fact that the stereoscope slide of the Comet (the Moorhouse Comet of last year) is reproduced twice, so that one print may be cut out and mounted for use in the stereoscope, while the other is preserved in the book for reference. This is an excellent idea, and one that we should like to see carried out more frequently. This slide also presents a curious illusion. The stars are shown by trails, those of the stars of greater magnitude being thick trails, while those of the more distant stars of small magnitude are thin trails. In the stereoscope, the stars of greater magnitude appear distinctly nearer than the others, but this cannot possibly be due to any true stereoscopic effect and must be a perspective illusion, due simply to the evident variation of size.

ON HANGING EXHIBITION PICTURES.

WITH the closing of the Royal and the Salon, and the brief term of the Hackney exhibition, a show which for year past has carried on the interest in pictorial photography, on the closing of the two "great" exhibitions, the season devoted to the exhibition of photographic work throughout the country may be said to commence. With the step which need to be taken to ensure a successful show we do not now propose to deal. In some articles in the "British Journal" a year or two ago these and other society matters were somewhat fully treated. One remark may be made, however, and it is that the chief secret of a strong and interesting exhibition lies in taking time to a very long forelock indeed. In those instances where societies outside of London have succeeded in obtaining good representation of leading work from exhibitors, not only at home but abroad, we have invariably found that the announcements of the societies' activities have been made pretty nearly a full year in advance of the date

the exhibition, and judicious follow-up letters have been employed whenever interest has been shown to have been aroused. Such methods as these, however, are not our theme for the moment, important as they are to the production of a successful exhibition. We are now supposing that all these preliminary measures have been taken, and that therefore the selecting committee has done its work, and, subject to modification by those actually engaged on the hanging, has decided what pictures are to appear on the walls.

The first step to be made is to divide up the wall space into sections, within each of which the frames are to be appropriately placed. It does not follow that each section should be actually divided off from its neighbours in any prominent way, but for purposes of hanging it is an immense assistance to carry out sub-division to a reasonable extent. The spaces thus formed are conveniently indicated by vertical tapes tacked to the walls, whilst as a guide also to uniformity in hanging, a pair of horizontal tapes may be run round the walls to mark the upper and lower limits of the space for the frames, bearing in mind that it will be frequently advantageous to exceed the upper limit, and, on the other hand, to place frames short of the lower limit. This having been done, perhaps the next step is to find a few pictures—say, half a dozen—which, from their size or strong character, are specially fitted for placing in the chief positions in the several sections. In making this selection a further fact requires to be borne in mind, namely, that it is difficult to avoid a patchy and disturbing effect of the walls if frames containing very light prints—or, what amounts to the same thing, light mounts—are intermingled with those in which prints and mounts alike are dark, while it is equally important to avoid massing all the light mounts together in one place and all the dark in others. This destroys the effect of congruity which the exhibition as a whole should have, and while perhaps less objectionable as regards the effect on individual prints than the mingling of light and dark, nevertheless gives the exhibition as a whole a broken-up appearance. The most successful arrangement represents the mean between these two plans, a section composed of the lightest prints being toned down with one or two somewhat darker, whilst those containing the dark prints are relieved by a few of somewhat lighter tones. In working on this system it is almost an absolute necessity that there should be at hand a stock of frames other than those recommended for hanging by the selecting committee from which any particular requirement as to colour or tone may be drawn. Probably every exhibition which is carefully hung contains a few frames which owe their appearance there not to the merits of the individual print but to the service it can render in balancing others hung with it.

As regards arrangement the art of the hanger must be similarly exerted in striking the happy mean between a higgledy-piggledy placing of the frames with regard to balance and a severely symmetrical arrangement in which frames are placed either side of a centre so as to balance each other as equally as possible as regards size and shape. This latter perhaps is the direction in which the inexperienced hanger, who is really taking pains, is most likely to err, but it will be found that once the wall or section of wall has been hung in this way anyone who has had much experience in arranging frames can by a few alterations vastly improve the effect by destroying to some extent the symmetry of arrangement.

As to the practical methods which are to be adopted in arranging prints, the first hint that may be given is to arrange the frames first of all by spreading them out flat on the floor in front of that portion of the wall on which they are to be placed. The angle of floor and wall may be taken as the upper limit of the wall space, and a long

rule or a piece of tape laid on the floor to mark the lower limit. When this plan is adopted various arrangements of the frames may be of course tried without the tedious changes which would be necessary if they had to be attached to the wall in each new position. When they reach the final stage of arrangement and are ready for placing on the walls the following dodge of the expert picture hanger will be found to save a great deal of time and to secure a "straight" position of each print at once. Exhibition frames usually arriving without any plates, rings, or screw eyes, a supply of the latter of quite small size will serve with all but the heavy frames for attachment to the wall. A pair of eyes is screwed into the



back of each frame without troubling whether they are precisely at the same distance from the top edge at each side or not. The eyes are liberally chalked with the ordinary soft chalk used for blackboards, and the frame being held a little tilted forward from the wall, the worker (standing at arms' length) can judge quite accurately whether the picture is straight. When it is, pressure of the two eyes against the wall will leave two chalk marks, and it is then only necessary to drive a thin French nail at an oblique angle into the wall through each chalk mark to provide a pair of supports ensuring the perfectly straight position of the picture. Then again, it is often desirable to hang two or more frames on the same level, to do which the amateur generally depends on a friend at his back, who tells him when the frames appear to be right, but invariably says they are wrong after the nails have been fixed. A piece of tape stretched along the wall and held temporarily with a couple of drawing pins is a much more reliable guide, while it enables the right level to be hit at once without any time wasting trial-and-error efforts. In transferring from the floor to the wall, the centre of the panel, if it is to have a central feature, should be determined and a tape fixed vertically. A plumb line is useful for this. Other vertical lines, if any are in the scheme, should be similarly marked out and also any long horizontal lines. The pictures can then be hung, each in its own place (which operation will take very little time with the aid of the chalk dodge), the tapes pulled down and the panel is finished. Working in this way, the arrangement and hanging of a panel is only a one-man job (unless very large and heavy frames are in question), whereas in the method too often seen in photographic societies, it requires one man to hold a picture straight while another drives in the nails and a third one stands afar off to criticise and suggest alterations. As a rule the three men take three times as long over the job as the one man who knows how to set about it.

BROMIDE PRINTS IN TWO OR MORE COLOURS.

[The following paper, which appears in the current issue of "Camera Craft," was read before a recent meeting of the California Camera Club on the occasion of an exhibition of bromide prints in several colours by the process described by Mr. Power in a later portion of his address. The earlier paragraphs are devoted to an exposition of the author's reason for resorting to two-colour printing as a means of reproducing contrasts of colour.—Eds. "B.J."]

We use photography for two purposes—we use it to represent natural objects with as close an approximation to nature as we can make, and we have also used it in recent years to an increasing extent for the purpose of producing works of art, that is to say, of producing pictures that shall have some esthetic value and shall give some pleasure to the beholder. All photographs produced for this purpose must necessarily conform to the general principles of art and art expression.

I want to say a few words, before we go into the question of colour, upon the elements which are generally conceded to be necessary for the production of any kind of pictorial work. In order that you may have a picture at all, it is always desirable that it include the three fundamental elements. Even in monochrome, in order that you may have a picture of any kind, you need at least two of these; you need that the picture shall express itself by line, and it must also express itself by mass, that is, by relative amounts of light and shade. You cannot have any kind of picture without at least line, and it is desirable to have mass. Many pictures, many pencil drawings, such as Phil May's sketches, and a great deal of illustrating in hard-point, are purely line work, and most beautiful things can be done in that way, but they are merely suggestions.

In nature you always find line, indicated at least; mass always present; and, in addition, colour, which last is usually most compelling to the eye. Sometimes it is line that appeals to you; sometimes light and shade; but more often it is colour. I have no hesitation in saying that nine-tenths of the disappointments in photography are due to the fact that the eye of the inexperienced is attracted by colour in the subject, which cannot be expressed photographically. The painter is capable of expressing all—line, chiaroscuro, and colour. Of these, photography gives absolute line; and in this connection I would remind you that the camera is capable of doing that which is perhaps the most difficult for the painter; it can give texture, texture of cloth and skin, texture of surface, far better than any painter can.

Photographic Falsity in Colour Rendering.

When it comes to the expression of the second element, light and shade, or mass, a photograph is successful if the object photographed is of one colour; but if it is not, the camera fails in expressing the light and shade. It fails because colours ought to be expressed in their proper relation of light and shade, they ought to have their true light values; and yet the influence of colour is often quite independent of light and shade. Two colours may be of exactly the same value, and yet so entirely different in their character, as colours, as to present the strongest kind of contrast. And, when those colours are photographed, that contrast is entirely lost, and the nearer you are to a true rendering of the value the more hopeless is the failure. There is a very general idea that if you use orthochromatic plates you will get a satisfactory picture. It does not take much reasoning to show that this is hopelessly untrue. If you take a picture of an orange against a piece of light purple velvet of the same light value as the orange itself, using an ordinary plate, you will not get the true values at all. The orange will appear intensely black and the violet background will appear very much lighter, an entire falsification of the true relations. Some will say, "We know all about that; but, when a colour screen is used, you will get true values."

If the two colours are really of the same value, and you use a true panchromatic plate with a colour screen—if it is really a true value rendering, you will have no orange upon your plate at all. The nearer you get to true orthochromatism, the worse is the result; you have an entire wiping out, even of the lines of your orange, if your orthochromatism is perfect. This fact is recognised by every artist in black and white. He does not attempt to give true values, not at all. He makes a new standard for himself and represents a certain group of colours by light shades and another by dark shades; he looks upon all these latter elements of the spectrum as so-called cold colours, and represents them by a shade that is very much darker than their true light values.

The Reason for Colours in Prints.

So you see that the camera is not able to give you any true representation of colour. Nor does it give you true light and shade, because of the falsification due to the limitations of the plate. This is why it is desirable to introduce the element of colour into photographs, whether for pictorial or technical purposes. It therefore comes to this, that photography neither presents colour by its true values nor by the arbitrary standards of contrasts used by artists in black and white; and, unless we are to forgo all attempts at rendering the great colour contrasts of nature, we must find a method of introducing colour in our photographic work. Various ways have been tried. There are those who, with dye or paint, colour their photographs; but the result is false and unsatisfactory. It is not the image, but the paper, that is coloured, and the unchanged black of the former degrades the added colour, while the values still remain those of the monochrome original. To the artist a coloured photograph is usually an abomination. Three-colour processes have been much employed in the last few years, multiple-gum, carbon, pinatype, etc., but they are little more successful; the technical difficulties in the way of emulsions, screens, pigments, and registration invariably end in false renderings.

An Empirical Two-Colour Method.

Recognising the futility of attempting to imitate nature with a full palette, it occurred to me to seek a representation of colour effects by the use of two arbitrary tints, one to represent the warm, the other the cold, colours of nature.

We have in nature the fundamental colours, blue-violet, yellow-green, and orange-red, whose combinations produce all the rest. The orange and the red, or, rather, the orange-red and yellow are looked upon by painters as the so-called warm colours; they give you the impression of light, quite independent of their actual values; whereas, the green, blue, and violet give the impression of coldness. If we mix these together having the reds and yellows in excess, we get what is known as tertiary colours, a warm tertiary. If the blues and violet are in excess, we get a cold tertiary; and if we represent in a picture all the warm parts by the former, the cold by the latter, we obtain a result that is in no sense an actual representation of nature; it gives or produces to a certain extent the impression of the original. And, whether we are dealing with a technical subject or a pictorial representation, we obtain a closer approximation, that is, closer to the impression the original makes upon our eyes, than by any representation in plain greys.

When a picture is made in colours, artists are bound by,

at any rate usually follow, certain rules, which have been gradually evolved by experience. It is usual to consider colours in two relations. First, the relation of contrast. Colours as you see them in nature produce effects of contrast which are quite independent of line, quite independent of mass. You look at a field, for example, and you see in one part yellow daisies, and in another, green grass. There is no particular line between the two, no boundary. And perhaps a little further on in the same field there may be a border of trees with yellow foliage like some acacias in the spring, and your eye will follow the colour rather than the contour lines. But if you attempt to represent the scene in black and white only, you will have to follow the boundary lines of the light and shade. You will find that workers in colour are oblivious to the restrictions imposed upon us as photographers. Thus, successful painters are often largely neglectful of composition in mass and line, because colour contrast takes its place. In pictorial photography, you have little control over line and have to accept what nature gives. Gum and oil printing will enable you to change, to some extent, light and shade relation. But when a picture is printed in two contrasting colours, as you see in these examples, the composition is purely dependent upon these introduced colour relations.

In painting, the distribution and relation of colour are made in accordance with laws or principles, the result of experience; although these have primarily to do with the full palette, they can also be applied to our conventional scheme of two tints. For example, it is a principle of modern painting that the primary colours shall not constitute any large portion of a picture without being united by a preponderance of tertiaries. In accordance with this rule, we are precluded from using either primaries or secondaries for our conventional colour; we are restricted to warm tertiaries and cold tertiaries. A warm tertiary may be any combination of the three primary colours with either red or yellow in excess; that is to say, anything between a red chalk and a sepia. For a cool tertiary, anything between olivine and Payne's grey, with an excellent medium in a dark French grey. With two such tints we can suggest most of the effects of a full palette; we can keep the cool tint in the background, the warm forward: we can make a colour contrast between objects and cast shadow; or obtain accent by the sharply contrasting juxtaposition of opposite tints. We can use this power to reinforce existing contrasts in the print or to diminish them; and, if this power be used with the knowledge and skill of an artist, a worthless monochrome may acquire high pictorial value and ideals be realised that were otherwise impossible. Another point to which I would draw attention is this, that if you examine, in a cursory manner, many of the pictures I have placed on exhibition, they will give you the impression of being printed in several colours, the colours proper to the picture. Only by close examination will you perceive that only two are present. The reason for this is that the two colours chosen contain all the primary colours.

Two-Colour Bromides.

My experiments in this direction occurred as far back as 1905, in which year Winthrop Somerville published a note in the "Amateur Photographer," London, on toning a bromide print of calla lilies in such a manner as to leave part brown, part black, and the rest green, the modifiers being sulphide and vandum toning. It was suggested merely as an experiment, without any reference to art possibilities or serious purpose. I reproduced the article in "Camera Craft," tried the method, and did not like the quality of the tints. I then started on a different line. I toned a bromide print with platinum and mercuric chloride to the beautiful sepia that method yields, and then, with a brush, went over selected parts with amidol developer. Wherever it touches there is pro-

duced an intense black. One thus gets a print in sepia for the warm tones and black for the cold. It works well with a certain class of subjects, and the first print I made, now three years old, is on the walls unaffected by light and time. Shortly after this attempt, a method of treating sulphur-toned bromides with a sulpho-cyanide gold bath was published. It converts them into a fine red chalk. Incidentally, in trying it, I found that there might be produced a series of intermediate tones; and, a little while later, it occurred to me to try this bath on a bromide toned in parts with sulphide. The result was a surprise and a revelation. I found that both parts of the picture would tone, but in opposite directions, the black of the silver turning to blue-black, and the brown of the sulphide passing through various shades of brown to red chalk. Therefore, I could get tonal relations running through the blue tertiary for the cold tints, and various shades of red sepia for the warm tints; and I can get it as I want it by stopping the toning at any desired point.

We must be careful to remember that in this process the colour line will dominate our print; therefore, the parts that are changed must be selected with an appreciation of this fact. One of the dangers that you will meet with is the inclination to do a great deal too much, and you will find, sometimes, that the less you do the more effective it will be.

Ozobrome for Multi-Colour Prints.

Now for another method. In ozobrome work you will recollect that the pigment is thrown down upon the surface of the bromide print through the action of the ozobrome solution upon the silver in the print. I reasoned that if I converted the silver in my print into bromide of silver it would no longer act upon the ozobrome solution. If, after I got my deposit of ozobrome, I then locally redeveloped that part which I had previously bleached, that part would take a new piece of ozobrome of any other colour that I desired to put thereon. And so by this means I was able to combine any local colours or tones made in carbon tissue.

Two-Colour Toning in Practice.

Now, to get down to actual practice. Of the three methods described, the one of most general utility is that dependent on sulphuretting and gold toning. The first thing is to study your print and work out beforehand where the second tint is to be placed, remembering that your composition will be controlled by it; also that you must beware of abrupt juxtaposition of the two tints, unless the nature of the picture calls for it. Remember also that colour composition demands that a little of the cool tint appear in the warm portion of the picture, and suggestions of warmth in the cool surfaces, otherwise the effect is unpleasant and crude. These points being determined, you are ready to proceed. The print is usually best handled damp, but quite surface-dry. A little bleach made of a solution of potassium ferricyanide ten per cent. and potassium bromide five per cent. is placed in a saucer, and a camel's or sable's hair brush is charged with a very little of it, using it, in fact, almost dry. With this the outlines of the warm tint are carefully traced, the surface bleaching as the brush passes over it. If at any point it is desirable to unite the cold and warm areas by a colour half-tone, the effect can readily be produced by applying the bleach as a fine stipple. Now wash the print for five minutes in running water; and, if at any point you have bleached beyond the line intended, charge your brush with a little developer and locally redevelop to the desired extent, wash, and place the print in the usual one per cent. sulphide of soda bath for three minutes: wash until free from odour. The bleached parts are now brown, the rest black silver. The print is next immersed in a bath consisting of gold, one grain; ammonium sulpho-cyanide, ten grains;

water, twenty ounces. In this the silver becomes blue-black and the brown sulphide passes through a series of tints to red chalk. The print is to be taken out and washed when the required colour is obtained. If it is desired to carry the change further at one point than at another, the varying degrees are easily obtained by local swabbing with absorbent cotton charged with the gold bath. Finally, let me point out to you that, if the values or even outlines of your bromide print are defective, you can modify them before proceeding to make your colour modification. By a method that I fully described

in the "American Annual of Photography" for 1909, you can modify a bromide print almost as freely as by gum printing. Before proceeding to demonstrate, let me say in conclusion that pictures are only made by artists, and art demands time and skill. It is easier to make daubs in two colours than in one, and they are more unpleasant; but if you care to give the time and study and have in you the sense of the beautiful, you can make better pictures by the method I am advocating than by any existing method of photography.

H. D'ARCY POWER.

POINTERS IN MAKING STUDIO PORTRAIT NEGATIVES.

[An American association of professional photographers has published, through our Philadelphia contemporary, the "Photographic Bulletin," the following notes on the making of portrait negatives in the studio. The hints are drawn up by Charles Wesley Hearn, in collaboration with John H. Garo, a conjunction of authorship which may be taken as representative of some of the very best professional photographic portraiture done in the United States.]

Lighting.

1. Proper balance of light and shadow at time of arrangement of the sitter, correct timing of the exposure, and a little judgment in mixing developer to suit the plate and local conditions, cannot fail to make a fine negative. The more care exercised, the better the results.

2. Light the subject with a soft pure light, i.e., through clean curtains and windows. Dirty skylights and curtains impregnated with dust give blank whites and harsh shadows, without proper values to the planes of the face.

3. Multiplicity of curtains and their complex arrangement are not essential. As much, if not more, can be effected by the proper placement of the sitter's chair.

4. Strong patches of light on face make strong shadows, with the probable result of forcing those parts of the face, arms, etc., unduly forward, destroying their relative position to each other, causing distortion. It is very hard to correctly expose or develop plates in such cases unless done by experts, and they, too, often fail.

5. There is greater latitude in exposure when the lighting is more balanced, i.e., a little over-timed or under-timed exposure does not prevent obtaining good negatives with a little care in developing.

6. Avoid placing the subjects in strong light, even if rendered mellow by the head screen. To be sure you avoid strong shadows, but at the expense of modelling of the planes of the face. The forehead, cheeks, ear, upper lip and chin are all of the same degree of light.

7. A broad light is the best to use for white ground effect; in fact, for any shade of plain grounds, the cases are rare when it is *not* a good light to use. I do not like it for fishy or bulging eyes, nor do I always prefer it to make strong pictures of strong men. I *do not* use it when photographing effeminate youths, but to make women beautiful, to show their beautiful dark or light hair, to render good values of light or dark in clothing. To make dainty effects I know of nothing that so largely aids the operator.

8. Whatever the method of lighting may be, if the chair is so placed that there is only the *slightest* bit of *soft* high-light in the forehead and along the line of the nose, you are not far off in obtaining proper gradation through the face, especially if coming from an angle of from 35 to 45 degrees. Tonality and colour values are easily obtained if the chair is pulled back a little farther still, so that there are no especial high-lights. Be careful about high-lights with subjects possessing greasy complexions, as they are very disturbing.

Developing.

As lighting and developing go hand-in-hand, it is useless to advocate special formulæ for developer without this fact in mind.

1. All plates of recognised merit give standard formulæ as

advisable for their plates. If the results are not satisfactory I have not for some years blamed the plates, but place it where it generally belongs, and that is upon myself. It may be that my light and the method of light employed are not so good for one plate as for some other, or, more probable still, I may have become used to one plate, and can work it better on that account.

2. In working out a formula for any plate it is well (as a basis to start upon) to use their own, and give it a fair and honest trial, being careful to give correct lighting and timing. If you have reason to think that the whites in the negative are too blank for the lighting employed, watch the temperature of developer, strength of developing agent (pyro, etc.), strength of accelerator (soda carbonate, etc.), or if the above appear to be correct, then reduce the developer with a little more water, and see if this does not correct things. In fact, try the *latter plan first*, if the same plate and formulæ have previously been working right at other seasons of the year.

3. Temperature of developer should be about 55 degrees on hot summer days, and about 70 degrees in cold weather. A good plan in summer is to keep your tray during developing in a larger tray containing ice water and lumps of ice, and the bottle of developer in a pitcher of ice water. By this means the solution is cool all the time of development, otherwise in a hot room the temperature of developer rises very high before you are through with the plate.

4. Bromide in summer time is more necessary than at other times of the year, but there is a difference when bromide is used. Test their action with the plate you use. Better, however, try to expose so as to dispense with bromide, as it has a tendency to chalk up the negative. When a plate is over-exposed remove it, rinse well and quickly, and then return to the developer to which bromide has been added. Otherwise the bromide does no good, as the plate is developed before the bromide becomes effective.

5. Acetone sulphite is especially good in the developer if you are troubled with foggy shadows.

6. If weakening the normal developer with water (which does such wonderful things) does not give satisfactory results, reduce slightly the strength of the developing agent, pyro, etc., and see how it works. If you use metol-hydroquinone or edinol-hydroquinone, increase the metol or edinol, and cut out the hydroquinone. If too flat, increase the carbonate. The way of it is this:—Hydroquinone gives density, but unless used by experts, who know how to use it, it also gives blank faces, etc. without modelling. Energy and strength is also imparted by the carbonate of soda opening the pores of the film and making rapid the metallic deposit of silver to the whites of the plate and unless it is itself too strong, it gives what you want without the harshness of the hydroquinone.

7. As you increase or decrease the carbonate, balance the same with the pure sulphite, which proportion varies with different plates, taking about 50 per cent. more sulphite with Cramer to 20 per cent. more with Seed and about 15 per cent. Standard, etc.

8. When balancing the soda solution, do not overlook keeping the developer agent itself in good working condition. Do not forget that you have got to have a good horse or other power to pull that load properly. If the horse is not strong enough you'll have trouble. If the carbonate is too heavy, even if balanced with sulphite (which is used to keep the film clear, and largely aids in the fineness of the deposit in the plate), you will get fog as sure as night follows the day. *Increase of carbonate over the published formula should always be done with caution.*

Fixing and Reducing.

1. Use acid hypo, and *don't* keep it for ever. Fix for several minutes after the film is clear.

2. In my practice I have discontinued reducing with red prussiate of potassium; in fact, reducing at all, if I can help it. I avoid it by developing until my low notes are as desired, and then by rinsing my plates, and occasionally placing in weak sulphite soda solution. I do the rest of the developing with a large camel's hair brush or a large wad of cotton soaked in normal developer, with occasional rinsing; if the developer runs where I want, no other developing.

3. If the *dried* negative still needs reducing, I employ tufts of cotton and alcohol or toothpick and alcohol, but the toothpick is used *without* any cotton on the end of it. I am recently using for larger places, however, turpentine or oil, and pumice or emery powder, and perfectly flat pieces of hardwood or steel, such as are used by engravers for die plates for embossing presses. I make a paste of the oil and pumice on a glass, and work it smooth with the die plate and rub it lightly in the parts of the negative to be reduced.

4. The reason why I have discontinued chemical reduction is because tonality or the removing of undesirable things when effected this way is always at a loss of strength or solidity, with a noticeable and disturbing flatness. By grinding away the film *evenly* this way, or by some other method along these lines, you reduce in tone and preserve quality at the same time.

THE "PHOTOGRAPHER OF PARLIAMENT."

AFTER the next General Election the House of Commons will have to find a new "photographer-in-chief," for Sir Benjamin Stone, the founder and for so many years the occupant of that unofficial position, will no longer be one of its members. The announcement of his intended retirement was received with regret among all parties in the House, and the suggestion that some marked tribute of respect should be paid to one who is not only so generally esteemed but who has made such sterling use of his camera was received with pleasure, and followed up with earnestness. The result was seen on Friday last, when, in the Harcourt Room at the House, Sir Benjamin was entertained at luncheon by a large number of his fellow-members and presented with an illuminated address warmly thanking him "for the kind, considerate, and generous manner" in which he had devoted himself to the presentment of groups and individuals which must be of historic value. Sir John Brunner occupied the chair, and

Mr. Sydney Buxton, as reported in the "Morning Post," made the presentation, and spoke of the value of the photographic work done by their guest. He did not think that as regarded any members of the House Sir Benjamin had really damned them with faint praise, because he made them all good-looking and yet true to life. (Laughter.) Apart from members, he had from time to time given them the opportunity and satisfaction of preserving a permanent record of the visits of colleagues from the Colonies and of distinguished strangers from other countries. He was not sure whether one of the most successful of these photographs was not one of Mark Twain, taken on the Terrace. Then, from the national point of view, Sir Benjamin had rendered a great service in selecting for his studies various ancient and historical landmarks in the country—castles, mansions, and cathedrals—and scenes depicting old customs. There was one

ancient monument which he had photographed, and of which in the next few years, when it has ceased to exist, they would be glad to have a representation—the House of Lords as it was in his time. (Laughter.) But, seriously, they were immensely indebted to Sir Benjamin not only for the pleasure experienced in having him as a fellow-member, but for all that he had done with his camera, and they wished him every possible happiness during the remainder of his life. (Cheers.)

Mr. Cathcart Wason, who, with Mr. Henniker Heaton, has taken a leading part in the presentation movement, then read the address, and stated that among the signatories were Mr. Asquith, Mr. Balfour, Mr. John Burns, Mr. Lloyd George, Mr. Winston Churchill, Mr. Lewis Harcourt, Mr. Henderson, and members from Ireland. He added that he thought it would have given the Speaker great pleasure to have attended that luncheon, but he could not establish a precedent. He had, however, signified his strong approval by signing the address in a prominent place. (Hear, hear.)

Sir Benjamin Stone, in replying, said the severance he had to make was one that he felt keenly. It was a great break in his life, for he was parting from a number of friends whom he greatly esteemed and without any bitterness towards any man in the House. He felt also that there was a break in the interest he had always had in the House itself—in the customs, prejudices, traditions, and history of the House. As to his photographic work, he had pursued it with no kind of assertive selfishness, but he had looked upon it more as part of the common history of the House, and not his own in Parliament. His mind often wandered back to the former history of Parliament and reverted to scenes in Westminster Hall. Again and again he had paced the floor of that hall full of thought, and "amid the spirits and the ghosts" endeavoured to learn something of the scenes that had been witnessed there. How, for instance, he would have liked to have photographed Sir Walter Raleigh, Sir Thomas More, and the famous Duke of Buckingham. Then there was the melancholy scene of Richard II. abdicating, and another of the three Queens kneeling before Henry VIII. and begging for the lives of apprentices condemned to be hanged at the gallows. These were the scenes that went through his mind, and perhaps his photographic interest almost put them into pictures. Coming to modern times, he spoke of the photographs of the men he had been able to take, and his recital included a list of the most eminent Parliamentarians of their day. Pictures of distinguished visitors from other lands were also among his collection, and, as he said, they were pictures of history, suggesting the remark that there ought to be a Government Department to take like account of current history.

The gathering concluded with a vote of thanks to Sir John Brunner for presiding.

A HINT ON PHOTOGRAPHING MACHINES IN WORKSHOPS.

THE following hint on subduing the background of the workshop or other building where a machine is being photographed without resorting to blocking out of the negative is given by a writer in an American journal, "Machinery":—

Some time ago I had to take a photograph of a lathe which had a 28-inch swing and a 56-foot bed, and in one particular it is rather out of the ordinary. Normally there are two complete lathes on the one bed, the headstocks being at the extreme ends and the tailstocks in the middle. One operator is at the back of the machine and one at the front, as usual. The rear lathe has a lead-screw and feed-shaft slightly less than half the length of the bed, while in front the lead-screw and feed-shaft extend along the whole length. The novelty of this arrangement is that the carriage belonging to the rear lathe can be turned around to the front so that both carriages may be at work on the same job, one headstock and one tailstock being, of course, removed. Normally, however, the machine is worked as two independent lathes, and as such was photographed by me and also by a professional photographer whom we generally employed when we wanted an extra good job.

Any one who has tried to block out a negative of a machine which has the shop for a background knows that it is a difficult matter to tell which is the machine and which is the shop. It is always advisable to have a white sheet for a background, so that the outline of the machine is easily discernible; in fact, the writer has taken scores of machines where no blocking out was necessary at all. The white sheet should be gently swayed during exposure

in order to remove all creases and dirty marks which would show if the sheet were still. This method is a good one to adopt if a large enough sheet is available; it is hardly practicable, however, to have a sheet big enough for a 36-foot lathe. The only thing, then, that can be done is to rig up a background that will enable the blocking out of the negative to be done more easily.

When the first photograph of the lathe was taken, a large sheet was suspended from the crane. This was made of a lot of white paper fixed up on cords very much like the family washing, and, in addition, a smaller sheet was held up by three men. It took about an hour to get the background fixed, so that after once dismantling it (this was necessary in order to run the machine) I didn't like the idea of putting it all up again to take the other view; consequently I thought I would only use the small sheet, but instead of keeping it in one position, have the men who were to hold it walk from end to end of the machine during the exposure. This was done, and the idea was a success. It leaves the outlines of the machine well defined, and no time was required in putting up a background.

For all practical purposes it is unnecessary to block this negative out, as the girder work, counter-shaft, etc., rather improve the appearance of the picture, besides giving some idea of the size of the machine.

PHOTOGRAPHY IN ADVERTISING.

BEARING on the recent articles on the greater use of photography for advertising purposes, it gives us pleasure to reproduce herewith a couple of photographs made by the wife of Mr. W. H. Goy, chemist, of 17, Battersea Rise, Clapham Common, which are as admirable an



Advertisement Photograph. By Mrs. W. H. Goy.

example as could be wished of the advertisement photographs which can be made out of quite simple materials. Mrs. Goy's photographs have been designed as advertisements to Wright's coal tar soap, and have, we believe, been taken up by the makers of this article.



Advertisement Photograph. By Mrs. W. H. Goy.

PERMITS TO PHOTOGRAPH.

THE article which appeared in the "Times" on this subject brought a letter from the Dean of Peterborough, pointing out that the information given in the article was incorrect as regarded his cathedral, at least. The "Architect" has, therefore, made special inquiries as to the regulations regarding permission to photograph, sketch, or measure in our cathedrals, and the following particulars may be taken as authentic:—

BRISTOL.—Permits to photograph and sketch given by the Dean. No charge.

CARLISLE.—Permits to photograph, sketch, or measure given by the Dean "on certain necessary conditions."

CHESTER.—Permits to photograph or sketch at the discretion of the Dean on written application, with name and address. No charge except sixpence for entry to choir or lady chapel.

CHICHESTER.—Permission to photograph, sketch, or measure to be obtained from the Dean and Chapter on application to the Chapter Clerk and payment of half-a-crown. A copy of every photograph taken to be sent to the Chapter Clerk.

DURHAM.—Permits to photograph, measure, or draw given by the Dean. No charge.

ELY.—Permission to photograph, sketch, or measure granted to proper applicants for such parts of the cathedral and precincts as are ordinarily accessible to visitors. Application to be made to the Dean or the Canon in residence. No charge at present, but question of a moderate fee is under consideration.

EXETER.—Permits to photograph, sketch, or measure given by the Dean or Canon in residence, under certain regulations which the verger communicates. No charge.

LICHFIELD.—Permits to photograph, sketch, or measure can be obtained on application to the Canon in residence. The use of ladders not allowed, nor the removal of any article of furniture. Regulations now under consideration by the Dean and Chapter, and may possibly be revised.

LINCOLN.—Permits to photograph, sketch, and measure granted for four weeks, and if elsewhere than in the nave for a single payment of sixpence. Special permission required for the higher storeys, and applicant must be accompanied by a workman of the cathedral, for whose time a fee will be charged.

MANCHESTER.—Photographing not allowed. Permits granted for sketching or rubbing brasses on payment of a small fee. Photographs can be bought at a cheap rate, the Dean and Chapter having employed a professional firm "to make a series of beautiful photographs, bringing out all that is best to be seen in the cathedral."

NEWCASTLE-ON-TYNE.—Permission for photographing or sketching to be obtained from the Vicar or the Canon in residence.

OXFORD.—Permission to photograph, sketch, or measure must be obtained from the Dean, or, in his absence, from the Canon in residence.

PETERBOROUGH.—Permits are not required, "except that in the case of elaborate measurements, involving perhaps extra labour or responsibility on the part of the vergers, it might be necessary to make special arrangements."

ROCHESTER.—Permits to photograph, sketch, or measure granted by the Dean on written or personal application. A fee of sixpence charged, unless a series of visits is contemplated, when the fee is somewhat modified.

ST. ALBANS.—Permits granted by the Dean, name and address of applicant being required. No fee charged. Holder must "conform to the necessary regulations."

ST. ASAPH.—Permission to photograph and sketch granted by the Dean on application. No charge.

ST. DAVIDS.—Permits for photographing or sketching are granted by the Dean. Fee for one day, one shilling; for one week, half-a-crown. Permission to take measurements is very rarely asked for and would involve special consideration.

ST. PAUL'S.—Fee of half-a-crown charged for each day's leave to photograph (except in special cases). No flashlight allowed.

SALISBURY.—Permission to photograph, sketch, or measure given to all by the Dean or Canon in residence on application.

SOUTHWARK.—Tickets of permission to photograph, sketch, etc. are obtainable of the Dean's verger at five shillings each.

TRURO.—Permission to photograph given on application, usually by letter, to the Canon in residence. Fee of half-a-crown charged.

WELLS.—Permission given on written application to the Dean or Canon in residence for photographing or sketching, and (in the case of architects) for measuring, without any charge up to the present; but it is not improbable that a small charge may be soon made.

WESTMINSTER ABBEY.—Permission to take photographs is only granted by the Dean in exceptional cases on application to the Chapter Clerk. A fee is paid to the Fabric Fund of five shillings for each view or object photographed within the church.

WINCHESTER.—Permission to sketch or take measurements given on application without charge. Photographers are charged one shilling a day, or half-a-crown a week.

WORCESTER.—Permission to photograph given on application to the Dean or Canon in residence. The use of ladders or other apparatus of that kind would be specially considered as to its reasonability.

YORK.—On application to the Chapter Clerk a permit to photograph is given on payment of half-a-crown for one day; to sketch, measure, or take a rubbing, one shilling. For a period of several days or weeks on special work, special terms are arranged for those who can produce satisfactory references. For the choir, lady chapel, chapter-house, crypt, or any part shut off by gates, an additional charge is made of sixpence. The crypts are electrically lighted, and a small extra is charged for this sometimes. Access to the triforium and the use of ladders and stands allowed only under supervision by the clerk of works.

It is hardly necessary to say that photographing, sketching, and measuring are not allowed in cathedrals on Sunday or during Divine Service; that artificial light is usually forbidden, and the use of ladders or stands or the moving of any article of furniture are only allowed by special permission and under the personal supervision of the clerk of works or other official. It will be gathered from the detailed particulars we give above that great freedom is allowed in our cathedrals to those who wish to study; that the regulations made and the fees charged, where these are in force, are for the purpose of maintaining the decency of the church and of preventing the abuse of the privileges that are granted.

Photo-Mechanical Notes.

A Manual of Line Photo-Engraving.

Messrs. Lund, Humphries, and Co. have just published at 7s. 6d. net a book on "Line Photo-Engraving," by William Gamble, of Penrose and Co. In the 328 pages is contained a description of almost every known method of producing line engravings in which photography enters, and of many processes in which it does not. For instance, instructions are given with regard to drawings on transfer paper and on metal direct, for the production of line etchings. Photo-lithography also receives a considerable share of attention. The author recognises that the very comprehensiveness of his book may puzzle the beginner as to which process is the simplest, for he directs attention in the preface to those chapters which contain the description of current processes; but this encyclopædic character will be of the greatest service to the expert line photo-engraver, who is at all inclined to experiment, for he will find an account of practically all suggested methods, and full instructions for several processes not now much used, if at all, such as the "swelled gelatine" and "wash out" methods, which are capable of turning out work of admirable quality and may still have a future. The book has a frontispiece of tint colour line work, and is copiously illustrated in the text with pictures of "Penrose" apparatus. The book has also a good index.

Proving Half-Tone Blocks.

The improved "Albion" which is now in almost universal use for proving half-tone plates, is gradually being displaced in many establishments by a modified form of gold-blocking press. This is said to possess many advantages, perhaps the chief of them being that it occupies very much less space. The lever being a pull-down vertical bar, the press can stand in a corner of the room with the lever next the wall, and therefore takes up not very much more

space than the size of the plate it will prove. It is said to be three times as strong as an "Albion" of the same size, and the height of the bed is much more comfortable for the prover at his work than in the case of the lower "Albion" bed. There is certainly a future for this press, and we wish there were more English presses to be had instead of German ones. It was an English idea to use the gold blocking press for proving photo-engravings.

Originals for Three-Colour Reproduction.

We receive constant inquiries as to which originals are most suitable for reproduction by three-colour blocks, and whether it is desirable to paint them in the three colours that the block printer will use, viz., yellow, blue-green, and pink. We may say at once that this is not at all desirable, and any artist attempting this will give himself unnecessary trouble—first, in obtaining pigments suitable as to colour and permanency, and, secondly, in producing the colours he wants with mixtures of such pigments. The artist had far better paint with his accustomed pigments and in his accustomed manner, and leave it to the photo-engraver to reproduce his work as nearly as possible. He must remember that it is always and for ever quite impossible to reproduce one medium by another, that is water or oil-colour paint by printing ink: at best it can only be an imitation. Another limitation laid upon three-colour block reproduction is that of narrow contrast range: it is impossible to reproduce contrasts that have a range of more than about 1 to 16 or 20 at the very extreme. It is also very difficult to reproduce very delicate work, so that work especially made for three-colour reproduction should be neither too strongly nor too faintly contrasted, and it should be remembered that these contrasts will be almost always slightly exaggerated in the reproduction. It is also easier to reproduce pictures having fairly well marked regions of colour rather than those in which the colours are vignettted into each other, any sort of boundary or outline being absent. The reason for this is that the production of three-colour blocks is seldom entirely mechanical: if it were, it would not matter, but because neither plates, filters, printing inks, nor manipulation, come up to theoretical requirements a certain amount of fine-etching is always indispensable. This generally necessitates certain parts of the plate being stopped out with acid-resisting varnish, and the more definite these regions are the more likely the etcher is to be successful in treating them.

Another point that is sometimes overlooked is the difficulty of producing an even background of neutral colour. White is, of course, impossible unless the whole of the dots in the background are cut away, and this means a lot of labour, and therefore expense, extra trouble in printing, and very often hard, unsatisfactory edges to the work. On the other hand, to get a neutral colour demands the most exact adjustment of the inks and very slight differences in the size of the dots on one of the plates—or, if these are correct, very slight alteration in the printing conditions will throw the neutral point out, and the background print either too reddish, bluish, or yellowish. Undoubtedly the best sort of originals for three-colour reproductions are those in which form is most important and colour subordinate, so that the slight variations of colour which are almost inevitable in the reproduction will not be a serious matter.

Etching Aluminium.

Inquiries are constantly made as to the best mordant for aluminium, which is a troublesome material at best to etch. We have used the following:—

Alcohol	4 ozs.
Acetic acid	6 ozs.
Butter of antimony (antimony chloride).....	4 ozs.
Water	40 ozs.

Mr. Horgan, in the "Inland Printer," says that experimenters have discarded a complicated formula in favour of a simple bath, made by adding 1 oz. of hydrochloric acid to 20 ozs. of perchloride of iron registering 35 deg. Beaumé, which they state etches the aluminium satisfactorily, though not so quickly.

THE BOLT COURT SCHOOL.—During the rebuilding of the permanent premises in Bolt Court, temporary quarters are to be leased of the Clothworkers' Company in Fleet Street and New Court for the L.C.C. School of Photo-Engraving and Photography.

Exhibitions.

HACKNEY PHOTOGRAPHIC SOCIETY.

ON Wednesday last the 21st annual exhibition of this society was opened at the Hackney Baths, known in its dry state as the King's Hall. The coming of age of the society is an event upon which we offer our congratulations. It is marked by the fact of a record number of entries and a great falling off in the open class. The latter circumstance does not, of course, affect the intrinsic merit of the society, inasmuch as the interest of the show is more completely due to the efforts of the members. We are of opinion that the pictures, on the whole, are more attractive than those of recent exhibitions. The society is, indeed, one of paramount importance in London. Its membership roll numbers 130. It has the advantage of housing its shows perhaps in a finer hall than any other society can boast, and its exhibitions are larger. The present one has 363 entries, exclusive of lantern slides, with a grand total of 520, besides trade and professional exhibits. A liberal orchestral programme has been provided for each of the four days of the exhibition, and, most important point of all, the standard of the work is decidedly a high one.

This year the committee has abandoned the usual classification, and has adopted the novel one of classifying the photographers instead of the photographs. Class A is for competitors who have previously taken more than five awards; Class B for those having previously taken five or fewer awards; Class C for those who have taken none. This obviously sensible arrangement puts competitors upon fairer and more hopeful lines. It will probably be a permanent arrangement, and we commend it to other societies. For the first time, in this age-coming year, there is a class for colour work, the chief exhibitor in which is Colin N. Bennett.

Portraiture is very strong, whereas last year it was practically neglected. Among the most interesting examples are fifteen excellent bromide portraits of the committee, by Stuart Woodhouse, a practically new member. The subject of J. Linley, Esq., B.Sc., who is this year's president, is a work of which anyone might be proud, and is upon the lines of Hollyer's portrait of Walter Crane, which it much resembles. Some multiple gums by Mr. S. W. Shore come very near to success; but in some cases the double tint has proved an embarrassment rather than an advantage. Particularly is this seen in the "Night in May" (13), where the lights and the shadows they cast are not well explained and too variable in colour. Night scenes are the fashion at Hackney. Some are quite fine, and the best is an airy, spacious, and imposing view of Trafalgar Square, by W. H. Witts (188). Mr. Rawlings's "Through a Field Gate" (19) is a choice piece of arrangement of light and dark, and a charming view also. The secretary, Walter Selfe, contributes much excellent work, notably "A Suffolk Landscape" (38), which is finely composed. The trees and snow of Mr. W. A. J. Hensler's "Winter" (48) make one of his best pictorial efforts; but it is run very close by the Alpine scene, "Cloud-Capped Towers" (53), a view of a chalet among mountains. We must mention G. T. Gale's very noble view of "The New Bailey" (111) and R. J. Delf's true "Sunshine in Old Whitby" (411). Space forbids mention of the technical and scientific work, which is, in its way, quite as interesting as the pictorial.

PHOTOGRAPHS BY MR. ARTHUR MARSHALL AT THE R.P.S.

MANY of the pictures in Mr. Marshall's exhibition are already known to our readers. They make a goodly show, and are a tribute to his versatility in methods and catholicity in taste. We are not sure that he is entirely in a position to anathematise the maker of odd and queer pictures. A good half-dozen things might be taken as evidence of his living in a glass house and throwing stones. On the whole, however, his works are charming, and his point of view interesting. We think his reputation will rest upon some of the pretty Dutch girl subjects; the clever street scenes, such as "Shade" (59), and the legitimate snapshots treated with pictorial dignity as in "A Roman Highway" (28) and "A Dusty Day" (56); his best Venetian subjects and the refined figure studies like "Mdlle. P." (54) and "Gertrude Robins" (68).

Mr. Marshall is always on the look-out for the picturesque, for which he has a keen eye. In architectural and street scenes he displays a fine faculty for the beautiful.

We do not know that Mr. Marshall has ever held a one-man show

before, but this one, at any rate, should prove highly beneficial to his reputation, and in many ways interesting to his public. It affords an excellent opportunity of comparing different printing processes as worked by one man. Looking at Mr. Marshall's carbon prints we feel disposed to say that, in his hands, that method has the best results. The bromides are often much fuller of light—sometimes to the point of losing the image in white paper—but they lack the firmness and sureness of gradation which the carbons give. The oil and bromoil prints fall below either by their loss of contrast and liveliness. We think Mr. Marshall could do better in these with a stiffer pigment, more time in pigmentation and severer self-criticising—in short, "straighter" prints.

The manifold sympathies which he advocates as a principle in pictorial work certainly add a charm to his own show, which includes snapshots at bull-fights, and composed devotional works in elaborately and beautifully designed frames. We think he is right. A man who, armed with a reflex camera, only permits himself to photograph one particular variety of subject is obsessed by an exaggerated notion of the importance of his work, and certainly stands confessed a man of narrow sympathies.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents have been received between October 25 and October 30:—

DETECTOR.—No. 24,663. Photographic detector. Emma Mary Rose Stevens, 25, Church Stile, Rochdale.

BLUE PRINTS.—No. 24,917. Apparatus for making blue prints. Matthew William Walbank Mackie, 47½, Old Street, London.

CAMERA STANDS.—No. 24,993. Improvements relating to the heads or tops of photographic camera stands. Herbert Edwin Riley and George Frederick Robinson, 24, Temple Row, Birmingham.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

COLOUR-SCREEN-PLATES.—No. 21,007, 1908 (October 6, 1908). The invention constitutes an addition patent to No. 20,971, 1908,* in which is described a method of making polychromatic screens, where the coloured elements of the screen are produced by emulsifying a liquid in another liquid, in which the former is entirely or practically insoluble.

The present invention relates to improvements in the manufacture of these screens, and by way of example is described a method of producing a three-colour screen consisting of elements of dyed solutions.

Three suitably viscid solutions, for instance of dextrine, are dyed separately with dyes corresponding to the primary colours; thus the first portion may be red, the second green, and the third blue. To each of the three portions can be added such substances as will assist the solution of the dyes, for instance, acid or base, or substances which promote the permanency of the colours, or mordants or reducing substances. The three substances can be of different kinds. For instance, the first a dextrine solution; the second, a gum-arabic solution; and the third, an albumen solution, etc. Each of these portions is then separately emulsified in a viscid solution of, for instance, gum dammar or other appropriate resin, in turpentine oil. (A solution suitable for this purpose may consist of 30 parts of gum dammar and 35 parts of turpentine oil.)

It is mentioned in the prior application that gum dammar and various similar substances (solutions of different resins, balsams, gum resins, etc.) possess a specific emulsifying power, which means that they impart to the small particles, into which the solution

* "B.J.," April 2, 1909, p. 269.

of dextrine, etc., is divided through emulsification, the quality of not re-joining when left at rest.

It has further been found that, by using emulsifying liquids—for instance, gum dammar—of a suitably viscid state, the coloured solutions (in this case the dextrine solutions) will be divided into globules of about uniform sizes, so as to avoid or considerably reduce a subsequent operation in order to separate these globules according to size.

After emulsifying, the gum dammar (or the corresponding substance) must for the greater part be removed, which can be done by repeated dilution and decantation with turpentine oil—i.e., the volatile distillate, or some other solvent, after which the coloured globules are transferred by dilution and decantation, into a volatile liquid, preferably a distillate of petroleum—for instance, benzene. It has been proved that the use of gum dammar as the emulsifying medium and of turpentine oil for the decantation therefrom is especially advantageous for producing the globules, while the subsequent distribution of the latter on the screen support is effected in a better manner if the globules are suspended in a distillate of petroleum, such as benzene. To the volatile liquid is added a small amount of a more or less volatile substance—for instance, petroleum or solid substances, soluble in the volatile liquid in question.

The plate or film, which is to form the support for the screen, can be provided with a thin layer of lac, which is softened by infusion of the liquid in which the emulsified globules are contained. In such case a coating of caoutchouc or gutta-percha is preferable, which has the power of becoming softened or sticky.

The screen-plate or film is prepared by pouring the above-mentioned volatile liquid contained the suspended coloured globules over the same. After some time the globules will settle down, and the undermost layer will adhere to the sticky surface of the plate, while the remainder can easily be rinsed away, for instance, by means of benzene.

In cases where a suitable emulsifying liquid is used for the infusion—for instance, benzene—the above-named coating on the plate can in some cases be dispensed with. If the plate is infused with the benzene containing the coloured globules, and then left for some time, the coloured globules will only adhere to the plate in a single layer. When left at rest the benzene will evaporate quickly, and at the same time the deposited coloured globules will flatten out, so as to cover the whole plate. The less volatile substance, mixed in the benzene, will, however, separate the coloured globules from each other, so as to prevent the colours from diffusing into each other.

After being dried the plate or film is provided with a coating of lac or varnish, after which the sensitive film can be applied to the same. Jens Herman Christensen, Sterrehus, Holte, Denmark.

FILMS.—No. 13,328, 1909 (June 7, 1909). The invention relates to the sensitising of cellulose (viscose) films, prepared from a water solution in particular film obtained from a solution of cellulosic xanthate of soda. Such films are first dipped into a bath of water, so as to swell them. In this state they are at once dipped into a bath of a chloride, bromide, or iodide. Owing to the swollen state of the film at the moment of its immersion into the bath, the salt penetrates into the film instead of merely forming a superficial layer.

The swelling required for the impregnation could be obtained without using the water bath, but using a water solution of the chloride, bromide, or iodide. In this single bath the film would both swell and become impregnated with chloride, bromide, or iodide. After removing it from the salting bath the film can be dried or immediately dipped into a silver or sensitising bath. E. Brandenberger, Thaan, Vosges, France.

WASHING TANK.—No. 8,455, 1909 (April 7, 1909). The invention consists of a tank furnished with a lid, which forms a water-tight joint over the tank, and with a rack for the reception of the plates. There is one tap in the lid for the inlet of water and another at the base of the tank for the outlet. There is also a perforated plate in the lid by which the entering water is broken up into a number of streams. Herbert Frederick, 11, Brynland Avenue, Bishopston, Bristol.

CINEMATOGRAPH MECHANISM.—No. 25,666, 1908 (November 27, 1908). The invention is an automatic extinguisher of cinematograph

films, which has caught fire in the lantern. It is found that when a film is enclosed in a box and is passed through a slit, which is just large enough to take the size of the film, both in thickness and width (the box being closed), and on the film being set on fire outside the box, the flame will not spread farther than the aperture, and will not pass through the slot to the interior of the box, owing to suffocation of the flame. To make it practically useful a round or square box is provided with a closely fitting lid. On the outside of the box is a small square frame, which takes two rollers, preferably made of metal. These two rollers fit very closely into the frame on the four sides, and are separated from one another only just the thickness of a film, but leaving just sufficient room for it to pass through without any friction.

In order to make the box applicable to any existing type of cinematograph, two angular pieces are fixed parallel to one another, forming the letter U upon the box, the angle pieces being grooved on their inside upper edge. By using a suitable plate and screw fixed in the middle, the plate can be slipped into the slots, thus forming a slide, and be fixed by means of the screw up against a spool arm. Leo Kamm, 27, Powell Street, Goswell Road, London, E.C.

CINEMATOGRAPH MECHANISM.—No. 11,546, 1909 (May 15, 1909). The invention relates to the mechanism of a cinematograph camera, and requires the numerous drawings in the specification for its explanation. George William Curtiss, 2,101, Woodland Avenue, Kansas City, Missouri, U.S.A.

CINEMATOGRAPH FILMS.—No. 14,345, 1909 (June 20, 1908). The invention relates to the production of cinematograph pictures (to be viewed by reflected light), printed from half-tone or other photo-mechanical blocks. The chief claim is for a process which consists in producing a printing block, the entire surface of which is occupied by pictures arranged side by side without spaces between, cutting the impressions produced by means of this block into strips and sticking these strips upon a continuous support of sufficient width to leave margins for the reception of the driving perforations, and then forming these perforations in the film. Charles Dupuis, 18, Rue de Paris, Vincennes (Seine), France.

Analecta.

Extracts from our weekly and monthly contemporaries.

Removing Stains from Gaslight and Bromide Prints.

A simple and effective stain-remover for gaslight and bromide prints (writes Mr. N. Morris in "Photography and Focus" for November 9) can be made by dissolving an ounce of hypo and 500 grains of alum in half a pint of boiling water. The hypo should be dissolved first, and the alum then added at once, while the water is still very hot. The print that is to be cleared is first immersed in a hardening solution, made by dissolving 25 grs. of alum in 4 oz. of warm water, and it is left in this bath for five minutes. The solution is then poured off, leaving the print in the same dish. The clearing solution, as above, is divided into two parts; the first, while still hot, is poured over the print, and the dish rocked as in developing a plate. The other part is poured into an enamelled iron dish and put on a gas stove, where it can be kept hot, but not boiling. If the clearing is not completed before the first lot of solution is cold, it may be poured off and the second lot applied, but unless there are a number of prints to be cleared this will very seldom be required. When the clearing is complete the print is placed in a dish of clean water, and any deposit that may have settled on it removed by gently wiping it with a tuft of cotton wool. It is then washed in running water in the usual way. There are two points to note: One is that if the solution is used too hot it will commence to tone the print, and the other that if it is not hot enough it will not work.

Oil Printing by Gaslight.

The extreme sensitiveness to light (writes Mr. H. B. Bradley in "The Amateur Photographer and Photographic News" for

November 9) of the sensitised paper used in oil printing is well known to all oil workers. But that it is rapid enough for printing by incandescent gaslight does not appear to be known to many. To these workers the following may prove interesting:—A half-plate Rodinal developed negative, free from stain and of average density, was selected. A full-plate piece of paper (Autotype Co.'s Special No. 2 Toned) was taken and sensitised with a solution made up of one part saturated solution of ammonium bichromate to two parts methylated spirit.

The sensitised paper was pinned up in a dark cupboard for ten minutes to dry, and then placed for half a minute in a moderately warm oven to drive off any lingering moisture. It was then placed in contact with the negative, and an exposure of one hour was given, at a distance of five inches from an ordinary-size upright incandescent gaslight. A whole-plate frame was used.

At the end of this time the paper was taken out of the frame, quickly washed in several changes of tepid water, and left to soak for twenty minutes in water which was lukewarm. On proceeding to ink up, the print showed signs of over-exposure, taking the ink too readily all over. From commencement to finish the print had taken about two hours. A shorter exposure—say, three-quarters of an hour—would have been sufficient for a good print.

New Books.

Colour Blindness and Colour Perception. Second Edition. By F. W. Edridge-Green, M.D., F.R.C.S. London: Kegan Paul, Trench, Trübner, and Co., Ltd. 5s.

Though this book has no direct bearing on photography yet it contains a great deal of interest to those photographers who make a study of colour. The author has a theory of his own with regard to colour perception, and does not accept either the Young-Helmholtz or Hering theory, and though to this extent he may be looked upon as unorthodox, yet it cannot be denied that he makes out a very strong case for his own theory. So far as we can gather in a first perusal his idea seems to be that colour blindness is a mental, not a visual effect, so that blindness to, say, red does not imply lack of sensitiveness to red in the eye, only a mental lack of perception of the red-sensitiveness. He classifies his subjects according to the number of colour units they can perceive in the spectrum, and points out that normal eyes see only six. A few exceptional persons can see seven, while the different degrees of colour-blindness are classified according to the number of units less than six that can be distinguished. If portions of the spectrum are isolated by a slit of variable width, it will be found that quite an appreciable part of the length of the spectrum appears monochromatic. This forms one of Dr. Edridge-Green's units, six of which form the normally visible spectrums. An interesting digression from the subject of colour applies a similar theory to light and shade. "A person with defective perception of shade will put two shades of grey together as exactly alike when the match is markedly incorrect to a normal-sighted person. This defect is not necessarily associated with diminished colour perception. Observers do not take sufficient account of mental deficiencies of perception when reasoning upon the functions of the senses. Thus we cannot say for certain that a photograph represents the image on the retina; in reality, it may be far more complicated." This we read to mean that the range of gradation from white to black in a photograph may appear too steep to one observer and too gradual to another. By an unfortunate omission the colour plates bear no reference numbers by which they may be identified in the text, so some of the examples are difficult to follow. The book altogether is very interesting, and well worth reading by photographers interested in colour problems, for the author's theories, though very revolutionary, are suggestive in several ways.

THE NEW CAMERA CLUB.—A meeting of those interested in the formation of the New Camera Club will be held at the Gaiety Restaurant, Strand, on Tuesday, the 23rd inst., at 5.30 p.m., at which the Earl of Crawford has kindly promised to preside. All those interested are welcome. A substantial guarantee fund has already been formed.

New Materials, &c.

Phosphate Matt Lantern Plates.—Made by Paget Prize Plate Co., Watford.

With these plates we have the novelty of a matt emulsion upon glass, the result of which is an image that to all appearances is on a very finely ground glass surface. The treatment of the plates is precisely the same as that of the Paget Phosphate paper and clear lantern plates, but in printing a rather longer time must be given. We found that a negative of good P.O.P. printing quality required an exposure of about two minutes at a distance of one foot from an incandescent gas burner to give a dark purple-brown tone, while five minutes gave a good red-brown. A black tone was obtained with 45 seconds exposure, and a good red one with ten minutes. The developer is metol, and acetic acid as used for the paper, and an acid fixing bath applied for one minute, followed by half-an-hour's washing, completes the process. The plates sent to us were of stereoscopic size, and the opalescent matt film gave an excellent effect in the stereoscope. The grain is a little obvious owing to the image and the grain being on the same plane, and both in focus together. Of course, a finely ground surface on the back of the plate is the best way of producing an opalescent background, but to get this effect with ordinary plates we must either make reversed transparencies or use plates ground on the back, both of which complications are inconvenient. Nothing can be more simple than the process of using these Matt Phosphate plates, while the results are excellent. It may be noted that the shadows, though opalescent, are perfectly bright without any of the muddy effects that we so often get on matt paper. We have heard it stated that phosphate emulsions tend to give lights without details, but no such effect is observable with these plates. If exposure and development are both sufficient, whites full of detail are easily obtained. A peculiarity of these plates is the fact that it is apparently difficult to spoil them. The first plate we exposed failed to develop after several minutes treatment, owing to the coldness of the developer. Thinking it was a hopeless case of under-exposure, we took the plate out and let it dry without any washing, but in the drying process the image appeared. On discovering this we took the half-dry plate, treated with some fresh developer, and obtained a black tone result slightly fogged owing to exposure while drying, but free from irregular markings. Another plate by accident was dropped into a dish containing stale developer which only covered half the plate. On observing this we simply poured off the developer and applied fresh, and again secured a result quite free from any markings. Such tricks as these cannot be played with ordinary emulsions, and it is evident that phosphate plates should be a boon to careless workers. It may be worth noting that exposure to air has apparently a strong accelerating effect on the development of these plates; development can therefore be shortened by occasionally lifting out the plate or pouring off the developer at intervals.

"Ensign" Greeting Cards for Photographers. Made by Houghton & Co., Ltd., 88 and 89, High Holborn, London, W.C.

Among the cards which Messrs. Houghtons describe in their newly issued eight-page quarto list, in every instance by aid of half-tone illustration, will be found designs suited to buyers of every degree of taste and pocket. Those who prefer formal designs in the shape of a card without colour or ornate decoration will doubtless select a design such as No. 2,131, consisting of a cream folder embodying a slip-in mount of the same tint, and on which to cover the single word in gold blocking, "Greetings." This is made for quarter-plate prints either upright or oblong, in each case at 1s. per dozen. A step towards the use of more ornate designs is represented by Nos. 2,053 and 2,054 for circle prints of 2½ and 2⅞ inches respectively. These mounts are of cream ivory card with white embossed slip-in folder, and a colour design in cream, gold, and brown, with the words "Good Wishes." The price is 2s. 9d. and 3s. 3d. per dozen. There is more colour in Nos. 2,163 and 2,164 of brown linen-surface paper with dark-brown design and embossed holly berries. The wording is "With All Good Wishes," and this mount is made for prints 3½ by 2½ or quarter-plate, in each case upright and costing 2s. and 2s. 6d. per dozen. A further stage in the use of embossing and colour in the ornamentation of the mounts is represented by No. 2,181—a dark-green mount

for upright postcard prints. The front bears a decorative panel of poppies and gold leaves with the words "Best Wishes." These mounts are sold at 2s. 3d. per dozen. We advise those who are deciding to send Christmas photographic missives to obtain Messrs. Houghtons' list, the illustrations in which very clearly show the design of the card, though they cannot give any idea of the very choice surfaces of paper and colour of design which have been adopted. This is done with great exactness in the short printed description under each illustration. We should mention also the series of calendars suitable for prints from $3\frac{1}{2}$ by $2\frac{1}{2}$ to postcard size, and issued at prices from 2s. 9d. to 3s. 3d. per dozen, in each case allowing of the insertion of a print in a slip-in mount.

"Noctona" (Gaslight) Paper. Made by John J. Griffin and Sons, Limited, Kingsway, London, W.C.

It might be thought by those familiar with the many varieties of "gaslight" papers upon the market that in adding to their number a maker could hardly be expected to contribute anything in the way of simpler manipulation or distinctiveness of quality. But in introducing a new gaslight paper, to be known as "Noctona," Messrs. John J. Griffin and Sons (whose long experience, both as vendors and makers of this type of paper, has stood them in good stead) have certainly sustained their claim to provide the professional—not to say the amateur—worker with further facilities in the practice of this method of printing, whilst at one and the same time they should most assuredly have secured a place in the affections of the dealer by doing this without issuing more than three different brands of the new paper. These three, even, are different only in surface, consisting of "Glossy," "Satin," and "Pearl Matt."

Referring now to the extra simplification of gaslight printing when using "Noctona," it should be explained that with each packet of paper Messrs. Griffin supply a very simple exposure-meter consisting of a multi-strip of graduated tints which is placed between the negative and the printing paper, and an exposure given which should certainly be several times what is judged to be the right time. On developing this print the portions bordering the meter will, of course, be grossly over-exposed, but the sections under the different tints of the meter will—one or other of them—show a correctly exposed and developed picture. The total time during which the paper was exposed is then divided by the number marked on this tint, and the result is the correct exposure for the negative. This method we found to work out quite accurately in practice, and our exposure of the second piece of paper in the packet gave us a print which was as good as could be desired.

Further, in addition to this feature, the "Noctona" paper allows of manipulation which permits of extra contrast or extra softness being obtained according to the negative which is being used or to the character of print desired. If greater contrast is required than is given by correct exposure, the method is to give a longer exposure and remove the print quickly from the developer. Contrary to what users of bromide paper might expect, this method does actually give a considerable increase in the contrast in the print, and is particularly useful when working from negatives which are unduly flat. Treated in the normal way, "Noctona" is very suitable for negatives which print well in P.O.P., and have a fair degree of contrast. It does not give the extra, almost hard, results which many gaslight papers are adjusted for, but the method just mentioned is a valuable means of securing extra contrast when it is required. As regards obtaining softness when working from negatives of extra hard quality the method here again is one which experience with other development papers may at first appear to contradict; the print is given a shorter exposure and allowed to remain longer in the developer. Under these conditions "Noctona" gives a print with full detail but without the strength in the shadows which from such negatives are usually an asset in the print. In making use of this method there is, of course, no limit to the time in which the print may be kept in the developer, but as soon as it is seen to gain no further intensity it is naturally removed. If it has not sufficient depth the remedy is to expose another piece of paper, giving a slightly longer time.

In addition to these qualities, which we think will of themselves recommend the paper to both the amateur and commercial worker, "Noctona" proves an excellent paper for prints to be sulphide-toned, that it may be fairly described as answering to every requirement of a development paper for contact printing. The developer recommended, and the one which we used, is the familiar "Mequin" for-

mula, the composition of which is given in the instructions, whilst the developer is put up in cartols and packets at moderate prices, as is also the acid fixing bath. For this latter, however, we are glad to see that Messrs. Griffin recommend the simple formula of hypo plus a little metabisulphite, than which we know of no better acid bath for either negatives or prints. "Noctona," we should add, is issued at the standard prices, is listed in all sizes up to 15 by 12, and is obtainable also as postcards in packets of eighteen (1s.), one gross and one thousand.

ROTARY CHRISTMAS POSTCARDS.—The Rotary Photographic Company, Ltd., send us specimens of their sensitive postcards for the Christmas season, issued as "Rotox" (gaslight), "Rotograph" (bromide), "Roto" (P.O.P.), and "Rotona" (self-toning). The cards, in the case of each grade, bear reasonable designs in two colours, and include such up-to-date subjects as motor-cars and hand-cameras.

CREAM ANTIQUE SELTONA.—The Leto Photo-Materials Company, Ltd., have just issued a new variety of the antique "Seltona" placed on the market about eighteen months ago. The new paper has the delicate linen-like surface of the ordinary "Antique," but is of cream tint, this colour of ground harmonising excellently with the brown and purplish-brown tones obtained on the paper. For the present this new grade of the renowned self-toning paper is issued in paper only, but postcards and "Boardoids" will appear in due course. The price is that of Seltona itself.

CATALOGUES AND TRADE NOTICES

PROFESSIONAL DISCOUNTS.—The firm of Jonathan Fallowfield sends us a list (prepared for private circulation among bona fide professional photographers) of the discounts allowed off the prices of the chief requisites employed in a studio. The list, in the case of each article, gives a page reference to the indispensable Fallowfield "Annual," where goods are priced, described, and illustrated.

SECOND-HAND APPARATUS.—The Tella Camera Company, of 68, High Holborn, London, W.C., has issued a list of second-hand photographic apparatus, which they are offering at greatly reduced prices. This includes a large variety of cameras (hand, stand, field, and reflex), lenses, tripods, roll-holders, changing-boxes, shutters, enlargers, and lecture lanterns, together with a variety of sundries too numerous to mention, but all of interest to the photographic worker. The firm also draw special attention to a number of half-plate triple extension outfits, which they are now offering at the low price of £2 12s. 6d. Those desirous of obtaining bargains in photographic requisites should apply to the Tella Camera Company at the above address for a copy of this comprehensive list.

FORTHCOMING EXHIBITIONS.

- November 10 to 13.—Hackney Photographic Society. Sec., Walter Selve, 24, Pembury Road, Clapton, London, N.E.
- November 10 to 13.—Cambridge and District Photographic Club. Sec., T. J. Sowdon, Sunny Side, Guest Road, Cambridge.
- November 23 to 26.—Southampton Camera Club. Sec., S. G. Kimber, Oakdene, Highfield, Southampton.
- November 29 to December 2.—Lancaster Photographic Society. Entries close November 20. Sec., Thomas Holt, 4, Parliament Street, Lancaster.
- December 4, 1909, to January 1, 1910.—Southport Photographic Society. Entries close November 15. Sec., J. McLellan, 2, Pilkington Road, Southport.
- December 31, 1909, to January 8, 1910.—Wishaw Photographic Association. Entries close December 18. Sec., R. Telfer, 138, Glasgow Road, Wishaw, N.B.
- 1910.
- April 5 to 9.—Sheffield Photographic Society. Secs., J. A. George and J. R. Wigfull, 14, Parade Chambers, Sheffield.

THE ILLUMINATING ENGINEERING SOCIETY.—The opening meeting of this society will take place on Thursday, November 18, at 8 p.m., at the House of the Royal Society of Arts (18, John Street, Adelphi, London, W.C.), when a brief report of the progress of the Society will be presented by the Hon. Secretary, and the inaugural address will be delivered by Prof. Sylvanus P. Thompson, D.Sc., F.R.S., the first President of the Society.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, NOVEMBER 12.

Salisbury Camera Club. "Autotype Carbon." Demonstration.
Skipton Photographic Society. "Modern Photographic Apparatus and Exhibition of T. P. Prize Slides." R. Hesketh.
Colne Camera Club. "Large Prints from Small Negatives." W. F. Slater.
Photographic Society of Ireland. "Telephotography." C. P. Goerz, Ltd.
Manchester Amateur Photographic Society. "The Thames Valley." J. McIntosh.
Paisley Philosophical Society. "Ensyna." F. J. Stedman.
Mill Camera Club. *Photography 1909* Lantern Slides.

SATURDAY, NOVEMBER 13.

Manchester Amateur Photographic Society. "Rambles and Scrambles on the Pacific Slope and in the Yellowstone Regions of the Far West." Harold Edgar Young.

SUNDAY, NOVEMBER 14.

South London Photographic Society. Excursion to Wimbledon.

MONDAY, NOVEMBER 15.

Southampton Camera Club. "Picturesque Holland." Rev. John Heath.
Morpeth Y.M.C.A. Camera Club. "Sports and Pastimes with the Goerz-Anschutz Folding Camera."
Southport Photographic Society. "Large Prints from Small Negatives." W. F. Slater.
South London Photographic Society. "Light and Shade." P. Bale Rider.
Leeds Photographic Society. "Modern Photographic Apparatus and Exhibition of T. P. Prize Slides." R. Hesketh.
Stafford Photographic Society. "Ozobrome." Herbert A. E. Hey.
Longridge Camera Club. "Autotype Carbon." Demonstration.
Calceuth Camera Club. "Autotype Carbon." Demonstration.
Catford and Forest Hill Photographic Society. Print and Lantern Slide Competition.
Scarborough and District Photographic Society. "Owre the Border and Awa'." Robert Mackay.

TUESDAY, NOVEMBER 16.

Royal Photographic Society. "Behind Birdland's Veil." Oliver G. Pike.
Barrow Photographic Society. "Autotype Carbon." Demonstration.
Blyth and District Camera Club. "Autotype Carbon." Demonstration.
Padiham Photographic Society. "Autotype Carbon." Demonstration.
Otley and District Camera and Art Society. "Modern Photographic Apparatus and Exhibition of T. P. Prize Slides." R. Hesketh.
Dumbarton Camera Club. "Ensyna." F. J. Stedman.
Hackney Photographic Society. "Ensyna." F. Marshall.
Nelson Photographic Society. "Large Prints from Small Negatives." W. F. Slater.
Manchester Amateur Photographic Society. "Intensification and Reduction." Harry Wade.
Leeds Photographic Society. "The Platinotype Process." The Platinotype Co.
Worthing Camera Club. "Home Portraiture." P. R. Salmon.
Glasgow Southern Photographic Association. Selection of Slides for Federation Lantern Slide Competition.
Seacombe Victoria Photographic Society. "What can be done with a Hand Camera." C. P. Goerz, Ltd.
Birmingham Photographic Society. "One Minute Development." Demonstration. Harold Baker.

WEDNESDAY, NOVEMBER 17.

Croydon Camera Club. "Electric Lights for the Dark Room." W. H. Smith and E. A. Salt.
North Middlesex Photographic Society. "Gaslight Printing." M. Fraser Black. Night Photography Competition.
Borough Polytechnic Photographic Society. Lantern Lecture on 1908 Affiliation Prints.
Woodford Photographic Society. "Gothic Architecture." Grose Lloyd.
Sale Photographic Society. "Modern Photographic Apparatus and Exhibition of T. P. Prize Slides." R. Hesketh.
Darwen Photographic Association. "Printing, Developing, and Toning Velox Paper." W. F. Slater.
Dennistown Amateur Photographic Society. "Ensyna." F. J. Stedman.

THURSDAY, NOVEMBER 18.

Blenheim Club. "Reminiscences of Spain." W. Pringle.
Handsworth Photographic Society. Annual Lantern Slide Exhibition and Competition.
Jarrow Camera Club. "Autotype Carbon." Demonstration.
Eastbourne Natural History Society (Photographic Section). "Stereoscopic Photography." C. P. Goerz, Ltd.
Bolton Photographic Society. "Modern Photographic Apparatus and Exhibition of T. P. Prize Slides." R. Hesketh.
Liverpool Amateur Photographic Association. "Large Prints from Small Negatives." W. F. Slater.
Watford Camera Club. Fakes and Dodges by Members. Holiday Lectures.
L.C.C. School, Bolt Court, E.C. "The Selection of Photographs and Drawings for Illustrated Papers." A. Johnson.
Leek Photographic Society. Open Whist Drive.
Leigh Photographic Society. "Bromoil." S. H. Williams.
Rodley, Farsley, Calverley, and Bramley Photographic Society. "Ozobrome." J. Womersley.
Midlothian Photographic Association. "Light: Its Nature and Use in Photography." Dr. Drinkwater.

ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held November 2, the president (Mr. J. C. S. Mummery) in the chair.

At this meeting the new house of the society, at 35, Russell Square, was formally opened. The new premises provide more accommodation than that at the previous home of the society on the other side of

the square. The lecture-room accommodates more sitters than did the room at No. 66, and gives everyone an uninterrupted view of the lantern screen and the lecturer; it also forms an excellent gallery for displays of photographs, and the walls have been provided with a very suitable ground of cool green on which to hang the photographs, a deep frieze of yellow surmounting this space. The society has also built a small studio at the rear of the house on the ground floor, and in the basement has provided ample facilities in the way of workroom, dark-rooms, and enlarging-room, this portion of the premises—like other rooms in the house—being well warmed by radiators, and in other ways comfortably furnished. The library gains in convenience in the new premises, in that the whole of the society's volumes—both books and periodicals—are now placed in the library proper and in the room immediately adjoining it instead of on the floor above, as was necessitated at the old house. No. 35, which, we understand, has been secured by the society on a lengthy lease, will therefore form a most convenient and comfortable headquarters for many years to come. Mr. Arthur Marshall prefaced his address on the one-man show which is now at Russell Square by expressions of congratulation to the society on the fitting and decorations of its new house, and, we are sure, voiced the feeling of every member in referring to the valuable services which had been rendered to the society by its president (Mr. Mummery) in the matter of the interior decoration and other arrangements.

Mr. Marshall's address on the pictures by himself to the number of about eighty, which are now on view, dealt chiefly with the aims he had put before himself in his photographic work. He took exception to the suggestion frequently made that a photographer should confine himself to one class of subject. He had sought to express by photographic means the beauty of many phases of landscape and types of people, which he had sought chiefly in Holland, Spain, and Italy. Mr. Marshall had some frank things to say of styles in photographic pictorialism. "Place an empty barrel on the garden wall, with a geranium beside it, photograph it against the sky, but under-expose it, and when the picture appears on the walls of our leading exhibitions—for it could hardly be refused—some persons will say that it has a 'bold conception of line,' others that 'the masses are well balanced, others, again, that 'it has striking decorative qualities.' The meaning of our art should be to produce pictures, and not freaks—work that would live, and with which we could live." He went on to give instances of criticisms which, he alleged, were misplaced. He criticised critics whose own work was done in one class of subject, those also who wrote, he thought, from a narrow point of view and with deficient observation, and others whose only qualification appeared to be that of literary expression. As to his methods, Mr. Marshall said he did all his work with a reflex camera, a type of instrument which he puts at the head of the list.

In the short discussion which followed, Mr. W. Thomas thought that the critic's comments were invariably in the nature of a revelation of deficiencies in the photograph which the photographer himself could not perceive. Mr. J. C. Warburg expressly commended some of Mr. Marshall's photographs, the predominant charms in which were the effects of light and shade on cobbled pavements. He regarded Mr. Marshall as the prince of pavement-artists. We refer the exhibition in another column, which report, as well as the foregoing account of last week's function, were unavoidably crowded out of our last issue.

Meeting held November 9, the president (Mr. J. C. S. Mummery) in the chair. A large audience attended to hear the presidential address on the subject of the influence of painting on photography. Mr. Mummery, to sum up his argument in a few words, declared that painting had chiefly influenced pictorial photography by reason of the fact that photographers had sought to imitate the methods as well as the effects of painters with resources which were altogether limited. The result had been a series of phases of pictorial photography, each of which was characterised by the pursuit of some method of the painter to an extreme which led workers to avoid the essential qualities of the photograph. While portrait photography had been an immense social boon to humanity, and while landscape work had proved a hobby that led to much social improvement, yet these social qualities were not art. So far as concerned the art influence of photography, he would refer to its effect on painting, for this could not be laid to the credit of the photographer, inasmuch as the methods which were inspired were not theirs, whilst, indeed, there were many who

ioned whether painting had gained by that influence. But in answer to the question whether photography itself could be called an art, it might be said that the prejudice which existed among painters arose from the affectations of photographers, not from the essential failing of photography. There were many ambitious attempts to rival painters, but in many of them the result was a doubtful imitation. Turning to the historical development of photography, the scientific men who were its creators placed its facility of detail and definition first in importance, and thus inspired a reaction in the direction of diffusion, a method which first gained notoriety fifty years ago at the hand of a past president of the society, Sir W. J. Newton. On the principle that the success of any method is its justification, it might be doubted whether diffusion had actually justified itself. Painters invariably delighted in good drawing, and it was that quality in photography which they admitted and the absence of which they regarded as a weakness. Painters studied to suggest detail, even if the labour of actually painting it was impossible, and many artists sacrificed breadth and deliberately sought detail.

A good instance of one phase of pictorial photography which had sprung from the attempt to imitate the methods of painters was that in which combination printing was laboriously used, particularly in figure studies. It appeared satisfying as art to the men of that time, but both in the realm of figure study and in the modified field of landscape work it had rarely shown itself capable of giving values which were correct, and this fact had led those practising it to mask the defect by resorting to obscure definition, a method which had afterwards been further developed to an extreme. When they studied, as they had recently had an opportunity of doing at the Salon, the work of the painter, D. O. Hill, who employed the photographic methods of his day, they saw he made use of photography's rendering of detail and exercised his art on the lines where photography could give him its best help. The modern pictorial worker, however, had seemingly come to be somewhat ashamed of what photography could do, and sought to add something to it, and the gum oil print in monochrome and colours was the latest outcome of this tendency. Fashion had entered very largely into these phases of pictorial work with the camera, but Mr. Mummery declared that we should look for the development of photography as an art along the lines of its own characteristics. One should not be afraid of its origin. The art of photography should be a logical development of its own craftsmanship. Such a status of pictorial work, he concluded, was certainly logical, might be possible, but was not yet.

The subsequent proceedings spared the audience one of those prolonged and frequently tedious discussions of an art topic which are not infrequent at Russell Square. On the proposition of Mr. W. B. Ferguson, seconded by Mr. A. H. Lisett, a vote of thanks was accorded Mr. Mummery for his address.

Some objects of interest were then brought before the meeting. A negative made on an Ilford white label plate, exposed and developed by Mr. Gilbert Walker sixteen years after manufacture, was shown. Its excellent qualities proved an eloquent testimonial to the keeping powers of the emulsion. Four other Ilford plates, now twenty-one years old, remain, and it was suggested that one of them should be exposed and developed by the Secretary, and the remaining three put aside and subjected to the same process at intervals of, say, fifty years. A device by Mr. Gilbert Walker for attaching a focussing magnifier "movably" to the camera was shown. It consisted of a rectangular frame, which could be clipped to the back of the camera. The magnifier was carried on a small panel, which again was mounted in another panel, the full width of the containing frame. One panel had a vertical movement and the other horizontal, the two in conjunction allowing of the magnifier being moved even to the extreme corners of the ground glass. An album of photographs illustrating the Zeiss stereoscopic apparatus and the Zeiss Stereo-Comparator had been presented to the society, and was shown.

IND-LOTHIAN PHOTOGRAPHIC ASSOCIATION.—To a crowded meeting Mr. Inglis Clark gave a most complete explanation and demonstration of the various methods of colour photography. He explained fully by means of diagrams the principles of three-colour combination processes, and showed by micro slides the arrangement of colours on the different single exposure plates, such as the Autochrome, Autochrome, etc. Dr. Clark then dealt with the practical working of the Autochrome process, and advocated a more simple procedure

than usually recommended. He showed that after exposure the plate could be rendered insensitive to colour by immersing in a bath of bisulphite of potash for half a minute and washing for half a minute before developing, which could then be carried out in an ordinary yellow light without fear of fog. For developer the lecturer recommended rodinal, and advised full development, as by this means the greatest brilliancy was obtained. The plate is then reversed in acid bichromate of potash, and afterwards re-developed—which completes the operation.

To prove the thorough practicability of his methods, Dr. Clark exposed by magnesium flash an Autochrome plate on a still-life study, which was developed at once and projected on the screen.

In answer to a question regarding intensification, Dr. Clark said that instead of the usual silver intensifier he preferred to use a dilute solution of bichloride of mercury and blacken with sulphite of soda.

On the conclusion of the practical portion of the demonstration the lecturer projected on the screen over 100 examples of colour photographs of Scottish and Continental scenery under all conditions of light and season, showing the complete power of the colour plate to render all subjects in a pleasing and pictorial manner. A feature of this exhibition was the use of an aluminium screen made by Zeiss, Jena, which, combined with a powerful lantern, gave a most brilliant representation of the various subjects.

NORTH MIDDLESEX PHOTOGRAPHIC SOCIETY.—There were strange doings in the West End on Friday evening, October 29. Passers-by in Leicester Square noticed that the gardens, which, after dusk, are usually deserted and still in the midst of all the bustle and turmoil of the theatre world, were occupied by a score or so of strange men. One person looking over the railings suggested that a German band was about to play, but it was only a company of members of the N.M.P.S., who, led by Mr. A. H. Blake, the popular president of the Society of Night Photographers, were making their first endeavours to portray London (or a part thereof) by night. They met at 7 o'clock, and, permission having been obtained by Mr. Blake, entered the gardens, and with fast plates and large apertures set to work to record the fine effects of light and shade obtained through the trees facing those two centres of education, the Empire and Alhambra. The fountain in the centre also came in for a good deal of attention, and those photographing it from the lower side of the gardens had quite a large and, no doubt, appreciative audience. Although the onlookers were numerous on occasion, they were kind and forbore to jeer as they might have done. Perhaps the novelty of the scene or the madness of the photographers rendered them tongue-tied.

After having made a number of exposures the members gradually drifted off in ones and twos to Trafalgar Square, where they were not only known to, but expected, by the police. The N.M.P.S. president had foreseen and prevented possible difficulty by obtaining permission from Scotland Yard for his little band of enthusiasts. There were a few remarks from the onlookers showered through the gloom of the square on the heads of the photographers—remarks more or less witty, but mostly unprintable. Some of the members found this place more to their taste than Leicester Square, for once in the gardens there they had to stop till the custodian let them out. Here was glorious freedom. As soon as a lens was uncapped a word to the next man to look after his camera for a second and the owner was off—where to, goodness knows. What they variously said when they came back to cap their lenses again was that they had been along the Strand a little way for a cigar or down to the Embankment to see if it would be worth while going down there afterwards. Ah, yes! such is night photography.

The Embankment had been in the programme, and it is thought that some members eventually reached there, but the majority adjourned between 9.30 and 10 o'clock to a pre-arranged rendezvous at a well-known Strand hestelry and regaled each other, between the intervals of absorbing refreshment, with tales of what they had done and how they did it—just as fishers and golfers do. One blithe spirit handed round at 10.15 a night photograph of the Embankment as one of that night's taking, but, strange to say, it was not received with the enthusiasm which it no doubt deserved.

On the whole a most enjoyable outing it was, and, in a manner, wholly new to the majority of those present: the notable exception being, of course, Mr. Blake, whose kindness and guidance had

done so much to help the novices on their way. Altogether there were twenty-three members present, who between them exposed about 120 plates. The results are awaited with interest, and perhaps apprehension.

THE PHOTOGRAPHIC CLUB.—The Photographic Club's annual general meeting was held in the club room, Red Cross Hotel, Paternoster Square, on Wednesday, the 3rd inst., Mr. F. A. Bridge in the chair. The report of the committee and the balance-sheet were adopted. The election of the officers and committee for the ensuing year resulted as follows:—Trustees: Messrs. F. A. Bridge and H. Snowden Ward. Committee: Messrs. R. R. Beard, T. W. Derrington, G. Edey, E. W. Foxlee, Hans Müller, Alexander Mackie, E. W. Parfitt, C. H. Skillman. Hon. Sec.: Alexander Corbett.

Commercial & Legal Intelligence.

RHYL PHOTOGRAPHER'S AFFAIRS.—Last week, before Mr. Registrar Glynne Jones, Mr. Tobias, assistant official receiver, publicly examined J. B. O. Shepherd, photographer, Rhyl, touching his bankruptcy, in which on total liabilities of £122 he showed a deficit of £83. The bankrupt, who is 29 years of age, commenced business as a photographer in May, 1904, without capital. He had not had any training in that work, having formerly been a barman. But though he had not a penny in the way of capital, he took premises at a rent of £55 per annum on a lease of seven years.

Asked how he expected to be able to pay his rent under such circumstances, the bankrupt said he was only a young man at the time, and expected to do well, which, as a matter of fact, he did at first. All his takings he took to live on, and admitted that thus to a certain extent he had been living on his creditors.

Asked how he came to reply to a money-lender that his furniture had cost him £250, he said that his house was insured for that amount, and he thought he was justified in stating that. The bulk of the furniture, however, did not belong to him. The furniture taken away was removed after the High Bailiff had taken possession. Nothing was removed before his entry. He knew nothing of the removals, and had not connived at them. They were effected in his absence by his sister-in-law, who claimed them as hers. His father-in-law had also removed some things which he claimed. He would have prevented the removal had he been aware it was intended. His sister-in-law, Mrs. Mary Shepherd, claimed the furniture she took away because she had lent him £3 17s., and saw no way of getting it back.

Mr. Tobias asked that the examination be closed, and intimated that the Official Receiver did not propose to recognise any of the claims to the furniture.

The bankrupt said he was sure his sister-in-law would either return or pay for the furniture she had removed.

The examination was then closed.

WRONGFUL DISTRAINT AT MANCHESTER.—An animadversion on the practice of trading under fancy names was made by Judge Parry at the Manchester County Court last week, in an action in which Mrs. May Astbury, photographic enlarger and dealer, of Grosvenor Street, Manchester, and of other towns, claimed damages for wrongful distraint committed by Robert Gray Briggs, glass dealer, of Leicester.

Mr. Wise, for the plaintiff, said that the matter arose out of the business which formerly belonged to Max Muenzer, a bankrupt. Muenzer sought to assign his various businesses in Manchester and elsewhere to a limited company, because, after lengthy legal proceedings, His Honour found the assignment to have been fraudulent.

The business was then placed in the hands of trustees for the benefit of creditors, and it remained in their possession until March 8 last, when it was purchased by Mrs. May Astbury, who was formerly in Mr. Muenzer's service.

The defendant in the present case supplied glass to the Leicester branch of Muenzer's (which went under the name of the Great Britain Art Company) in November and December, and obtained judgment against that company; but instead of distraining in Leicester, he waited until the transfer and then distrained on Mrs. Astbury's premises in Grosvenor Street, Manchester.

Plaintiff stated that she had continued the business in many places under the name of the Great Britain Art Company, including Leicester, but she denied having had any interest in it before Muenzer became bankrupt.

In reply to his Honour, Mr. Higham, for the defence, said his contention was that Mrs. Astbury was the owner of the Leicester business from the first.

His Honour: It is perfectly amazing to me how people in business will give credit to a "Great Britain Art Co." without finding out who is responsible for its payments. I believe that if a firm were to start under the name of "Undischarged Bankrupts" any amount of credit would be given.

Mr. Higham: Mr. Briggs had previously traded with the company and had been paid.

His Honour: As long as you have got confidence you go on trading with somebody you know nothing about?

Defendant: Yes.

His Honour: And that is business!

Witness added that the reason he made out a bill to "Muenzer Limited," was because the manager told him he would thereby get paid.

His Honour: I daresay you would have made it out in my name if you thought you would have got your money?

Witness: Yes.

His Honour described the case as an extraordinary one. The whole affair had given a great deal of trouble, but one could not altogether blame people who did not want to run straight for trading under fancy names when the trading community encouraged them to do so.

Here was a person dealing for months with a firm without making an effort to find out who was responsible for it. While unscrupulous persons could find such innocent and trusting people they would continue to make money out of them. If Mr. Briggs could afford it, as it amused him, well and good. It was what people called business and after fifteen years listening to that kind of thing he supposed it would go on for many years after he was gone.

However, the onus was upon Mr. Briggs in this case to prove that at the time he sold the goods he was dealing with Mrs. Astbury. He had failed to do that, and there must be judgment for the plaintiff for £8 7s. 6d. and costs.

THE LUMIERE Co.—Speaking on November 2 at an Extraordinary General Meeting of the London Cinematograph Co. (1909), Limited, the chairman, Mr. W. M. Borrodaile, announced a resolution to increase the capital of the company from £50,000 to £200,000. Addressing the shareholders on the expansion of the business and on the objects to which the new resources are to be devoted, he said:—Of course, there was the purchase of the Lumière business for England and the Colonies (Canada excepted). For that we are paying £50,400, half in shares and half in cash. The cash is spread over two months, and the shares are taken at a value of 20s. each, or a premium of 100 per cent. This your directors consider is a valuable contract. The secretary, Mr. Hill, and myself went over to view the business of the Lumière Co., and it struck us as being a very remarkable one. In this connection I may mention that Messrs. Lumière's reputation in the photographic and cinematograph trade is worldwide. They have held from their commencement a commanding position in the industry, and have been instrumental in bringing its development many most important inventions connected with it. They are by far the largest manufacturers of cinematograph films in Europe.

The firm was established in 1883, and its business has been so successful that, besides repaying over 70 per cent. of its issued capital, 4,180,000f., the average yearly dividends have exceeded 25 per cent., and the 100f. shares are quoted on the Paris Bourse at upward of 400f. This must be a very fine house to be associated with, and I say that in England and Ireland I have only seen two firms whose factories are anything equal to theirs—namely, Guinness and Co. Messrs. Lumière certainly have wonderful buildings, while the plants and machinery are of the best, and everything that possibly could be done has been done which will make for the progress of the cinematograph business. We calculate that the profits from the Lumière rights will amount to £22,824 per annum. That is our computation. The figures have been examined by our accountants, who think this is a conservative estimate.

He further announced alterations in the articles of association to

enable us to carry out the contract with Messrs. Lumière by appointing Mr. T. K. Grant, their representative, to be a director of this company. Mr. Grant will be of the greatest use to us on the board, as he has great technical knowledge of the cinematograph, the film, and, in fact, everything connected with the business in all its different branches. Personally, I welcome Mr. Grant on the board because he will probably keep us straight on technical points which we may not quite understand."

FAILURE OF A POSTCARD DEALER.—The first meeting of creditors was held in Scarborough on October 26, in the failure of William Nair, postcard dealer, carrying on business at 25, Queen Street, Bridlington. Gross liabilities were put at £252, due to twenty-six unsecured creditors. The assets were estimated at £14, leaving a deficiency of £238. The causes of failure were ascribed to bad trade during the last two seasons, owing to the weather. The matter was left in the hands of the Official Receiver.

DISSOLUTION OF PARTNERSHIP.—The partnership between Messrs. Sidney Walter Robinson and Otto Bruder, photographers and photographic trade enlargers, 23, High Street, Harlesden, has been dissolved. The business will be carried on by Mr. Robinson, who has changed the name of the firm from Robinson, Bruder, and Co., to Robinson and Co.

LEGAL NOTICE.—A dividend is to be declared in the bankrupt estate of Wm. Tiddy, photographer, 60, Tontine Street, Folkestone. Proofs must be lodged on or before November 20 with the Official Receiver (Mr. J. O. Morris), 68A, Castle Street, Canterbury.

NEW COMPANIES.

CARL ZEISS (LONDON), LTD.—Capital, £10,000, in £1 shares. Formed to acquire and take over as a going concern that part of the business of manufacturers of and dealers in photographic lenses, cameras, microscopes, etc., as is carried on under the style of Carl Zeiss, Jena, at the works at Bittacy Hill, Middlesex, and at Margaret Street, W. The directors are Max Fischer, Professor Doctor Rud. Straubel, Doctor W. Bauersfeld, Doctor P. Fischer, Messrs. Max Poser and Paul Henrichs. Registered office: 17, Basinghall Street, E.C.

THE H.M. ANIMATED PICTURE CO., LTD., registered office, 306, Walworth Road, S.E. Formed to build, or otherwise acquire, theatres, halls, shops, or other buildings, and to provide for the production and representation of animated pictures by cinematograph, bioscope, magic lantern, or by other methods. Capital, £400, in £1 shares. The directors are R. E. Holdon and J. W. Manley, both of 306A, Walworth Road, S.E. Private company.

News and Notes.

THE NORTH MIDDLESEX PHOTOGRAPHIC SOCIETY passed the following resolution at its meeting on November 3:—"That a vote of thanks be given to the Dean of Peterborough for his kindness and public spirit in deciding to allow photography in Peterborough Cathedral without restrictions."

THE ROYAL SOCIETY OF ARTS has just issued its programme for the forthcoming season, and among the lectures announced are three which have a special photographic interest, and to which we would draw our readers' attention, namely, "Photo-Telegraphy," by Mr. Thorne Baker, to be read on November 24; "Miniatures," by Mr. Cyril Davenport; and "Printing Inks," by Mr. C. G. Zander, the two latter to be read after Christmas.

A GUIDE TO FALMOUTH.—As Falmouth is one of the few English watering-places which can justly lay claim to being both a summer and a winter resort, the little guide book issued by the Corporation that town comes as a seasonable reminder to those who may still be undecided as to where to spend the winter months, and such could do well to send a postcard request for a copy, addressed to the Town Clerk. The booklet, which is well illustrated and contains much interesting information regarding the district dealt with, forms one of the official guides published by the Health Resorts Association, 29, John Street, Bedford Row, London, W.C.

SOUTHPORT PHOTOGRAPHIC EXHIBITION.—In connection with the above exhibition, which, as previously announced in our columns, will be held in the Atkinson Art Gallery, Southport, from December 1909, to January 1, 1910, the committee have decided to extend

the time for receiving entries from November 15 to November 22, by which latter date all forms correctly filled up and accompanied by the necessary fees must reach the hon. sec., Mr. J. McLellan, 2, Pilkington Road, Southport, from whom also the forms may be obtained.

COPYRIGHT IN A SNOW-MAN.—A singular and amusing copyright question is at present being debated in the Berlin Courts. According to a Central News correspondent, one snowy day last winter some enterprising sculptors built a snow-man in the yard of a Press photographer in the likeness of Prince Bülow. The ex-Chancellor was represented in a humorous but characteristic pose, and the work was done so well that the photographer had no difficulty in selling photographs of the snow statue to an illustrated paper. The artists thereupon went to the publishers and demanded payment for their copyright. They were given £2 10s., but were not satisfied, and so the case has come to the law courts, a claim being made also against the photographer. Well-known sculptors have been called in to say whether in their opinions the snow man is a copyright "work of art" or not.

MECHANICALLY-AIDED RETOUCHING.—Mr. E. Belleoudry writes to the "St. Louis and Canadian Photographer":—"I believe you will be interested in a contrivance that I have built, consisting of a retouching desk put on the frame of an old sewing-machine. By working the sewing-machine, which puts in motion a dented rubber wheel, the negative is given a slight forward vibration, and by holding the retouching pencil to the negative, this motion of the negative enables one to retouch in about a third of the time taken ordinarily. I have been using this outfit for the last two months, and I am well satisfied with its time-saving possibilities, although one has to forget the old way of retouching, as the pencil is never in motion. I trust some mechanical genius will put such a machine on the market and make money. He is welcome to the idea, as I find that I have made enough money in the photographic business."

[We can tell Mr. Belleoudry that a device of the kind he names, but much lighter in use, will be shortly put upon the market by an English house.—Eds. "B.J."]

Correspondence.

•• We do not undertake responsibility for the opinions expressed by our correspondents.

•• Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

MR. SHAW AND THE LINKS.

To the Editors.

Gentlemen,—Is it perverseness or is it an attack of mental fog that prevents your "Writer of the Article" from seeing that what I meant—and surely said—and what Mr. Shaw meant also, was not that there ought to be a similarity of finish in the carriage-painter's and the landscape-painter's works, but that there ought to exist, but does not, a similarity of knowledge and control of tools and materials? The one, the craftsman, knows what to do and does it; the other, the artist—well, does not.

Mr. Shaw saw in the Academy any number of painters trying to do something they had no real knowledge of or ability for; he went outside the Academy and saw a painter's work, on a carriage-body, which showed a perfect knowledge of what was required, and a perfect mastery in the achievement of it. What is there in that to indict us as insisting that the only ideal for the landscape, etc., artist is the lacquer-like finish of the carriage-body? It is farcical to suppose it either of a clear-headed thinker like Shaw or such a — person as myself. Of course, the analogy must not be carried too far; no one would insist that no paintings should be exhibited that did not evidence an absolute mastery of tools, methods, or materials: but it is the countless instances of rank ineptitude that one tilts at, and that your writer would be the first to inveigh against.

The point at issue is that there are thousands of thousands of people spoiling good canvas yearly, because they have had no real apprenticeship to or training in the craftsman's side of their artistry: and they are bumptious amateurs enough to think they can do without it, and have a right to exhibit their shocking examples of it. If a

carriage-painter were to seek a job having as little knowledge of his tools, methods, and materials as the "artists" Shaw was trouncing have, he would pretty soon get the "chuck" that nine-tenths of the canvas-spoilers ought to.

I happen to know that G. B. S. agrees with me, but even if he did not, your article writer ought not to pervert the clear issue I raised for myself in my letter of last week.—Yours, etc.,

FREDERICK K. EVANS.

To the Editors.

Gentlemen,—To anyone who read your report of Mr. Shaw's lecture attentively it was surely evident that your contributor had misunderstood a portion of it, and, therefore, it was no surprise to one of your readers to see Mr. Evans's correction. It is surprising, though, to find "The Writer of the Article" still unenlightened and taking up your space with irrelevant stuff about rubbing with emery, and so forth. Might I suggest that "The Writer of the Article" should take Mr. Shaw's speech, his own comment on it, and Mr. Evans's letter, into the country with him for a week's meditation? At the end of that time, if he has not discovered that he at first did not understand Mr. Shaw, and that Mr. Evans did, he had better stay another week, and so on until light dawns.—I am, yours,

A. T. C.

To the Editors.

Gentlemen,—There are many admirers of Mr. Shaw, who very charitably construe his "persiflage" into seriousness, and forgivingly accept as fun the quite frank and serious views he advances. They do this rather than suffer their idol to be broken against the hardness of reason. Thus Mr. Shaw gets a double way out of any tight place he may be driven into. There seems to me to be no reason why his words, if they are to be taken seriously, should not be taken as he uttered them. They are certainly appalling enough, but is that any reason why we should give them the benefit of a metaphorical application? That, to my mind, would be real "perversion." He said several times very distinctly that modern painters could not paint; but that carriage painters could. He did not say anything of the ideas or subjects of painting in this connection. If he had there would have been much better analogies than carriage-painting to hammer home his point with. On the contrary, he said that painters should all serve apprenticeships in carriage painters' yards so that they could learn to do their work in the thorough way that carriage-painters did. I submit that he was expressly referring to the actual manner of painting, and that, in his mind, the carriage-door was an ideal for picture painters. Otherwise, why did he mention the carriage-door at all? Now I am prepared to admit that Mr. Shaw was fooling to amuse his audience. Mr. Evans will have it that he was serious underneath. He sees an allusion to portraying "some elusive atmospheric effect," etc., by a proper use of tools and materials in spite of the express desires of Mr. Shaw for an apprenticeship in a carriage-yard! Mr. Evans and A.T.C. are the ones who misunderstand. If they will take Mr. Shaw seriously they must reconcile the carriage apprenticeship with the atmospheric effects. They will find that difficult to do in face of Mr. Shaw's reference to the beautifully prepared canvas of an artist-friend whom he imitated by crying in a loud voice, "Jump on it, jump on it, you can't hurt it, it will last a thousand years." Is jumping on a picture a test for atmospheric effect? I ask Mr. Evans and A.T.C. They will also find it difficult to account for the comparison of Van Eyck's method with modern "loading," etc., which Mr. Shaw described as "laying on with a trowel." Finally, if a power to paint atmospheric effects was meant, and not "surface," they must explain why Mr. Shaw at once slid off into the subject of smooth P.O.P. prints, extolling them together with early painted work.

No, I maintain that your two correspondents do not understand that the clever G.B.S. knows that "trouncing" artists and the Royal Academy, and reviling Sir Joshua Reynolds is a good game to play in an audience who come only to be tickled. It is a trick that always goes down. Their misunderstanding consists in thinking that there is anything beneath the fun. They wish to take him seriously, and therefore they have to hypothecate their "atmospheric effects," etc., in order to save the reputation of their hero. My point is that if they take him seriously what he said was nonsense.

THE WRITER OF THE ARTICLE.

"STRAIGHT" PRINTS VERSUS THOSE OBTAINED OTHERWISE.

To the Editors.

Gentlemen,—In reply to Mr. Stevens, I should like to say that did not refer to retouching the negative or shading the print, which are pure photographic processes; just as legitimate as local reduction or intensification, which they in a manner resemble.

I would emphasise that I called attention to the large number of pictures, or rather, paintings that go to make up so many of our exhibitions, and which, by subtraction and addition of objects, and by an abundance of pigment of various kinds, do not in the least resemble the image as viewed upon the focussing screen. Fortunately such productions are absent from the exhibits of the plate and paper manufacturers as mentioned in my letter; also while these productions are reproduced and awarded prizes in the photographic Press, equal consideration is given to the straight worker.

I give Mr. Stevens to understand that a print may be treated in many ways, many of them giving a better picture than would have otherwise been the case; but there is a limit to such treatment if our result is to be a *photograph*, which must be a piece of work produced by the camera and the man, and in my opinion similar to the one picture of a stereoscopic slide—a totally different production to those referred to.

P. FREDERICK VISICK.

84, Melbourne Grove, East Dulwich, S.E.

A CONCENTRATED ONE-SOLUTION M.Q. DEVELOPER.

To the Editors.

Gentlemen,—We have found the following M.Q. developer quite good, and suggest it as being cheap, clear, and sufficiently concentrated to meet the requirements of your correspondent "Concentro." It is taken from the "Chemist and Druggist" of August 2, 1909.

M.Q. DEVELOPER.

Hydroquinone	5 grms.
Metol	2.5 grms.
Sodium sulphite	80 grms.
Potass carbonate	100 grms.
Potass bromide	2 grms.
Water	500 ccs.

Dissolve the metol first.

For use take one part to four or five parts water.

If sodium sulphite has been dried take 40 grms. only.—Yours truly,

W. L.

12, Earl Grey Street, Edinburgh.

November 5, 1909.

KEEPING FILMS.

To the Editors.

Gentlemen,—In a recent issue you drew attention to the reluctance of some to the use of films. As far as professional photographers are concerned, if I may speak at all for them, I think it is so much because plates are easier to handle, but that so far as I have seen no reliable method has been proposed for their keeping. That they are very much lighter and also simpler on roll exposures goes without saying, but one has had strange misgivings concerning storage. I have tried several methods recommended and have proved hopeless failures, through the great tendency of gelatin to mould when packed with or without paper between them. Some years ago I adopted a method which others may also have tried, but as it has now had ample time for proof, I mention it for the benefit of any who have not tried it—i.e., fix, say, 5 by 4 on half-plate glass, face up, and a strip of stamp-paper top and bottom; then brush over the surface with celluloid varnish and can now be kept either in a grooved box or packed flat against any other negative without any paper between (preferably), and can be printed from just as an ordinary glass negative.—Your

PROFESSION.

DAMAGE OF NEGATIVES BY INSECTS.

To the Editors.

Gentlemen,—In reference to the query of your correspondent "T. H." concerning prints damaged by insects, an experience I had a few months ago may throw some light upon the matter. I was staying at the time at a small town in Norfolk, when the whole district seemed to be overrun by a plague of earwig and

had developed some plates and stood them upon a shelf to dry, little thinking that earwigs were fond of gelatine, though I knew that after dusk they were to be found all over the house; and for three-quarters of an inch all along the edge of the plates they had dug out the gelatine, leaving me the toughest job of spotting what I have ever had.—Yours faithfully,
A. G.
November 8, 1909.

Answers to Correspondents.

- All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.**
- Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.**
- Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.**
- For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.**

PHOTOGRAPHS REGISTERED:—

- M. Jones, Stationery Stores, Coleford, near Bath. *Photograph of Mells and Vobster United Football Team, Season 1908-9.*
- J. Morris, Churchkirk Rectory, Accrington. *Photograph of the North Panel in the Reredos in the Church of St. James, Churchkirk. Photograph of the South Panel. Photograph of the Centre Panel. Photograph of the Reredos.*
- B. Goodman, 55A, Great Ducie Street, Manchester. *Photograph of Mr. Marchant in Boxing attitude.*
- R. Zeltsch, Waterside Studio, Slaithwaite, Yorks. *Photograph of Linthwaite Hall Cricket Team, Winners of the Huddersfield and District Cricket League 1909.*

BURNISHER.—I have an old burnisher, a stylect. Is it of any value and could you tell me where I could sell it, as I am giving up business?—E. HORTON.

It has no market value. This form of burnisher is quite out of date.

DEVELOPER, ETC.—1. Would you kindly inform me if there is a good developer for under-exposed negatives, one that will give black and white (not yellow news)? 2. Correct way to work retouching pencil on negatives? I wish to practise this branch myself.—NALODCT.

1. The best plan with an under-exposed negative is to use a somewhat diluted (i.e., mixed with water) developer. If this is done and solution also kept at about 70°F., one developer is about as good as another, although it is better to employ one—like amidol, rodinal, etc.—which brings out the image as a whole in the first place and brings up density afterwards. Still, pyro will answer equally well, though to avoid stain you should dilute with soda sulphite solution in place of water (soda sulphite, 1 oz.; water, 20 oz.) to avoid stain. 2. We advise you to get "Retouching," by A. Whiting (Dawbarn and Ward, 1s.) or take a course of postal lessons (see our advertisement pages).

THE PORTRAIT OF A WIFE.—Some time ago a gentleman ordered from us an enlargement to be sent to him. In due course the enlargement was sent to him framed. It was sent to him securely packed, but in the transit by rail it was damaged. The gentleman claimed from the railway authorities for the value of the picture, and has received his claim for the full amount. Now, as the authorities say they are returning it to the lost luggage office to sell it, we should be glad if you would let us know if they can legally sell it under these circumstances, seeing it is a portrait of the gentleman's wife. We should be glad if you would kindly let us know in your next week's Journal.—ANXIOUS.

As the railway company have paid for the portrait it seems to be their property, and therefore they can do what they like with it. Probably the company would now sell it to the gentle-

man for a small sum. If not, his best way will be to attend the lost property sale and see if he can buy it.

INTENSIFICATION OF BROMIDES.—For a special purpose we have to intensify some rather faint bromide prints to get the greatest possible density (to transmitted light), but keeping the whites clear. Middle tones can be disregarded. We have tried mercury and ammonia (by the way, does it matter if we omit the hydrochloric?), but though this makes a lot of difference, it is not enough. Then we tried lead nitrate, and this is fine as regards opacity, but all the nitric in the world won't keep a dingy stain off the whites, and this is important. Is there any way of using lead and keeping the whites clean? If not, can Mr. Welborne Piper suggest a method of intensification we might try?—INTENSITY.

We do not know any satisfactory chemical method of dealing with very faint bromide prints, because such an image contains so little silver that there is little to work upon. A bromide that is of a greyish or greenish black tone can easily be intensified to a full black with the chromium intensifier, but this is not powerful enough for a very faint image. If the process is repeated several times a brownish image is produced with fair density to transmitted light. It would, however, be difficult to obtain anything approaching the density given with the lead intensifier. The staining trouble is one that seems very likely to occur on paper, and we fear we can suggest no remedy. Possibly you could obtain the result you want most readily by using the non-transfer ozobrom process. With this you could cover the silver image with a strong carbon black. Hydrochloric acid in very small quantity is a desirable addition to a mercury solution, and in any case the print should be well washed in acid.

FLASHLIGHT.—Having had the pleasure of reading "Hints on Flashlight Photography" in "B.J." of October 29, 1909—1. Could you please give me any more advice that would help me in taking a set of photographs in a coal mine? I am going to use half-plates. 2. Also any advice on half-tone process?—"COAL MINES."

You should try and get the book "Mongst Mines and Miners," by J. C. Burrows and W. Thomas, published in 1895, which contains details of flashlight work in the Cornish mines. One great difficulty was that of getting rid of the smoke after an exposure, but with the greatly improved powders now obtainable and the better ventilation of mines this is less serious. Another cause of failure is condensation of moisture on the lens. It was necessary to put the lens back in the pocket after the view had been arranged, to place it again in position only an instant before making the flash. 2. This is too wide a subject for this column. You had better get "The Half-tone Process," by J. Verfassser (Liffe and Co., 5s.). For lessons there are the L.C.C. School, Bolt Court, Fleet Street, E.C., and the Photographic School, Polytechnic, Regent Street, W., or we could refer you to a probable means of obtaining instruction in Gloucester.

BLEACH-OUT PROCESS.—Can you oblige by giving me further details of the "Bleach-out Process," noted in current issue? I should like to know if dyes are obtainable and where, also fuller details of the process.—W. R. B.

We are sorry we have no further particulars nor any information as to the makers of the dyes. Perhaps a German contemporary, such as "Photographische Industrie," 6, Charlotten Street, Berlin, could assist you if you wrote enclosing International Postal Coupon of 2½d. value for return postage.

GRUBB LENS.—Could you tell me what a Grubb Doublet, No. 2,559, is useful for? Have seen one in a shop window.—E. PITTINGALE.

Without seeing the lens we cannot say. But probably it would be useful for purposes similar to those for which the R.R. is employed.

PERSEVERANCE.—The mirror should be surface silvered. Send it to Mr. M. A. Petitjean, 50, Fonthill Road, Finsbury Park, N.

ENLARGEMENTS.—Can you give me the formula for printing or enlarging on artist canvas by development? I do not want the carbon or bromide process. I remember in France many years ago that a very large firm at Asnières, near Paris, used to make direct canvas prints, and quite as successful as now. They used to print direct on canvas from detached negatives (wet photos) or paper negatives. I wish to do some here. The canvas was cleaned first with weak

ammonia, then salted with a brush, and sensitised in the same manner. Can you give me the formula?—W. M. HARRISON.

Various formulæ have been published for the process, the paper or canvas being salted with bromide, sensitised with silver nitrate, and developed in an acid developer. One formula is:—

Milk	20 ozs.
Glacial acetic acid	$\frac{3}{4}$ oz.

Mix, stir well, and filter, and then add to the filtrate:—

Potassium iodide	140 grs.
Potassium bromide	34 grs.

Paint the solution over the paper and dry as quickly as possible. The prepared paper can be either floated on the following bath, or it may be painted on:—

Silver nitrate	42 grs.
Distilled water	1 oz.
Glacial acetic acid	63 minims.

The paper must be exposed wet, and it is from three to four times slower than slow bromide paper. The developer is:—

Pyro	3 grs.
Water	1 oz.
Glacial acetic acid	40 minims.
Citric acid, 10 per cent. solution	4 drops.

JEE J.—(1) Impossible for us to say. Businesses prosper in all parts of the country. For your class of work locality is not important, particularly if the work is done at a good price. (2) Very crowded, undoubtedly. (3) No. (4) It is the custom of the trade to assume that the customer has the right entrusted to him to have the negative enlarged or printed. Usually it is so, but the law holds the actual reproducer equally liable. The enlarger, no less than the photographer, must use his judgment.

DISPUTED ACCOUNT.—Some three years ago we took a photograph of a well-known local gentleman, he paying for it. Admitted the copyright is his. Now the photograph was a very popular one, and he distributed several dozens. After a time we asked permission to sell the same as postcards. Consent having been obtained, we did so. He has since owed us an account for twelve months, and on our writing and asking for the same writes to us claiming a royalty on the postcards that we have sold. Now we should like to know if he can do this, because nothing was said about royalties when permission was given, and he is rather a bumptious individual and given to trying to do things on the bounce. Also, could you say what would be the usual royalty on postcards, each? The amount is not large, but it is the principle of the thing that we object to, and should like to know how we stand.—H. S.

The copyright undoubtedly belongs to the gentleman, but if he gave you permission to publish the portrait, and nothing was said at the time about royalties, we do not see that he can claim any. However, this is a case for the County Court to decide.

RETURN OF SPECIMENS.—At the beginning of February last I was requested by — and Co., —, to forward specimens of work and references. In my previous reply to their advertisement I had sent copies only, and on the before-mentioned date I sent a batch of platinotype specimens and three original references. I eventually obtained the berth, which was at —, which I held until October 30, when I received a week's notice to leave. I replied the next day accepting the notice, and asking for the return of my specimens and references, and was informed that they had been destroyed, and that they would give me a reference and I could make any specimens. As the studio here is not so good and the clientele moderate I naturally demurred, also as I cannot replace either I am deprived of many good prospects of obtaining another berth at any time I may require one. I now wish to claim damages, and should be glad if you would advise me as to proceedings to take.—H. A. H.

The only proceeding you can take is in the County Court for the value of the pictures, and damages for the non-return of the references. The amount you assess your loss at is very moderate. It would have been better if you had got the pictures and references back at the time you were engaged.

DISPUTED ACCOUNT.—Last year (1908), during July and August, I was requested to do certain photographic work by the manager of

a firm's branch shop for reproduction of postcards. I produced and delivered a certain number at the end of August. After a five months' wait I received pay for one-half, which they published. Now, I have waited fifteen months in all, and when I request a settlement of remainder the head office returns remainder of prints which they have had fifteen months. Both parties deny giving any instructions to me for to do this work. My agreement with all batches was for to reproduce postcard only. I now see they publish a series of views and offer for sale. I find also they wipe my monogram off all cards and views they publish. One print, supposed to be not required, I find published and offered for sale without being paid for. Can I claim, although not registered?—PHOTOGRAPHER.

If the manager, as agent of the firm, gave you the order to take the photographs and supply the copies the firm will have to pay for them. The copyright in the pictures belongs to the firm, and not to you. The County Court will settle the matter if you take the case there.

NOVICE.—Not for general work; the focal-plane folding camera of the Goerz-Auchütz type is about the best for press work.

P. CALLET and others.—In our next.

P. C. L.—1. Thin papier mineral; also matt varnish on back of negative. In both cases worked up with stump or colour. See "Retouching," by A. Whiting (Dawbarn and Ward, 1s.). 2. E. Graber, Tunbridge Wells.

K. ROBERT.—Except that the country is steadily, if not very rapidly, progressing, we are unable to advise you. You might, perhaps, obtain some help from a firm (such as Marions) supplying photographers there.

S. R. J.—An old Lerebour portrait lens will do very well for enlarging with in the lantern. But being 10in. focus it will require an often inconvenient distance between the lantern and the screen when using small negatives. However, with the cabinet size it will be very useful. As you say, it is a good lens for portraiture in the studio, and you will doubtless find it equally as good as an enlarging lens.

BLACKING THE INSIDE OF CAMERA.—My studio camera is what is known as the box form. The inside had become pale by the black wearing off by continual dusting. I reblacked with lamp black mixed with size, but now this wipes off, particularly when a damp cloth is used to remove the dust. Can you please tell me of something that will avoid this trouble?—T. A. WINTERBOURN.

Take some brown hard varnish and dilute it with methylated spirit. To this add some "drop black" and paint over the inside of the camera with it. The best proportions of the black and diluted varnish cannot be definitely given, as all varnishes are not alike, but they are easily arrived at by experiment. It is well to use as much of the varnish as possible with a view to durability, but not sufficient to cause the coating to dry in a way glossy. If it is found to do so the addition of more black will usually prove a remedy. If not, the mixture must be thinned with more methylated spirit.

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SUMMARY.

The "British Journal Almanac." Our publishers desire to announce that the edition (of 25,000) of the "Almanac" is almost exhausted. Dealers and others who have not yet ordered copies are requested to do so without delay.

We very much regret to announce the death of Mr. Frank Bishop, the senior member of the firm of Marion and Co., Ltd. (P. 897.)

The Traill-Taylor lecture will be delivered on Tuesday next, at Russell Square, by Professor A. W. Porter, who will take as his subject "The Growth of the Photographic Image."

Testing the speed of photographic shutters. Messrs. Campbell and Smith, of the National Physical Laboratory, have worked out a method of measuring shutter speeds, which consists in photographing on a moving plate a narrow beam of light reflected from a galvanometer mirror, caused to make angular vibrations very rapidly about an axis parallel to the motion of the plate. A curve is thus obtained on the plate and the length of the exposure is ascertained by counting the number of vibrations recorded. The description of the method and of the apparatus used is given on page 894.

Mr. A. Lockett, in an article on the Dixio method of stereoscopy, deals with the form of stereoscope by which quite large prints may be readily examined, as also transparencies. He suggests that the method is deserving of more attention than is given to it for purposes of portraiture. (P. 891.)

An interesting exhibition of panoramic photographs is being held at the Strand Kodak Gallery. (P. 898.)

Some notes on the working of the carbon process in cold weather are given in an article on page 890.

New material, to be known as "Resinite," has been worked out in Germany, and is said to be suitable for the manufacture of photographic utensils. (P. 897.)

The efficiency of electric light and the use of adhesive masks in air-brush work are among the topics of "Photo-Mechanical Notes." (P. 897.)

EX CATHEDRA.

The Traill-Taylor Lecturer.

Professor A. W. Porter, who is to deliver the Traill-Taylor lecture next Tuesday at the R.P.S., is the Assistant Professor of Physics at University College, London, and the author of many scientific papers, some of which deal with the subject of light. He is co-author (with Professor G. Carey Foster) of a treatise on electricity and magnetism and author of one on mechanics. In recent papers read at the Physical Society and to the British Association at Winnipeg, he has described several novel effects obtained by the action of an electric discharge on photographic plates. In "Nature" of last week a brief account is given of experiments towards the measurement of the refractive index of radium emanation, the chief advance in which is the success obtained in measuring this quantity for extremely small amounts of a gas—a few cubic millimetres alone being required. Although he may be properly described as a mathematical physicist, he has the faculty of clear and luminous exposition and of ably illustrating his theme by well-chosen experiments. Professor Porter has for some time contributed a column on advances in physics to "Knowledge."

* * *

The "B.J." Almanac, 1910.

Within a week's time from Wednesday next—that is to say, on December 1—but not before, the 1910 edition of the "Almanac" will be on sale throughout the United Kingdom. As far as is possible without a fleet of aeroplanes, the publishers will deliver copies simultaneously throughout London and the provinces; at any rate, every purchaser may depend on getting the "Almanac" from his dealer in time for his evening reading on Wednesday, December 1. The "Almanac," it is believed, more than maintains its standard in the way of useful and up-to-date photographic information. The leading article this year has for its subject the use of certain short cuts in making lens-calculations. It is an article which enables the photographer to make any of the usual computations without reference to the tables or formulae—in short, the mental arithmetic of lenses. Other sections of the "Almanac" will, it is hoped, be found of more than ordinary interest, though the physical girth of the volume, despite the most valiant efforts of editor and publishers, has resisted compression.

* * *

Local Lights and Safe Lights.

One disadvantage of the existence of so many photographic societies is the fact that they are responsible for the dissemination of much wrong and misleading information of a kind that would never otherwise secure publication. Long ago we remember a lecturer, a shining light and hard-working member of a small local society, holding

forth on the mysteries of enlarging and reducing, and one of the sparkling bits of information that he emitted was that longer exposure was required when reducing because the lens was farther from the negative! This statement was disputed by an argumentative member, but he was, of course, extinguished by the overwhelming authority of the lecturer. In this case, no doubt, experience soon corrected the blunder, for it was somewhat too obvious to live long; but in other cases mistakes of a more insidious nature have been known to live a very long time. An instance of a mistake that ought not to be made in these enlightened times occurred only a week or so ago, when a local lecturer advised the members of his society that they should always make sure that these dark-room lamps were safe, and to ensure safety should use two thicknesses of canary medium for "ordinary" plates and good quality ruby glass for orthochromatic plates. Two thicknesses of canary medium are safe enough for bromide paper or process plates, but they let through enough blue light to fog the much faster "ordinary" in a very brief time, while as for safe ruby glass, we do not know where it is to be obtained. One of the few things about photography that is thoroughly well known nowadays is the philosophy of the "safe light," and there is no excuse for such recommendations as these. The treacherous nature of ruby glass is well enough known to induce everyone to avoid it, while if the generally useful "medium" is employed, we want something much more effective than two thicknesses of "canary" to get even an approximation to safety. It is the great fault of medium that we have to use so much of it that the light can never be anything but very dim. The properly adjusted modern safe light has the advantage that it gives us the maximum light that is consistent with a minimum of risk, and it always pays to adopt the best safe light available.

* * *

Royal Society of Painters in Water-colours.

The photographs having all disappeared from the Pall Mall Gallery, the public are now invited to the 153rd exhibition of water-colours. If the Links would but go there still they would find many lessons awaiting them. The finest water-colour work in the world has its home within these walls, and there it bears the stamp of knowledge, power, and sincerity of purpose. Those who boast that the colour-plate may supplant the painting may find their answer in the personal and almost visionary landscapes, which have in them more of what the artist felt than what he saw; such a view, for example, as W. Eyre Walker's "Windermere." An Autochrome would have given something very different from this, and would have been no nearer truth. The Autochrome standpoint is, however, exactly taken by Alfred Parsons, A.R.A., whose astoundingly clever work misses all but the literal reproduction of the scene. Mrs. Laura Knight still goes ahead. No other artist here has quite her naïve and absolutely unfettered attitude of mind. Fresh in ideas, untraditional in her method, she gives us impressions which inspire and astonish at the same time. Robert Anning Bell goes in the opposite direction. He is refined and cultured; but his art grows more and more archaic. The archaistic figures of his "Going to the Hunt" might have come from Botticelli's hand, though their landscape setting is incompatibly modern in the worst sense. We strongly advise those of our readers who are interested in firelight studies to look at the beautiful and exhaustive "Firelight Glow" of J. Walter West. Here are none of the hard shadows nor the lack of middle tones that comes of the lamp in the fender trick. The subject is a charming girl in eighteenth-century costume, who is bathed in a soft rosy light which plays over her form and alternates with cool tones of pearly shade, whilst the distance of the room

is a rich, deep reddish darkness, out of which gleam two immense Oriental vases. We lack space to mention even a tenth part of the things that should be seen for the sake of the lessons they can teach.

* * *

Positives Direct.

A very curious method of producing positives direct in the camera is given in an American contemporary. Generally it appears to be a variation on the various methods that have been proposed involving the removal of the developed negative image with an acid and bichromate solution, and the subsequent development of the remaining silver salt, but the variations introduced seem to be of a very doubtful nature. In the first place, the developed image is to be placed in a solution of boracic acid until it changes from black to red! What the action is or how long it takes is not explained, and it is not at all clear to us why the image should turn red at all, for boracic acid is not likely to affect the reduced silver. This bath is followed by a wash in three changes of a solution containing a mixture of boracic acid and chrome alum, and the plate is then immersed in a solution containing bichromate and nitric acid, cleared in a solution of caustic potash and potassium bromide, washed, exposed, and redeveloped. It is thus apparent that the whole process is only an old and rather ineffective one revived, with sundry additions that seem to serve no purpose. The boracic acid bath can serve no other purpose, so far as we can see, than that of destroying traces of the first developer, and none of the modifications proposed can in any way remedy the fundamental defect of the process, which is that the high-lights of the positive become seriously fogged. This defect was got over by Mr. Carnegie by leaving the red image produced by the bichromate bath *in situ* during the exposure, but the caustic potash bath proposed in the formulæ we are criticising takes away this protection, and leaves the process where it was before this protective device was thought of. This is an excellent example of what a photographic process can become when subjected to a "tinkering" process for the sake of novelty.

—♦—

CARBON PRECAUTIONS IN COLD WEATHER.

THE brief note which occurred in the course of an article last week on the carbon process has been responsible, perhaps, for one or two queries relating to the practice of carbon printing, or rather to the difficulties encountered on a sudden drop in the temperature. We may deal with these together in a further short article instead of taking them separately under "Answers to Correspondents." It must be borne in mind that carbon, like other methods of printing, is considerably affected by the conditions of temperature and moisture of the atmosphere. One of the chief of these is the length of time which the tissue will take to dry after immersion in the sensitising bath when the temperature is low and the air, as it usually is during the winter months, far from dry. When these conditions are at all pronounced, by the time the tissue is dry it has become so insoluble as to be quite unworkable. Even if its solubility is not affected to this extreme degree, the tissue prepared under these conditions nevertheless differs in a marked way from that which has been quickly dried; it shows a greater degree of sensitiveness, does not keep so long, and requires hotter water for its development. The modifications which are thus necessitated are, of course, realised by the expert carbon printer, but those who work the process less regularly may be easily misled as to the causes of what appears to them over-exposure of the prints. It not infrequently happens that in order to hasten the drying of the tissue the latter is placed in a room heated by gas or by a coke stove, and without an

ample amount of ventilation. The fumes from either of these forms of fuel exert a very insolubilising action upon bichromated gelatine, and if the latter be long exposed to their influence the film will become quite insoluble and unworkable. Where a proper drying cupboard is not installed a far more satisfactory plan is to discard the ordinary bichromate solution and to use in its place a spirit sensitiser, such as that prepared by the Autotype Company, containing little or no water. The tissue, after treatment with this bath, will dry in an ordinary room in the course of half an hour, and the danger of insolubilisation is thus avoided.

When the usual bichromate sensitiser is employed it should be borne in mind that gelatine does not absorb a water solution nearly so quickly when the latter is very cold as when the temperature is about 60deg. F. For example, if carbon tissue be immersed in a solution of potash bichromate for, say, three minutes, at 45deg. F., it will absorb far less than at 65 deg. F., and, as a result, will be of much lower sensitiveness. Not only so, but it will yield prints of a quite noticeably harder gradation, and will also require a longer time of printing. The net results often are that prints turn out under-printed, and the delicate tints wash away in the development. One remedy for this state of things is to allow a longer time in the sensitiser. Another is, of course, to raise the temperature of the latter to about 60deg. or 65deg. F. But perhaps the best course in cold weather is to use a sensitiser of greater strength, say 4 or even 5 per cent.—the latter if the negatives are at all of a hard character—in place of the customary 3 per cent.

Another fact which requires to be kept in mind when printing carbons in very dull weather is that bichromated tissue is relatively less sensitive to a weak light than to a strong one. As the exposure is usually timed by means of an actinometer provided with a piece of silver paper (P.O.P.), error in the exposure of the prints may arise from this very cause, the sensitiveness of the silver paper remaining practically the same both in weak and strong lights, and therefore failing to respond to the different behaviour of the carbon tissue. This means that the number of tints on the silver paper which was found suffi-

cient in summer light will not be enough for full exposure in the dull days of winter: a negative which requires, say, four actinometer tints in summer will very likely do with five or even six when printing in a very weak light.

A further danger which must be particularly guarded against in winter weather is dampness of the tissue. The pads of the printing frames should be made quite dry before use, while the frames themselves, when not in use, should be put away in a dry place. It is not uncommon in bad weather to find at the end of the day that certain negatives are still not finished printing. If, however, they are, say, about three parts done, advantage may be taken of the continuing action of the light. The tissues are taken from the frames and placed in an ordinary drawer or box and put away in a moderately dry place till the next day. As a rule, it will then be found on development that they are quite dark enough. To get the full benefit of this continuing action the tissue needs to be kept in a place of moderate warmth, and should not be stored in a calcium tube or other receptacle where traces of moisture will be abstracted from it.

Attention was called above to the fact that gelatine absorbs water much more slowly when it is cold than when it is of a moderate temperature. At this season the water as it comes from the tap is usually at a very low temperature, therefore in mounting the exposed tissue on the support for its development it should be allowed to soak for a longer time than is usually allowed under normal conditions before it is squeegeed on to the support. Also in the case of single transfer papers it is well to soak them for a little longer time than the tissue. If the water from the tap is as low as, say, 35 deg. F., it is a good plan, by addition of warm water, to raise the temperature to about 55 deg. or 60 deg. But this is seldom necessary, as the longer soaking will answer much the same purpose. However, in the case of very thick and rough drawing papers, which at an average temperature require half an hour's or an hour's soaking, it will be a decided advantage to raise the temperature of the water in which they are soaked to 60 deg. F., or higher, as with them even a very long soaking in exceedingly cold water does not always get them in the best condition for working.

STEREOSCOPIC PORTRAITURE.

is somewhat remarkable that so little attention has been directed to the interesting subject of stereoscopic portraiture. The great majority of stereoscopic photographs now produced in this country are, almost without exception, either landscapes, interiors, or street scenes. There was a time, indeed, when portraits for the stereoscope met with a marked appreciation—that was in the palmy days of the Daguerreotype and the eponymous positive. For the last forty years they have, commercially speaking, been practically extinct.

Perhaps the principal reason for this was a lack of comprehension by the earlier photographic artists of the special requirements that have to be fulfilled in order to make a pleasing stereoscopic portrait. The very relief and realism that are so effective in the rendering of a group of statuary, or the presentation of a thatched cottage, will repel rather than attract when applied, in unskilful hands, to the stereoscopic delineation of the human face or figure. Even in its monocular form, a photographic portrait is glaringly and crudely truthful, requiring all the aid of softly rounded lighting and tactful retouching to render it acceptable at once to the sensitiveness of the sitter and the critical inspection of his or her friends. How much more, then, was this the case when these angulari-

ties and projections, already given their full value by artistic lighting and treatment, were still further emphasised by stereoscopic relief, and retouching became either limited in extent or virtually impossible? To this we add the small size of the binocular portraits, the high prices that were demanded for them, and the bulk and clumsiness of the earlier stereoscopes, their decay in popularity becomes easily explicable.

Now, however, that stereoscopic work is again becoming popular, as improved methods and materials render possible the avoidance of many of the earlier obstacles, it is worth while inquiring whether the stereoscopic portrait may not justly hope for a revival of favour. With the simple and ingenious mirror stereoscope, introduced by Professor Léon Pigeon, of Dijon University, all limitations of size at once disappear. Pictures of any dimensions, from the largest to the smallest, may be examined with ease and comfort, either mounted as slides, printed as illustrations in the pages of a book or magazine, or projected on the lantern screen. A further advantage is that, since no lenses are used, the grain of half-tone illustrations or of paper remains inappreciable. Those who perhaps have missed reading the various descriptions of this apparatus that have appeared from time to time may be

reminded that the Pigeon stereoscope, known as the "Dixio," consists of a mirror placed midway between the two halves of the stereogram, one of which has to be reversed as regards left and right. The left hand picture is viewed with the left eye by reflection in the mirror, while the right hand picture is viewed direct by the right eye. The two pictures are, in consequence, seen superimposed, and accordingly coalesce, so that perfect stereoscopic relief results.

In the earlier patterns of the "Dixio" stereoscope the pictures were held in a portfolio, at an angle with one another of about 140 deg., the central mirror being inclined. In the issue of "The British Journal of Photography" for September 10, 1908, the writer pointed out the many advantages which would result if the mirror were perpendicular instead of inclined, and also detachable, among which was the obvious consideration that stereoscopic magazine and book illustrations of any size could be inspected *in situ*, without any need to cut or mutilate the pages, or to hold them at a special angle. M. Pigeon has now kindly informed the writer that he had in fact anticipated this suggestion, and that a new model of his stereoscope, intended primarily for use on the pages of a book, but equally suitable for viewing stereoscopic pictures in any form, had been designed by him and placed upon the Continental market. A full description of the new stereoscope appears in the "Photo-Gazette" for January 25, 1909, and a couple of stereoscopic illustrations for inspection in this manner are included in that periodical, one being the portrait of a lady, and the other an effective study of a sculptor at work in his studio. Fig. 1 shows the appliance placed



Fig. 1.

in position ready for use. It consists of a stout piece of cardboard, A, about 10 inches high, having hinged to it a pair of struts, B and C, which fold up when desired for convenience of carrying. At the top of the card is attached a surface-silvered mirror, D; a small metal piece, E, projects at the side of this, limiting the direction of the left eye and obliging it to look at the mirror, and not directly at the left hand picture. This latter refinement, however, is not indispensable. It is, of course, quite possible to use an ordinary mirror for examining the pictures, and to dispense with the special appliance; but by far the best results are obtained, and the greatest pleasure experienced, when a properly designed mirror stereoscope is brought into service; besides which, it must be remembered that an ordinary mirror with its silvered surface behind the glass gives objectionable multiple reflections, and although these do not in every case prevent its successful employment, the clear, definite image yielded by a surface-silvered mirror must not be expected.

A different stereoscope, but on the same principle as that

previously described, has been constructed by M. Pigeon for the inspection of transparencies. With these, the brilliancy of the lights and the delicate modelling of the half-tones are particularly effective. The most striking results of all, however, are secured with stereoscopic Autochromes, in which we have united not only light and shade with realistic atmosphere and relief, but the very colours of nature. Nothing so perfect has hitherto been obtained in stereoscopy.

The excellent example of stereoscopic portraiture which is here reproduced, by kind permission, should surely act as a spur to British camera workers and a suggestion of what might be done in this direction. Consider for a moment how interesting and attractive portraits of Royalty or of current notabilities would be, if reproduced in large size in our leading illustrated papers; or, to take another example, how altogether charming would be some of the ethereal and filmy studies of fair women, for which Mr. Elwin S. Neame is so deservedly celebrated, if we could view them with all the realism of relief, each gauzy fold of drapery standing out as though floating in air.

A few hints regarding the apparatus and the necessary arrangements for producing stereoscopic portraits may not be out of place. It is well known that a good portrait of any kind cannot be obtained unless the lens used is of sufficiently long focus in respect to the size of plate employed. If we make use of an objective of too short focus for a portrait in which the head occupies an important amount of space, we are obliged to bring the camera too near the sitter; in such a case the perspective becomes disagreeable, those parts nearest to the lens being represented of apparently exaggerated dimensions, while those that are more distant seem to be unduly reduced in size. If, for example, a half-plate head and shoulders portrait is required, it is necessary for satisfactory portraiture to choose a lens of about 12-in. focus, or even more, the rule being that the focal length of the objective should not be less than twice the longer measurement of the picture. For stereoscopic portraiture a pair of lenses of similar focal length are necessary.

Another point to be borne in mind is that the stereoscopic base, or distance between the two lenses, commonly known as the separation, should be sufficiently long with respect to the distance between lens and sitter. The necessity for this will be understood by reference to Fig. 2. Suppose the sitter is placed in front of a tapestry or curtain background AB (a background in which some relief occurs is obviously more suitable for stereoscopic purposes than one of the flat painted description) and that the two lenses C and D are directed towards him. If, then, we choose any point E on the outline or contour of the sitter viewed by either lens, it will be seen that this point masks or hides two points, F and G, on the background in the respective negatives given by the objectives

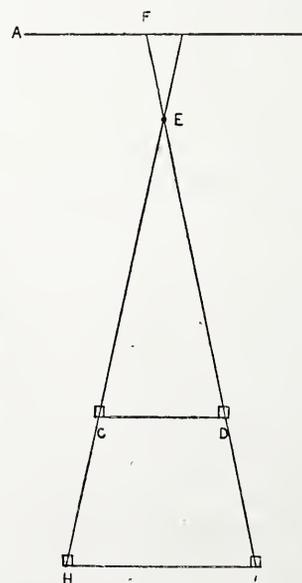


Fig. 2.

and D, these points being adjacent but distinct from each other. It is this perception by the two lenses of different parts of the background behind the sitter, a "seeing round him, as it were, which enables the two pictures when combined by the stereoscope to give a satisfactory impression of relief so that the sitter appears to stand out from the background. The same principle, of course, applies to all the other parts of the stereoscopic picture. If, now, we desire to use lenses



Le Récit.

ILLUSTRATIONS TO ARTICLE BY A. LOCKETT ON "STEREOSCOPIC PORTRAITURE."

By M. L. Chapuis, L'yon.

longer focus, which must be placed further away from the sitter, it is evident that in order to mask the same two points, F and G (or to obtain a similar amount of relief), they must be placed at H and I, in line with C E G and D E F respectively. Or, to put it in other words, the farther the camera is from the sitter, the greater must be the separation or distance between the two lenses, if good relief is required.

This is a convenient fact, because it enables us to use two plates of a good size side by side, either in separate cameras or in a single large camera divided by a central partition. Thus, with a separation of $6\frac{1}{4}$ in., two half-plate cameras with lenses of 12-in. focus could conveniently be placed in juxtaposition on a single stand. For a half-length portrait the lenses would require to be about 8 ft. from the sitter, and the background about 40 in. behind him. For portraits on a smaller scale, a greater distance between sitter and background is recommended. If, however, it is desired to use a single camera divided by a central partition, as commonly employed for stereoscopic work, a 10 in. x 8 in. camera with square bellows will answer admirably for obtaining either ordinary portraits or study heads, with a separation of about 5 in. Using a 10 in. x 8 in. plate, two negatives may be secured on the same plate, measuring 8 in. x $4\frac{7}{8}$ in.—a rather pleasing shape. By employing suitable carriers, it is possible with the same 10 in. x 8 in. camera to take two half-plate or smaller size negatives. The 10 in. x 8 in. camera is more convenient for this purpose than a whole-plate one would be, because half of a whole-plate, $6\frac{1}{2}$ in. x $4\frac{1}{4}$ in., is somewhat too narrow. There is, however, no objection to this size if it be preferred, or the other is not obtainable. The camera front should permit the simultaneous rise or fall of the two objectives, and should also provide for any desired adjustment of the separation. As regards the lenses, if the quality of the results is the only consideration, and price is no obstacle, long focus anastigmats are to be preferred, but excellent work may be done with less expensive objectives. A pair of rapid rectilinears working at $f/8$ may,

for instance, be employed. Tele-objectives deserve a passing mention, as being sometimes used for portraiture, and permitting the use of a relatively short camera extension in proportion to the size of image obtained. Whatever lenses are employed, the two shutters must be made to work in unison, by suitable connection with a single pneumatic bulb.

There are various ways of securing the reversal of the left hand print which need not here be detailed. By far the simplest is to use flat films, which may be printed equally well from either side, or the prints may be made by the carbon process, one by single transfer, and the other by double transfer.

It will be seen that all the operations are simple, requiring neither special apparatus nor objectives, since the ordinary cameras and lenses in everyday use are suitable, or may readily be made so. A removable central partition is easily obtainable; in fact, most cameras were at one time provided with them. If two cameras are employed, it is not necessary that they should be alike, provided the lenses are identical. The application of soft lighting and full exposure to avoid undue harshness of relief is now well understood, while retouching is already reduced to a minimum by photographers permeated with modern views of what constitutes an artistic portrait, and could readily be dispensed with altogether, especially if orthochromatic plates were used.

For some of the facts quoted in this article the writer is indebted to the "Photo-Gazette." It should be stated that the portrait produced herewith was taken by M. L. Chapuis, an artist of Dijon, working in collaboration with Professor Pigeon, the former being responsible for the lighting, posing, and other photographic manipulations, while the latter supervised the arrangement of the apparatus from a scientific and stereoscopic standpoint. A pair of single Zeiss Protar lenses, Series IV., were used, the focal length being $13\frac{3}{4}$ in., and the size of plate 13 x 18 cm.—a little larger than half-plate.

A. LOCKETT.

ON A METHOD OF TESTING PHOTOGRAPHIC SHUTTERS.

[The paper by A. Campbell, B.A., and T. Smith, B.A., read before the Physical Society some time ago, has now been published in the "Philosophical Magazine," and we are therefore at liberty to give the full text and the diagrams shown on the occasion of the paper being read. It should be stated that the method has been worked out in the National Physical Laboratory, and is employed there for making the determinations of the speeds and efficiencies of photographic shutters, which are part of the regular work of this institution.—Eds. "B.J."]

THE importance of having accurate methods of testing photographic shutters is well shown by the number and variety of the methods that have from time to time been proposed and used for this purpose. The method described herein is intended to provide a rapid test, while ensuring the maximum of accuracy. The total duration of exposure for low speeds (say longer than .1 sec.) is determined with an error not exceeding .005 sec., and for high speeds not exceeding .0005 sec. For exceptionally fast exposures measurements can probably be made to within .0001 sec. Attention has been specially directed to the elimination of all calculations, and a permanent record is obtained of each test.

The essential principle of the method consists in photographing on a moving plate a narrow beam of light reflected from a mirror which is forced to make angular vibrations of known frequency about an axis parallel to the direction of motion of the plate. There is thus obtained on the plate a sine curve, and if the light on its way to the plate passes through the shutter, the length of the exposure can be found by counting the number of vibrations recorded on the plate. The method has been rendered practic-

able by the fact that a vibration galvanometer affords a suitable means of imparting the necessary oscillations to the mirror; with this instrument both the amplitude of the vibration and the frequency are under control, and these are points of great importance. Owing to these conditions not being satisfied, and for other reasons, a tuning-fork is not nearly so suitable for imparting vibrations directly to the mirror. When it is desired to find the total duration of the exposure only, the general arrangement is shown in Fig. 1. Light from a point source A

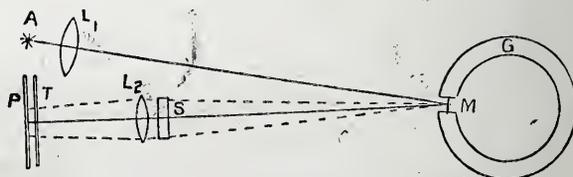


Fig 1.

is reflected by the mirror M of the vibration galvanometer G through the shutter S on to the photographic plate P. The mirror makes oscillations in a horizontal plane, and the ampli-

ude is such that the vibrating beam nearly fills the horizontal diameter of the shutter aperture. The plate falls vertically, and in doing so sets off the shutter. In practice, instead of a point source of light a Nernst lamp is used with its filament vertical, and in front of the plate is placed a narrow horizontal slit T to limit the width of the record on the plate. Lenses L_1 and L_2 are employed to regulate the intensity of the light and the amplitude of the vibration recorded as well as for focussing.

Description of the Special Apparatus Employed.

A special camera has been constructed to hold the shutter S, the lens L_2 , and the slit T (Fig. 1). It is provided with brass ways down which the plate-holder and plate slide, and an adjustable mechanism for setting off the shutter. A side elevation is shown in Fig. 2, and a view of the back in Fig. 3. A is

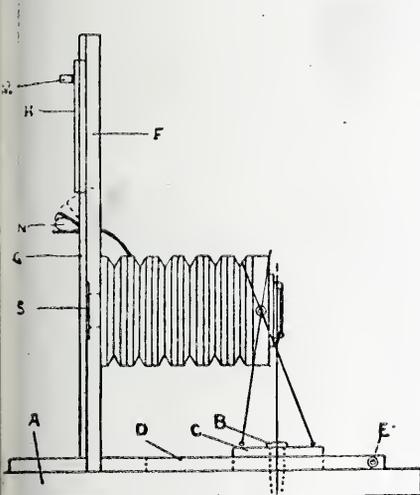


Fig. 2.

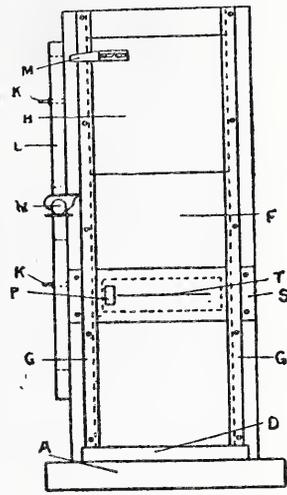


Fig. 3.

the base carrying the whole apparatus, and into it is fixed a vertical pin B. C is a piece of wood in which is bored a hole through which B passes freely. C slides between two portions of the base D of the camera, and can be held in any position by tightening the nuts E. The front of the camera, with the shutter and lens L_2 , is supported by struts from C, and set so that the axis of the pin B, if produced, would pass through the centre of the shutter. By this means the whole vibrating beam of light will be able to pass through the shutter though the whole camera is rotated through a few degrees about B. The back F of the camera is attached rigidly to the base D. The metal plate S carries a narrow horizontal slit T extending the whole width of the plate, and a window P is provided to facilitate focussing. G, G are the grooved metal plates down which the plate-holder H slides. This holder carries a projection M which engages with the upper plate of a ball compressor N; when the holder falls this upper plate is forced down and the pneumatic bulb of the release is compressed. On the return upward journey of the holder the projection passes the compressor freely. The pneumatic release is carried on the movable part L, and may be fixed at any desired height by the butterfly screws K, K. A front view of the apparatus is shown in Fig. 9.

A number of records are taken side by side on one plate. This is secured by rotating the camera about B between each exposure. With this apparatus ten or more records can be made side by side on a 5 in. x 4 in. plate. The base A has grooves cut in it to serve as a guide to the amount of rotation to be given to the camera. In making tests it is possible to make on one plate ten records of the various speeds given by a shutter in one minute.

The Electrical Apparatus.

The vibration galvanometer used is of the moving coil type (as already described by one of us*), and can be readily tuned

to frequencies of 50 or 500 per second. As its mirror is of fair size (50 to 80 sq. mm.), it gives with a Nernst lamp a sufficient amount of light to avoid "tailing off" in the records for quick exposures with rapid plates. The source of current may be an ordinary lighting circuit, the current through a lamp as resistance being made periodically intermittent by means of a wire interrupter, an electrically maintained tuning-fork, or, for the higher frequencies, a microphone hummer. The wire interrupter, which is merely an electrically maintained monochord, can be set to the desired frequency by the help of a tuning-fork; the maintained fork and the hummer give constant and known frequencies, and do not require setting. The pulsating current is led through a primary coil of 50 or 100 turns, and over this is placed a movable secondary coil connected directly to the vibration galvanometer, which is tuned to resonance with the source of current. The amplitude of its vibration can be brought to the desired amount by changing the position of the secondary coil relatively to the primary.

The distance from mirror to plate is usually about 100 cms.

Determination of the Efficiency.

For a more complete test the efficiency, in addition to the total duration of exposure, is determined. If τ denote the total duration of the exposure, T the equivalent exposure, a the area of the shutter aperture at the instant t, and A the maximum opening, we have the relation

$$AT = \int_0^{\tau} a dt ; \text{ the efficiency} = \frac{T}{\tau} = \frac{\int_0^{\tau} a dt}{A\tau}$$

Thus it is necessary to obtain a record of the area of the shutter opening at every instant of the exposure.

For the determination of the efficiency the method employed is essentially that proposed by Sir William Abney, who uses a siren to measure the time. We proceed as follows:—The shutter is removed from the vibrating beam of light (see Fig. 4) so that

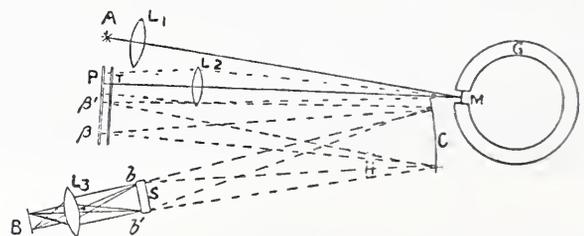


Fig. 4.

a continuous sine curve is recorded over the whole length of the plate, and this curve serves now simply as a time record. A line source of light B is focussed by a lens L_1 on to a narrow horizontal slit $b b'$ placed in a diametral plane of the shutter as close as possible to the shutter-leaves. An image BB' of this

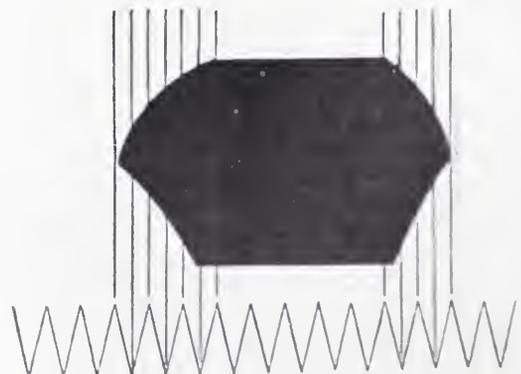


Fig. 5.

slit is formed by the concave mirror C on the photographic plate by the side of the vibrating beam of light. As the plate falls

* "Proc. Phys. Soc.," Vol. XX., and "Phil. Mag.," October, 1907.

† "Proc. Roy. Soc.," A, Vol. LXXVIII., p. 208, 1906.

the shutter is opened as before, and a record is obtained giving at every instant of time the length of slit through which light was passed by the shutter-leaves (Fig. 5). Measurements are then taken of the area of shutter aperture corresponding to a number of lengths of the slit opening. Fig. 6 shows some stages

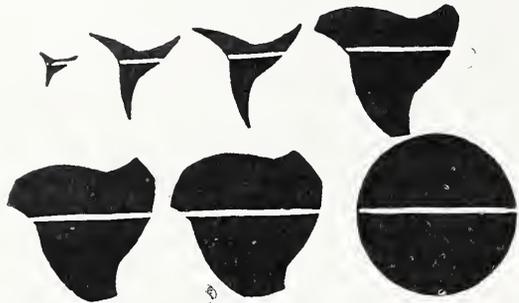


Fig. 6.

in the opening of a particular type of shutter, the white line representing the position of the slit. From a pair of records such as shown in Figs. 5 and 6 a curve is drawn showing at every instant of the exposure the area of the shutter aperture through which light can pass to the plate. It is now evidently

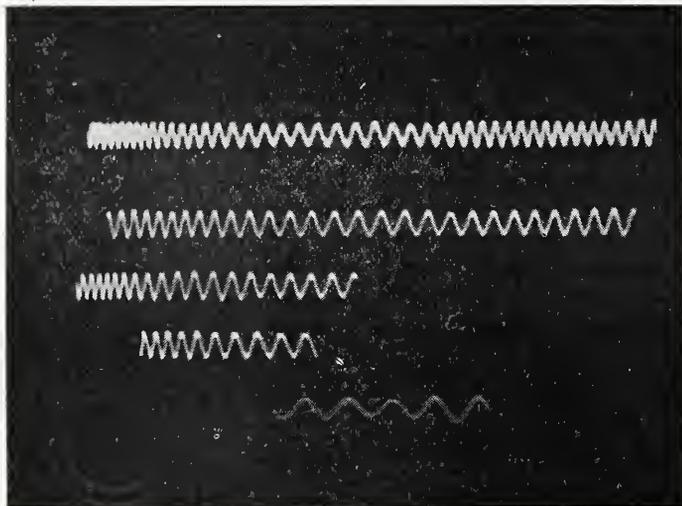


Fig. 7.

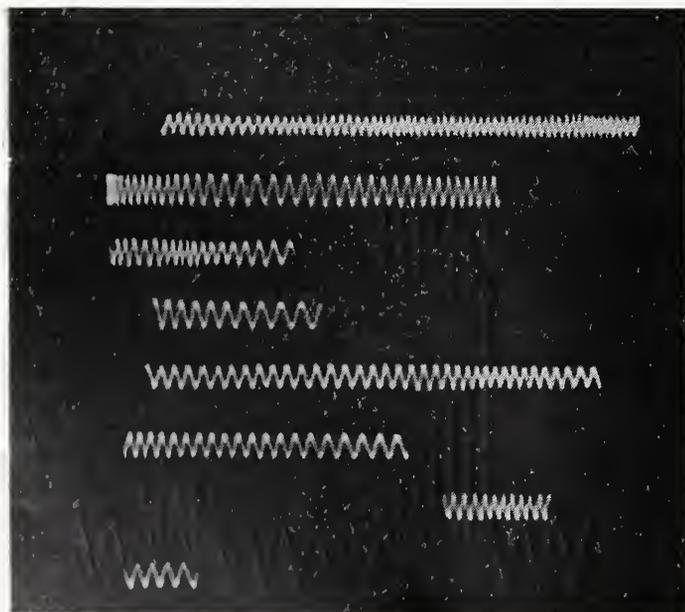


Fig. 7A.

a simple matter to find the amount of light cut off owing to the finite length of time taken by the shutter-leaves to open and close, and hence to calculate the efficiency.

Examples of Records.

A number of shutters of different types have been tested with the apparatus. Figs. 7 and 8 are examples of the records obtained, the former at 50 and the latter at 500 - per second. Figs. 5 and 6 are copies of records obtained in testing the efficiency.

For general use the most convenient frequencies to work with



Fig. 8.

are 50 and 500 - per second, with possibly 2,000 for special work; or perhaps 100 and 1,000 - per second would be suitable. The full advantages that the method offers can only be secured

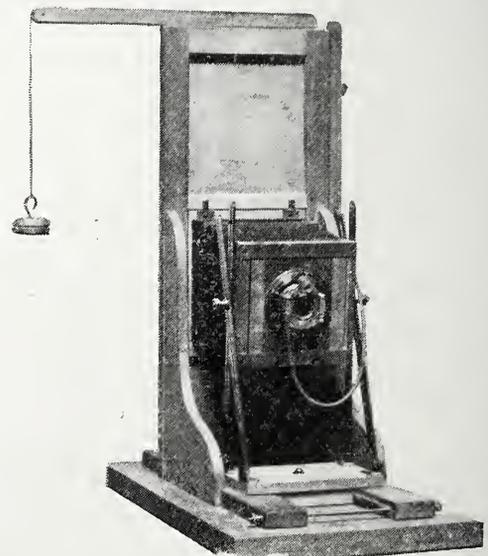


Fig. 9.

by the use of round numbers, such as the above, for the frequencies of the oscillations.

In conclusion, we wish to thank Dr. Glazebrook for the kind interest he has taken in the working out of the method.

A. CAMPBELL, B.A.
T. SMITH, B.A.

CHANGE OF ADDRESS.—Mr. G. Guilbert, successor to Messrs. Romanet and Guilbert, of 26, Red Lion Square, W.C., advises us that the business of the firm will in future be carried on at 40, Hatton Garden, London, E.C.

DEATH OF MR. FRANK BISHOP.

WE very much regret to have to announce the death of Mr. Frank Bishop, which took place on the morning of the 12th inst. at the deceased gentleman's residence, 20, Kensington Crescent, W. Mr. Bishop for many years had occupied a leading position in the photographic trade. His connection with the firm of Messrs. Marion and Co. dated back to nearly fifty years ago. For many years he was a partner in the firm, and its first managing director when the business was converted into a limited company in 1901. Apart from his interest in the ordinary branches of photographic trade, Mr. Bishop interested himself very keenly in the publishing side of photography, and was one of the founders of the Photographic Copyright Union in the year 1893, and retained his active interest in and support of this protective association until the time of his



THE LATE MR. FRANK BISHOP.

ath. It was at the time of the formation of the Union that photographers stood in danger of neglecting their rights in reproductions of their work, and though perhaps their interests are now more actively watched over by the Professional Photographers' Association, the pioneer work in this direction was done by the Copyright Union, and largely by Mr. Bishop. In consequence of ill-health, Mr. Bishop had retired from active management about ten years ago, but he remained a director of Messrs. Marion and Co. to the time of his death. At the funeral, which took place on Monday last, a large number of those who had been associated with him in business were present, and the Professional Photographers' Association was represented by Messrs. F. A. Bridge, Alfred Ellis, H. Fry, and A. Mackie (hon. sec.).

ENLARGING NOTES.—Messrs. Wellington and Ward send us a copy of a very useful booklet issued by them under the title "Enlarging Notes for Use with the Wellington Papers." It concisely describes the merits of the three types of enlarger, but we commend it most for the very emphatic directions for the making and use of developer and toner for the Wellington bromide and S.C.P. papers, for the use of bolting silk, and for the printing-in of clouds. Really, the maker of enlargements wants nothing more in the way of instruction than is here given him for nothing on addressing a postcard to the Wellington Factory at Elstree, Herts.

A NEW MATERIAL FOR PHOTOGRAPHIC UTENSILS.

ACCORDING to a recent paper in the "Zeitschrift für angewandte Chemie," a new material, to be known as "Resinite," has been produced as a condensation product of phenol (carbolic acid) and formaldehyde (formaline). The new material is, in many respects, superior to glass, celluroid, or hard rubber, substances which for one purpose or another are largely used for photographic purposes. Some short account, therefore, of the properties of the new substance may prove of interest. The body is made from a mixture of crystallised carbolic acid and formaldehyde solution, the condensation of which is brought about with potass carbonate, though other neutral or basic salts may be used for the purpose. On heating, a yellowish liquid of high boiling point is obtained. This so-called "Resinite A" contains a good deal of water, and is advocated chiefly for the making of solid utensils from wood, paper, or other porous bodies, since these latter—when impregnated with the solution—are prevented from shrinking and are rendered hard and waterproof.

When "Resinite A" is further distilled, so as to get rid of excess of formaline and water, the residue is that described as "Resinite B." It is obtained by protracted heating of the residue to a temperature of 80 to 200 C. It differs from other condensation products—known as artificial resins—by its non-liability to take fire and its resistance to various chemical bodies, and further to its slight brittleness. The product is of a ruby-red colour and varies more or less in transparency. It shows a shell-like fracture, and may be ground, turned, and polished, although in large pieces it is still somewhat brittle. On this account it is advised to mix it with a certain amount of kieselguhr, talc, or other bodies which diminish its transparency, but render it more elastic. If a certain quantity of acid be incorporated in the mass it becomes more amenable to working, since the long degree of heating can then be reduced to about 15 minutes. In fact, the reaction by direct addition of acid is too rapid, and therefore 20 to 30 per cent. of starch is added in order to give a slower reaction. The acid is removed after setting with soda solution, leaving the "Resinite" softer and easily workable. It is anticipated that if the claims made for "Resinite" are confirmed the material should be found of considerable use for photographic dishes, etc., whilst the "Resinite A" would serve as an excellent means of preparing large wooden dishes or tanks.

Photo-Mechanical Notes.

Masking when Air-brushing.

The old method of masking out an original while air-brushing certain parts of it was to cut out a paper shape and rest upon it small weights, such as coins or bits of lead, to keep in position while the exposed portion was being sprayed. It was naturally more or less troublesome to preserve a sharp edge, as the paper was apt to raise itself and the weights were a nuisance. These troubles can be overcome by the device of cutting the mask out of a slightly adhesive transparent paper, which can then be merely pressed into contact, and will retain its position during the spraying, and is also very easily removed and replaced. A lithographic tracing paper known as "Charbonelle" is sometimes tacky enough; if not, one can easily prepare a paper for oneself by varnishing a suitable tracing paper with a varnish that is tacky when dry.

For many originals it is still necessary to use paper masks, although the newer method of covering with a varnish which is afterwards cleaned off is now used for probably the greater portion of masking work.

Electric Light for Process Workers.

There are a constant succession of new lamps put on the market for process workers, each later type claiming immense superiority over all that have gone before. Very often the vendors are able to support their claims by testimonials from well known firms. But we suggest that these favourable opinions are obtained from operators who frequently have no idea of a comparative test, which, if rigorously carried out, would show there was no real advantage over the lamps superseded, and if any advantage at all was in a direction not suspected.

Users of the arc light want to know the current consumption, as naturally any lamp should be more efficient if it consumes much less

current. To do this one must know the voltage, and the actual amperage of the lamp during burning, not its reputed amperage, which very often is a different thing. Then a calculation can be made as to the cost of the current by multiplying the two together, which gives the watts; 1,000 watts for one hour is the Board of Trade unit against which the charge for current is made.

Then it is necessary to make a photographic test, and see the amount of photographic efficiency which is obtained against a given cost for current.

The writer recently carried out such a test for a lamp, and found that with the same cost for current there was no gain whatever in photographic efficiency; on the other hand, the new lamp was more expensive and much more troublesome to operate.

A point that should not be forgotten is the kind of photographic work required to be done, because one sort of lamp may be much more efficient for one kind of work than another, as for example, the enclosed arc is far superior for ordinary black and white copying, while the open arc is much the best for photographing colour.

Another point is the nearness to which the light may be placed to the original. Thus the ordinary enclosed arc can be placed closer than the open arc, and the flaming arc closer still, while mercury vapour tubes can be placed closest of all. Other things being equal, the lamp that can be placed closest to the copy is naturally the most economical.

Machine-Printed Photogravure.

A reader of the "Photo-engraving Notes" in the "Inland Printer" has written in appreciation of the photogravures machine-printed in colours issued in this country as Mezzochromes. He asks how the work is wiped perfectly from a revolving roller, and why the same principle cannot be applied to a flat plate and do away with the tedious manipulation gone through in wiping a plate by hand? Mr. S. H. Horgan, in reply, states that the Waite die and plate press "inks, wipes and prints at one impression" from a flat plate. It is easier to turn a copper cylinder true than it is to get a plane surface absolutely flat, which would be necessary should the surplus ink have to be removed with a scraper. The ink used in printing photogravures from a cylinder is almost of the consistency of soup, and is called "soup" by rotary photogravure-printers. The bottom of the copper-printing cylinder either turns in a trough of this soup or the liquid ink is supplied with a cylindrical brush or felt to the cylinder. The excess of ink is removed by a scraper, called the "doctor," which has a keen knife-edge. The doctor is given a lateral movement parallel with the axis of the printing cylinder, to which it is pressed tightly. The ink used must be absolutely free from grit, or scratches result on the printing surface. The whole system of printing from an engraved roll is not new, but its application to printing photogravures began in England about ten years ago.

Removing Magnesia from Half-tone Blocks.

Replying in the "Inland Printer" to a correspondent, Mr. S. H. Horgan, the conductor of the photo-engraving column, writes:—"The carbonate of magnesia you buy in powder is likely the powdered mineral magnesite, which, in combination with the iron etching solution and the copper, makes a hard paste in the etched parts that is very difficult to remove. The block magnesia, which you can readily purchase, is oxide of magnesia, produced by burning the metal and then pressing the light fluffy flakes into blocks. When rubbed into an etched plate it shows up the condition of the plate, to a practised eye, even better than a proof. To remove it, begin by getting rid of the stopping-out varnish, which is usually a spirit-varnish and must be removed with alcohol. While the plate is still wet with the alcohol, take it to a sink and pour over a little acetic acid, so as to cover it all over, and sprinkle on the plate a handful of fine table-salt. With a fine bristle nail-brush scrub the plate in the direction of the half-tone dots, allowing the water from the tap to flow while finishing the scrubbing, wash away all traces of the acetic acid, and the plate should be cleared completely of magnesia."

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.—On November 25 a lecture, entitled "Glorious Devon," will be given by Mr. A. J. Woolway, who will show 100 Autochrome lantern illustrations.

Exhibitions.

PANORAMIC PHOTOGRAPHS AT THE KODAK STRAND GALLERY.

THE Kodak Company are now showing at their Strand Gallery, close to Charing Cross Station, a number of panoramic photographs made with the "Cirkut" camera, reviewed not long ago in our pages. The prints are the work throughout of the Notman Photo Company, of Boston, U.S.A., and represent, in almost every instance, well known scenes in European capitals. The great facilities provided by the "Cirkut" type of panoramic camera are very forcibly demonstrated, and perhaps the example which will appeal most to the London visitor is the photograph of Leicester Square, taken from the south-west corner and showing about half of the central garden and more than three-quarters of the surrounding buildings from Messrs. Stagg and Mantle's premises right round the square to beyond the block of the Dental Hospital. The print gives a record of this well-known corner of London which could not be obtained by any single exposure made in the ordinary way. Another equally effective example of the work of the camera is that of the Tower Bridge; whilst two others, which perhaps are not quite so good, are Hyde Park Corner and Piccadilly Circus. A lofty point of view, and one if possible at a considerable distance, naturally favours the most efficient use of the camera, and for that reason the panoramic photographs in Rome, Paris, and Milan have afforded better opportunities to the photographer. Nevertheless, the London subjects amply demonstrate the many applications of this instrument for the purposes of advertising and record photography. We should add that all the prints are made on "Velox" paper, and that the exhibition remains open for a month from the present date.

FORTHCOMING EXHIBITIONS.

- November 23 to 26.—Southampton Camera Club. Sec., S. G. Kimber, Oakdene, Highfield, Southampton.
- November 29 to December 2.—Lancaster Photographic Society. Entries close November 20. Sec., Thomas Holt, 4, Parliament Street, Lancaster.
- December 4, 1909, to January 1, 1910.—Southport Photographic Society. Sec., J. McLellan, 2, Pilkington Road, Southport.
- December 15 to 16.—Coves Camera Club. Entries close December 6. Sec., E. E. Vincent, 4, High Street, Coves, I.W.
- December 31, 1909, to January 8, 1910.—Wishaw Photographic Association. Entries close December 18. Sec., R. Telfer, 138 Glasgow Road, Wishaw, N.B.
- 1910.
- April 5 to 9.—Sheffield Photographic Society. Secs., J. A. Georg and J. R. Wigfull, 14, Parade Chambers, Sheffield.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following patents have been applied for between November 1 and 6:—

SHUTTERS.—No. 25,386. Improvements relating to camera shutters. Alfred Parker and Lucions Charles Knee, 31, Bedford Street Strand, London.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; and abroad, in the case of patents granted under the International Convention.

CINEMATOGRAPH MECHANISM.—No. 22,117, 1908 (October 19, 1908)

This invention relates to cinematograph apparatus of the type in which two shutters are rotated in opposite directions over the two lenses, each shutter having an opening so formed that the pictures are projected on to the screen without an intervening da

period, and with practically uniform lighting. The shutters are constructed with radial slots and wire gauze or other translucent edges, whereby the amount of light transmitted to the screen is kept constant during the rotation of the shutter.

Two shafts cause the alternate motion of two toothed drums which consecutively move a single cinematograph ribbon film of the well-known type, printed according to a predetermined arrangement. One of the lenses is adjustable, and the apparatus admits of the two lenses being concentrated on a single point. The lighting of the pictures projected on the screen may be by means of gas, electricity or other convenient medium. The uniformity of the projection is assured by the double rotary shutter formed of two concentric disc segments each capable of being revolved in the opposite direction to the other (the driving of the shutters being effected by gearing in the well-known manner), and is distinguished by having on each segment a series of narrow radial slots, and a wire-gauze or translucent screen for the purpose of regulating the amount of light passing to the screen. Marius Auguste Ginoux, 15, Rue de Bondy, Paris.

New Trade Dames.

PUREXIDE.—No. 316,604. Chemical substances used in manufactures, photography, or philosophical research and anti-corrosives. Purex, Ltd., Greenford Colour Works, Greenford Road, Greenford Green, Harrow, Middlesex, manufacturers. September 25, 1909.

Analecta.

Extracts from our weekly and monthly contemporaries.

Xylonite Dishes

I like xylonite dishes (writes Mr. P. W. Scott, in "Photography and Focus" for November 16), for more reasons than one. They are not at all likely to break; they pack into a very small space; they are economical of solution, as they are flat, and the plates lie flat upon them; they are easily kept fairly clean; and from their flexible nature they are the easiest of all dishes from which to pick up a negative. Put one thumb on a corner of the plate, and with the other fingers of the hand under the dish pick it up, and the weight of the liquid will cause the dish to bend so that the plate may be picked up at once with the other hand.

New Books.

"L'Arbre dans le Paysage." By J. Carteron. Paris: Chas. Mendel. Price 60 cents.

In this volume of 38 pages the author treats of the tree as the "life of a landscape," and his aim is at a more adequate rendering of trees either as the subject proper of a landscape or as minor constituents of a picture. The little book thus touches a somewhat novel theme of pictorial photography. It is illustrated with reproductions of a few photographs appropriate to its subject.

"Le Diamidophenol Acide en Photographie." By G. Underberg. Paris: Chas. Mendel. Price 60 cents.

This short monograph on the acid diamidophenol developer forms No. 13 of the useful series of text books published by our contemporary, the "Photo Revue," in the pages of which portions of the contents have first appeared. M. Underberg has of late been an unceasing advocate of acid diamidophenol as a universal developer, and in this monograph he gives the formulæ which he has found best, and describes the methods of varying the action of the developer which have seemed advisable. Writing for French readers, he makes use chiefly of soda acid sulphite as an acidifying body, this substance being more generally supplied in France than in this country. Acid sulphite liquor of the standard commercial strength is, however, obtainable here, among others from MM. Lumière.

Metabisulphite of potash and soda might also serve as a source of free or uncombined sulphurous acid, and English workers might experiment in this direction with advantage. M. Underberg has worked out a series of developing solutions prepared from one or two stock solutions, and his recommendations, some of which we have translated in past issues, are evidently the result of painstaking experiment.

"Modern Photography for Amateurs." By J. E. Fearn. Sixth Edition. Revised by C. Welborne Piper. London: L. Upcott Gill. Price 1s. net.

In this re-edition of a popular manual the matter has been brought very closely to date without, however, including anything which has not been fully confirmed. Thus under development, the factorial and time methods are described as well as the Watkins system of correcting for the temperature of the developer. The introduction to each part of the photographic process is commendably by the easiest route—e.g., self-toning papers for the print, pyro-soda for development. The essential and important methods of photography, from the amateur's standpoint, obtain the extended treatment they deserve. Thus enlarging and lantern-slide making, and hand-camera work come in for ample treatment, and the reviser's advice is everywhere very frankly given. The volume does not lay undue stress on the extreme simplicity of photographic processes, but points out the precautions which are really necessary for success. We can cordially commend the volume as a thorough and reliable introduction to photography.

"The Home Life of a Golden Eagle." By H. B. Macpherson. London: Witherby and Co. Price 5s.

Perched somewhere near an eyrie in a wild corner of the Grampians, Mr. Macpherson has crouched for hours at a stretch in the seeping wet, with his eye and that of his camera fixed on the home of a pair of golden eagles a few feet from him. As the result of all this patience in discomfort he has written two diaries—or, rather, one is his and the other is his camera's—between which it would be invidious to make comparisons. Each is an absorbingly interesting record of what he saw of the domestic career of the two birds and their offspring from the time prior to the latter's emergence from the shell until the day when—we quote the last words in the book—"the devoted parents, who for five long months have tended their offspring with loving care, turn on him as on a foe and drive him forth into the outer world." Mr. Macpherson, on his knees, under a pair of hurdles and in a pool of water, and other parts of him exposed to the wind and rain, has watched the parents' solicitude through five months, and has recorded what he saw in a matter-of-fact way which is often horrible from its realism. Easily frightened by a strange object, the eagles know the business of securing food for their youngsters pretty well. Mr. Macpherson's diary consists largely of the stage entrances on to the eyrie of Mr. and Mrs. Eagle carrying for their offspring a tender morsel such as the hind leg of a rabbit, a grouse, plucked and decapitated, or a fat rat—all of which the young bird by the time he was a month or so old had learnt to gulp down, bones and all.

In the 32 excellent plate illustrations the author shows the result not only of his patience and photographic skill, but of his dramatic sense; he has seized upon moments when the affairs of the eagle family were at a crisis, and for this stage-management of his photographs he deserves our congratulations, for the reason that by such means persons who would not read a dry-as-dust treatise are encouraged to learn of "wild Nature's ways."

Though the author cannot be called a literary stylist, his unimpassioned record of what went on at the eyrie is as absorbing as any novel, and we did not lay it down until we had read every word. The book deserves to rank high among the modern natural history works made possible by photography.

PHOTOGRAPHIC CHEMICALS.—No. 101 of the "Photo-Miniature" is devoted to the properties of the chief chemical substances used in photography and the precautions to be observed in their storage and conversion into the photographer's working solution. The arrangement adopted classifies bodies according to their chief purposes, e.g., pyro, sulphite, alkalis, and bromides are grouped and treated together in reference to the making of a developer.

hypo eliminators come next, the cheap and certain permanganate being included among the latter. The materials for gold, platinum, and sulphide toning are next considered, after which the chemicals of intensifiers and reducers and of mountants are the subject of useful notes. The monograph concludes with hints on making solutions, weighing and measuring, and other operations necessary when making up solutions. The issue gives a good deal of information on every-day matters of photographic importance. It is published here by Dawbarn and Ward, and in America by Tennant and Ward, 122, East Twenty-Fifth Street, New York.

New Materials, &c.

"Teb" Christmas Mounts and Cards. Made by W. Butcher and Sons, Ltd., Camera House, Farringdon Avenue, London, E.C.

Messrs. Butcher have this year entered the field of the Christmas mount for photographs with a number of quite novel designs and styles, in addition to retaining their hold upon the less expensive kinds of card, a very great variety of which are illustrated and described in the 24-page list, just issued. Perhaps the best idea of the more popular lines is given by the "Teb" boxes of assorted

The setting for the print consists of two tinted papers, the inner one nicely placed so that more space is left at the bottom than at the top, whilst the inner mount also is of such size that when the print is mounted on it a quite narrow band of the inner mount is left visible all round. In short, the user of the mount obtains the result of multiple mounting without the trouble of himself preparing the tinted surrounds. The whole style of this "Directoire" series deserves every commendation, whilst the prices are moderate—namely, 1s. 6d. per box of six mounts and envelopes in either c.d.v., postcard, or quarter-plate size. In the "Mayfair" series the same leading idea is adopted, but with a slight variation. In these mounts the envelopes are made of linen-surface paper or other delicately figured paper, whilst the mount for the prints consists of a single board $9\frac{1}{2}$ by $7\frac{1}{2}$ inches bearing the one word "Greetings" in unobtrusive gold-blocked lettering. The latter is placed so that the mount may be used either for an upright or landscape picture, and the whole production of these very refined yet ornamental mounts will do credit to the taste of any photographer showing them to his customers or to that of any dealer offering them to amateur workers who may pride themselves on their choice of mounting materials. The "Mayfair" is made in two series, No. VIII. having mounts $8\frac{1}{2}$ by $5\frac{1}{2}$, and including six in the packet, No. IX. of five mounts $9\frac{1}{2}$ by $7\frac{1}{2}$. The price in each case is 2s.

Similarly, in calendars Messrs. Butcher have produced a number



No. 917.



No. 909.



No. 916.

cards sold at 1s. for c.d.v. and quarter-plate size and at 2s. for 5 by 4 prints, in each case containing fifteen mounts. The box itself is turned out in very nice style, tied with green ribbon, and the mounts themselves are as varied in style, design, and colour as can be wished. The majority are folder slip-in mounts, but one or two are made up envelope fashion, the flaps being simply turned down and a touch of adhesive applied when sending the card through the post. This series represents a packet of mounts most saleable to amateurs, and remarkable value for the price charged.

But we must refer more particularly to the quite new departures which Messrs. Butcher have made in photographic Christmas stationery, and particularly the mounts issued under the names of the "Directoire" and the "Mayfair." The former is a box containing six mounts and an envelope for each, the paper used for the envelope in each case matching that for the mount. The mounts are throughout of light tone—white, grey, or cream—with a delicate decoration in faint bands, which gives a very refined effect.

of very choice new series. In the series IV., V., VI.—each issued at the price of 2s.—the calendar mounts are of the slip-in type, taking quarter-plate, c.d.v., and postcard prints respectively; those submitted to us are of dark-green board with a darker vignette margin and provided with a paler green ribbon. In each case the mounts are issued either for upright or horizontal prints, there being an assortment of the two in each packet. In the series VII. of the calendar mounts the prints are pasted on, and this series—for quarter-plate prints only—represents a mount 6 by $6\frac{1}{2}$ inches, the colours being dark green and light brown, whilst the price for eight mounts—in each case bearing a tear-off calendar for the year—is only 1s. In all the foregoing series, equal attention has been given by the makers to the box, so that purchasers are pre-disposed in favour of the mounts by the appearance of the packets.

We might fill several pages of this number with even brief references only to other types of single mounts and calendars as distinct from the packet mounts reviewed above, but we must

content ourselves by pointing to one or two in particular. In No. 909, a calendar mount for postcard (upright or oblong) and for quarter-plate (oblong) prints, the base of the card (the outside measurements of which are 12 by 9 inches) is a delicate grey, with faint banded ornament and with an outside margin of white. The photograph is placed within a border of dark grey, surrounded by a narrow line of black, the final effect being that which is got by the old French method of making a border of wash round the print. The price of this mount complete with white silk cord for hanging and envelope is 3s. 6d. per dozen.

In No. 912, a double-folder mount (paste-on) for upright quarter-plate prints, the inside folder is of semi-matt linen-surfaced paper, whilst the outside is of a rougher-ribbed paper of a slightly darker brown shade, and bearing an embossed cameo relief of a head in profile. In the combination of papers, of silk ribbon which holds the two folders together, and in the printed surround for the photograph, this mount is without a fault, and altogether one of the nicest of the present season. Its price is 3s. per dozen. No. 917 is another paste-on mount in a scheme of most pleasing brown tones. It is a single card with silk cord for hanging, and with the word "Greetings" in white lettering. There are two pasted-on papers, and the mount is made for oblong quarter-plates, and both upright and oblong postcards, the price for the first being 2s. 6d. per dozen, for the two second 3s. per dozen; in each case with brown envelopes to match. This is a very suitable mount indeed for sepia-toned prints. Nos. 920, 921, and 922 are all for slip-in pictures. 920 is made in green and mouse-grey, with a neat gold lettering on the front cover. The print in this mount is slipped into four diagonal cuts in the back cover. The price for prints from $3\frac{1}{2}$ by $2\frac{1}{2}$ to postcard size—in each case four oblong prints—is from 1s. to 1s. 3d. per dozen. In 921 the motto on the front cover—"Best Wishes"—is deeply embossed without white or other foil; there is a tinted border round the slip-in opening, and the mount, with its cord harmonising with the paper, is in very nice taste. Prices, complete with envelopes, from 1s. 6d. to 2s., for prints from $3\frac{1}{2}$ by $2\frac{1}{2}$ to postcard. No. 922 is made in green only, with a fairly deep oval cut-out of grained card. It is provided with a tissue protector to the print, and embossed motto "Greetings" on the front cover. The prices for prints from quarter-plate to postcard are from 2s. to 2s. 6d. per dozen.

Professional photographers in particular should make a note of mounts Nos. 911, 915, 5962, and 916, all of which represent very neat designs, in each case of slip-in mounts provided with tissue protectors and embossed decorated border round the cut-out; 911 at 1s. 3d. a dozen in light brown, neutral grey, and dark green are particularly choice. They are for postcard size, upright, square, and oval—an assortment of these openings being supplied unless otherwise ordered. No. 5962 is for prints 4 by $1\frac{1}{8}$, made in two artistic shades of green and brown with embossed design, inside and out, and gold motto in relief. This card is 1s. 3d. per dozen, as is also No. 916, which is of similar style, but made in Whatman, surface green card, with embossed design in copper, also for prints 4 by $1\frac{1}{8}$. In No. 915 an oval for c.d.v. prints is provided, the card being issued in a delicate ribbed grey paper, with plain embossed medallion and motto in gold. This mount is issued at 1s. 6d. per dozen, including—as is the case, we believe, in every instance to which we have referred—also the envelopes.

These descriptions, we fear, do scant justice to the many excellent novelties which Messrs. Butcher have produced. All these we have examined with much interest, and we are confident that those who would see for themselves what really tasteful designs in Christmas mounts are now obtainable cannot do better than call on Messrs. Butcher or make a selection from the items which we have specially singled out for mention.

"Scales Brand" Flash Powder. Made by Johnson and Sons, 25, Cross Street, Finsbury, London, E.C.

Messrs. Johnson and Sons have just submitted to us a new production of "Scales Brand" Flash Powder, which is sent out packed in a most convenient and safe form suitable for both amateur and professional use. All that is necessary before using is to mix the two powders contained in the cartridges. The mixture is spread out on a tray or some other suitable receptacle, and a small piece

of touch-paper (supplied with every box) is attached, the powder partly covering one end of the touch-paper. The powder is then ignited by lighting the other end of the paper with a lighted taper. When the light reaches the powder the result is a highly brilliant white light, no matter how much powder is used; it all ignites instantaneously.

In the exposure we made with a 6d. box, we found we obtained a well-exposed negative of a large room, proving to us the powder is very economical; the 6d. box is ample to illuminate a large room, or sufficient for two or more portraits. For professionals, the larger size box, price 2s. 6d., is recommended.

The powder seems very free from dust, and there are no unpleasant fumes, and, if anything, less smoke than that from some other powders. The makers have certainly produced a flash powder which is safe and inexpensive.

The Edwards "A. S." (Auto-Screen) Orthochromatic Plate. Made by The Leto Photo Materials Co., Ltd., Roman Wall House, 1, Crutched Friars, London, E.C.

The Leto Company, since its acquirement of the old-established dry-plate works formerly carried on as B. J. Edwards and Co., at Castlebar, Ealing, have introduced a new member of the series of Edwards' plates in addition to maintaining the output of the "Snapshot Iso," "Empire," and other plates. In the new emulsion they have aimed to supply an orthochromatic plate which may be used to give a considerable degree of colour correction without necessitating the use of a filter. In doing this we find, as the result of a number of hand-camera exposures, that they have provided also an emulsion of considerable speed for exposures. In the comparatively dull light of the present week, using a lens of $f/6$ aperture, it gave us fully exposed negatives, the orthochromatic quality of which was evidenced by the good rendering of clouds at the same time as of the foreground of the subject. The plates, like most orthochromatic emulsions, give density easily, and, using a rodinal developer of 1:20 strength with a drop or two of 10 per cent. potassium bromide solution, we found it easy to secure ample density and contrast. There is no doubt that the use of plates such as these, which are issued at the standard prices, will do much to improve the rendering of many subjects undertaken by the amateur worker.

Morgan Self-Adhesive Final Support for Transfer Tissue. Sold by O. Sichel and Co., 42, Bunhill Row, London, E.C.

Messrs. Sichel send us a small sample of this material, prepared specially for the Morgan process of dry-mounting, embossing, and plate-marking at one operation, a departure in mounting methods which we have already reviewed and been able to describe in favourable terms. The self-adhesive paper we find to work well in the carbon process, and, using a small hot press of the ordinary pattern, found it to give perfectly solid adhesion of the print to its mount. The Final support is at present issued in bands of 25in. width and 12ft. length, at 4s., but professional photographers prepared to order cut sizes in quantities should apply to Messrs. Sichel.

ENLARGEMENTS, ETC., BY S. H. FRY.—A new price list has just been issued by Mr. S. H. Fry, of Frisian House, 5, Highbury Grove, London, N., which gives very clearly the charges for bromide and other enlargements, printing in P.O.P., carbon, platinum, and other processes, and of the special lines in mounted and framed enlargements, of which Mr. Fry has made a speciality. The list appears at a time when many photographers doubtless are in the position to place out special orders for the Christmas season, and therefore it is due to Mr. Fry and his staff that we should emphasise our long experience of the excellence and promptness with which all descriptions of photographic work are done. The firm is one which works exclusively for professional photographers and trade houses, and in our long experience of it has maintained a very high standard of output.

New Apparatus, &c.

The "Westminster" Enlarging Easel. Sold by the Westminster Photographic Exchange, Ltd., 119, Victoria Street, Westminster, London, S.W.

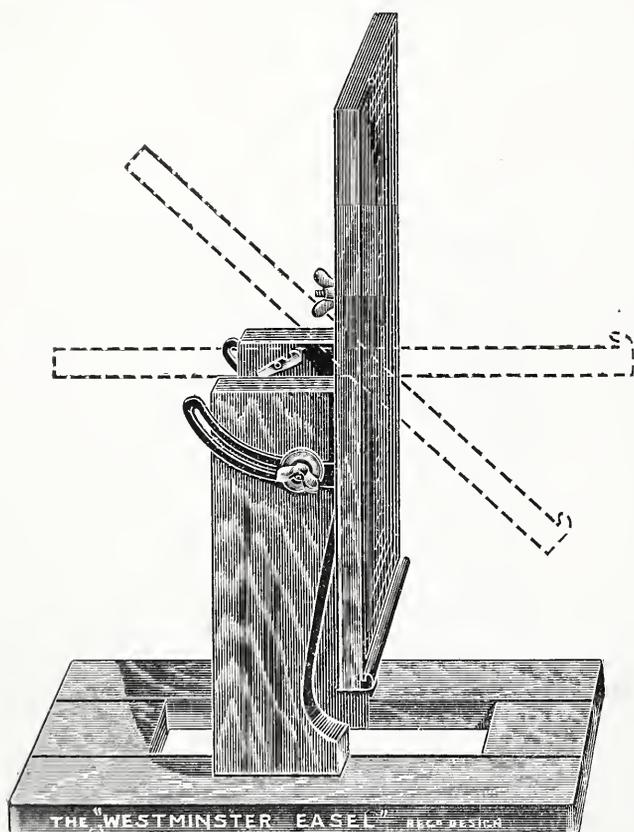
Quite a number of excellent features are embodied in this new piece of apparatus, the design of the Westminster Company, and obtainable only direct from them or through a dealer. The easel accommodates bromide paper up to 15 x 12 size, being marked out for this size and for all others down to lantern plate $3\frac{1}{4} \times 3\frac{1}{4}$ inches), the Westminster Company recognising that an enlarger is as good an apparatus as any for making lantern slides by reduction by artificial light. The lantern plate is simply clipped to the easel by a couple of drawing pins, focussing having previously been done on a piece of Bristol board the approximate thickness of the lantern plate. This, however, is an aside to our object proper, which is to emphasise the special features of the new apparatus. The Westminster easel provides the means of adjusting the bromide paper to the negative and thus dispenses with certain movements of the enlarger. There is no doubt that the proper method of adjusting

amount of tilt can be given, and the lantern is supported quite rigidly. Not only so, but the table, thus provided, forms an excellent support to which may be affixed small articles such as coins, flowers, etc., which may have to be photographed. Lastly, when we have finished enlarging upon it—our present state—we find it of service as a book stand or a copy-holder for the typewriter. The base of the easel is most substantially made in hard wood, whilst the easel itself is made in varnished pine, tongued, and very fully protected against warping. To the amateur worker who goes in for enlarging, the apparatus should prove a boon in the way of saving time and trouble, and giving a degree of certainty to the work. The price is 21s.

A special pattern of the easel is also issued, in which a framed plate-glass front is provided for the bromide paper, whilst the apparatus, as necessitated by the glass front, is of still stronger construction. The price of the special pattern is fixed at 27s. 6d.

The "Maxilyt" Combined Printing and Studio Arc Lamp. Sold by John J. Griffin and Sons, Ltd., Kingsway, London, W.C.

The requirements, particularly of the photographer in a small



the enlargement on the bromide paper is by moving the paper, and not the negative, in the stage of the enlarger, since the latter plan—in nine cases out of ten—will cause incomplete illumination of the negative. The Westminster easel allows of an up-and-down and rotating movement being given to the bromide paper just as easily as a negative is moved in the stage of a modern enlarger, and the particular virtue of the apparatus lies in the fact that the adjustment is made very conveniently and quickly with one hand, simply by loosening a set screw at the back. A similar screw on the side allows of the easel being tilted forwards towards the lantern or backwards from the lantern through a complete right angle, so that it lies perfectly horizontal. In both cases the easel catches with the support, so that it is automatically brought square with the enlarger. The advantage of the horizontal position is that when the enlargement has been focussed on the face of the easel, the latter can be turned back and the bromide paper pinned firmly in place without any risk of shifting the position of the easel, the pressure being simply vertically downwards instead of a thrust against the easel. Further than this, the movement allows of the apparatus being used as a very efficient and rigid lantern stand for an ordinary optical lantern used in a small room; any desired



way of business, are excellently met in this apparatus, which combines in one instrument a lamp for studio portraiture and for printing, and that at a most moderate price. This is done by making the printing cabinet form the support for the lamp, the arc being very quickly transferred from the lower position in the cabinet to the top of the upright supporting it when used as a studio lamp. If velvet or canvas cover be provided for the printing cabinet the rear end of the support is very conveniently hidden from sitters. The lamp, as we have seen for ourselves, gives a high degree of actinic light, negatives of full printing density giving a P.O.P. print in just over ten minutes. Moreover, the lamp should prove very economical of current, since it works at a consumption of 7 amperes and takes current of from 200 to 240 volts, a resistance included in the price of the lamp allowing of the necessary adjustment or of a greater amount of current being admitted up to 10 amperes. The cabinet allows of frames up to 12 by 10 being accommodated, and the whole outfit is certainly one which will appeal to those who wish to make the

Commercial & Legal Intelligence.

THE "WEST" A VALUABLE CONSIDERATION.—A case of considerable importance to photo artists and to photographers came before the West-London County Court last week in the shape of an action brought by John Hunter, the well-known artist, against Messrs. Clifford and Sons, art publishers, of Haymarket, for an account in connection with the sale of proofs of a picture of his purchased for the nation at the Chantrey Bequest.

Mr. Low, counsel for the plaintiff, said Mr. Hunter painted "My Lady's Garden," which was exhibited at the Royal Academy, and was purchased for the nation by the Chantrey Bequest. The defendants approached Mr. Hunter for permission to reproduce the picture, and he granted a licence on certain terms as to signing artist proofs and receiving royalties on the sale of them. The defendants had sold proofs, and the account now asked for would show what was due to Mr. Hunter under the licence.

Mr. Horace Rowlands, counsel for the defendants, submitted that there was no case, citing the Copyright Act, c. 68, as follows:—"The author (being a British subject, or resident within the dominions of the Crown) of any painting or drawing, or the negative of any photograph, shall have the copyright therein for his life and seven years; but if the same shall be sold or disposed of, or made or executed for a good or valuable consideration, the vendor or author shall not have the copyright therein, unless expressly reserved to him at the time by signed agreement, but it shall belong to the purchaser or person for whom executed, nor shall the vendee or assignee be entitled to the copyright unless expressly so agreed in signed writing."

Here the sale of the picture, said counsel, was an absolute sale of the copyright, unless there was a signed agreement to the contrary. There was no such agreement.

Mr. Low contended this had nothing to do with the original question of reproduction, but was a subject for counterclaim.

Mr. Rowlands: It is a national picture, and anybody can copy it.

Mr. Low said that the defendants had reproduced the picture, the plaintiff had signed the proofs, and the defendants were presumably making money out of it, as the account would show.

The Deputy Judge: He might perhaps recover for signing, but I see no answer to the defendants' objection, and there must be judgment for them, with costs.

Mr. Low said Mr. Hunter would say the copyright was reserved to him. He had the ordinary document from the Tate Gallery.

Judgment was entered as stated.

FRAUD BY A COLLECTOR.—A respectably-dressed man, named Andrew McLochlan (38), of Mellon Street, pleaded guilty at Newport last week to embezzling various sums of money collected for Messrs. A. and G. Taylor, photographers, of Newport. He was collector in the Ebbw Vale and Cwm districts. Mr. Lyndon Cooper, who prosecuted, said Mr. Chalklin, managing partner of the firm, felt compelled to bring the matter into court, as, though the amounts in this case were small, this was the third man in twelve months who had robbed him. From Friday to Wednesday defendant collected and spent £3 16s. 6d., but absconded, and was heard of at Neath. Mr. Chalklin said an industrious man could in that district make 35s. per week clear. Prisoner said he took a drop too much, and then went wrong. Formerly he had a provision business of his own at Swansea, but had a bit of bad luck. His wife (from whom he was separated) and family were still living at Swansea. The Bench in the result took a lenient view, and defendant was fined 30s., with the alternative of 21 days' imprisonment.

OBJECTICNABLE PHOTOGRAPHS.—Walter McIntosh, of Rydevale Road, Balham, was summoned for sending a postal packet containing indecent photographs, contrary to the Post Office Protection Act, 1908. There was also a further summons calling upon the defendant to show cause why 130 photographs seized at his premises should not be destroyed.

Mr. Herbert Muskett supported the summonses on behalf of the Commissioner of Police. Mr. Walter Frampton defended.

Mr. Muskett said that the defendant traded as the Fine Art

Photographers' Publishing Company, and the present proceedings against him were the outcome of certain complaints from people in Australia and other British colonies as to the class of work in which he was dealing. Owing to the persistence of the complaints, Chief-Inspector Stockley, of Scotland Yard, caused a letter to be sent in an assumed name to the defendant, asking for a price list and catalogue. These were forwarded in due course, and they showed that the greater part of the business was of a genuine character, but one section of the catalogue dealt with stereoscopic slides, which were described as "artistic life studies; artists' model and female figure." On October 12 defendant sent on approval fourteen of the slides described in that section, and seven of those had been selected for the purpose of the prosecution. A search warrant was subsequently obtained, and, armed with this, the police went to the defendant's premises and seized 130 other photographs of an exactly similar character.

Mr. Frampton said that if the magistrate agreed with the view of the prosecution that these photographs were indecent, then the defendant would not oppose their being destroyed, and he would undertake not to deal in anything of the kind again. He had a stock of over 30,000 photographs on his premises, and of these the police were only able to bring forth 130, which the defendant had considered artistic and unobjectionable.

It was stated that the defendant was convicted of a similar offence in 1895.

The magistrate observed that the defendant did not appear to have sold these photographs in an indiscriminate manner, and they seemed to form a small part of his business. That being so, he imposed the mitigated penalty of £5 and £5 5s. costs, and ordered the photographs in question to be destroyed.

LEGAL NOTICES.—A first and final dividend of 1s. 2d. in the £ has been declared in the bankruptcy of Percy Hague Mareden, photographer, etc., High Street, Pateley Bridge, Yorkshire.

The Auto Photo Company, Ltd., is being voluntarily wound up in accordance with resolutions passed at the Paris office, 52, Rue de Flandre. Mr. Fournels is the liquidator.

NEW COMPANIES.

THE CINEMATOGRAPH FILM HIRING COMPANY, LTD. Registered November 8, with a capital of £10,000 in £1 shares. Formed to carry on the business of cinematograph and biograph showmen, exhibitors, providers of entertainments and cinematograph pictures, etc., also to enter into an agreement with M. A. Pyke. The signatories are W. W. Cresswell and J. W. Lovett, both of 9, Quality Court, Chancery Lane, W.C. The first directors are Robert A. Lyons, 3, Abingdon Mansions, W., and Montagu A. Pyke, Dewar House, Haymarket, S.W. The registered office is at Dewar House, Haymarket, S.W.

THE LANTERN COMPANY, LTD.—Registered on November 10, with a capital of £720, in £1 shares. Objects: To carry on the business of advertising contractors in all its branches, makers and suppliers of lantern slides, films, plates, etc. Signatories: C. H. K. Chamer, 196, Deansgate, Manchester, and K. E. Hall, Broomefield, Seymour Grove, Manchester. Registered office, 196, Deansgate, Manchester. Private company.

THE LEYTONSTONE PALACE, LTD.—Registered on November 11, with a capital of £1,000 (900 in £1 shares, and 2,000 in 1s. shares). Its objects are to carry on the business of photographers, manufacturers of, and dealers in, photographic cameras, and photographic materials of every kind, particularly in cinematograph films. The subscribers are U. A. Pasqua, 24, Manchester Street, Manchester Square, W., and R. L. Tayler, 30, Moorgate Street, E.C. The first directors are R. L. Tayler, U. A. Pasqua, and F. Mann. Manager director, U. A. Pasqua. Private company.

THE BENOBOB SYNDICATE, LTD.—This company was registered on November 12, with a capital of £15,000 in £1 shares. Its objects are to carry on the business of printers, photographers, photographic chemists, manufacturers of photographic apparatus, etc., and to enter into an agreement with Benno Borzykowski. The subscribers are B. Groner, 48-56, Golden Lane, E.C.; H. Davidson, Basterfield Street, Golden Lane, E.C.; and M. Woolf, 4, Barbican, E.C.

News and Notes.

SOUTH KENSINGTON MUSEUM.—The specimens illustrating the manufacture of high-class lenses shown by Messrs. J. H. Dallmeyer, Ltd., at the Franco-British Exhibition last year, and the Imperial International Exhibition this year, have been presented to the Board of Education. This collection, which was awarded a Grand Prix, is now housed in the Western Hall of the Science Museum, South Kensington, the entrance to which is on the south side near the western end of Imperial Institute Road.

THE NORTH MIDDLESEX EXHIBITION.—Our readers in the North of London should not omit to bear in mind the exhibition of the North Middlesex Society, which will be held from December 1 to 4, in the Hanley Hall, Sparsholt Road, Stroud Green, London, N., opening on the first three days, from 7 to 10, and on the Saturday from 3 to 10. On each evening music or a lecture will be a feature. Mr. A. H. Blake will talk of the "Romance of London Streets" on December 2, and Mr. Martin Duncan of "Wanderings in Zoeland" on December 3.

THE R.P.S. AFFILIATION.—It is announced in the November "Circular" that three societies had been admitted to the Affiliation, viz., the Ashbourne Photographic Society, the Salisbury Camera Club, and the Glasgow and West of Scotland Photographic Association.

A lecture on the simplification and study of pictorial work, by Malcolm Arbuthnot, is in hand, and will shortly be ready for circulation. Negotiations are being made for lectures by eminent men on topical subjects.

A model exhibition prospectus has been drawn up by a special Sub-Committee, and the result of their labours will be printed in an early issue of the "Monthly Circular."

PHOTOGRAPHIC ALLIANCE EXHIBITION.—An exhibition of the Inter-Club Photographic Alliance opened last week at the Blackburn Free Library, by Mr. A. H. Whipple, Director of Education. Mr. B. Ward-Thompson, of Wiltshire, was in the chair. The Alliance was inaugurated at Blackburn last February, and embraces thirteen societies with a radius of eighteen miles from the Town Hall. The pictures for this year's competition (writes "Viewfinder" in the "Lancashire Daily Post") were submitted to Mr. Frank M. Sutcliffe, of Whitby, who officiated as adjudicator. Each society was asked to contribute nine prints by different workers, and ten was the highest number of marks given to any picture. The awarding was as follows:

	Marks.
1.—Blackburn and District Camera Club.....	51
2.—Darwen Photographic Society	47
3.—Nelson Camera Club	45
4.—Burnley Camera Club	44
5.—Nelson Photographic Society	37
6.—Bolton Camera Club	35
6.—Horwich Photographic Society	35
7.—Chorley Photographic Society	31
8.—Preston Camera Club	28
9.—Colne Camera Club	26
10.—Burnley Co-operative Camera Club	24
11.—Padiham Camera Club	21
12.—Preston Scientific P.S.	18

Members of the Blackburn Camera Club have done wonderfully well this season in competitive exhibitions, and they have added another laurel to their wreath by carrying off the Inter-Club championship, which entitles them to hold the Toulmin silver shield for the next twelve months.

THE SINCLAIR OIL AND BROMOIL COMPETITION.—The judges, Messrs. E. T. Holding, Furley Lewis, and J. C. S. Mummery, as a result of their examination of the prints sent in to the above competition, have made the following awards:—First prize, £10, for "A Silhouette" to Frank H. Read, 61, Richmond Road, Twickenham; second prize, £5, for "His Eminence," to F. C. Tilney, Walden, Cheam, Surrey; third prize, £3, for "A Nocturne" to Reginald C. Chapman, 89, Holly Road, Northampton; and seven prizes of £1 each of the following:—H. A. L. Way, for "An Englishman"; W. C. S. Fergusson, for "The Ferry Boat"; Mrs. Ambrose Ralli, for "Sunshine"; Bertram Park, for "Willow Pattern"; R. M.

Cocks, for "Sunset at Rye"; J. T. Tanner, for "Great Yarmouth"; H. Bairstow, for "In Fiesch." A very large number of prints of a high quality were contributed to the competition, and an exhibition in which a selection of these prints will be shown, will be held at 54, Haymarket from November 24 to December 8. Admission to this exhibition will be free, and it will give workers an opportunity of seeing the present position of oil and bromoil work. The exhibition will be open from 10 to 4, excepting Saturdays, when it will close at 1 p.m. Messrs. Sinclair may feel pardonable pride in the fact that the prints in the competition were judged and cheques sent to the successful competitors on the day following that for the last receipt of entries.

Correspondence.

** We do not undertake responsibility for the opinions expressed by our correspondents.

** Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

TREATMENT OF AN OVER-EXPOSED PLATE.

To the Editors.

Gentlemen,—Recently I was commissioned to photograph the trench for a sewer. In order not to disturb the roadway more than was necessary, the excavation was done in sections, and a tunnel



TRENCH FOR
SEWER.
CLARE, 1909.

run from one section to another. The object was to get a view through from one opening to the next. Owing to the shortness of the openings, and the necessity for placing the camera near to the bottom of the trench, it was impossible to focus or to see the image on the ground glass so as to judge the exposure required, so I

focussed for the distance above ground, planted the camera level with the centre of the pipe, and made two exposures, giving the second plate twice as long as the first. On developing the first plate with my usual developer I found it hopelessly over-exposed. I then soaked the second plate for five minutes in a solution of bromide of potassium, 5 grs. to the oz., mixed this solution with an equal quantity of the developer, and developed the plate, with the result I send you—a result which brought me both cash and credit. I may mention that the cutting was 13ft. deep, the boards shown being the shoring, half-way up, and it has occurred to me that by this procedure I very likely got fuller detail than I should have secured by a correct exposure.

As a "wrinkle" I would add that I had the flat ends of the sewer pipe rubbed over with a piece of chalk.—I am, yours truly,

Clare, Suffolk.

THOS. STOKOE.

November 13, 1909.

A CONCENTRATED ONE-SOLUTION M.Q. DEVELOPER.

To the Editors.

Gentlemen,—I see in your last one or two issues some correspondents asking for a very concentrated M.Q. developer, and in answer there is one given in this number which is not nearly strong enough, as, when diluted, it only contains 1 grain of hydroquinone and $\frac{1}{2}$ grain of metol in the oz., which is on the weak side. If your querists will turn to page 65 of the "Photographic Annual" for this year they will find a very concentrated formula which, when diluted 1 part to 7 parts of water, still contains 3 grains of hydroquinone and $\frac{3}{4}$ grain of metol in the oz.

I will not inflict the formula on you, as it requires the instructions in full to make it up, but I may say that I have made it up dozens of times without a single failure. I do not think such a strong formula has ever before been published, and it might be of interest to your readers to reproduce it.—Yours faithfully,

R. L. BOYD.

10, Annesley Park, Rathmines, Dublin.

November 13, 1909.

[The formula, which appears in Mr. Boyd's name, is as follows:—Warm water, 24 oz.; metol, 24 grs.; hydroquinone, 96 grs. When dissolved, add soda sulphite (crushed small), $1\frac{1}{2}$ oz. By the time the sulphite has dissolved, the whole will be a white, pasty mass. Now add 64 grs. of sodium hydrate (caustic soda), shake well, and in a minute or so you will have a clear concentrated M.Q. solution. One dr. of this, added to 7 drs. of water, will make a developer containing in each ounce:—Metol, $\frac{3}{4}$ gr.; hydroquinone, 3 grs.; sodium sulphite, 2 grs.; sodium hydrate, 2 grs. Can be used half strength for most purposes.

The image appears in 5 to 8 seconds; development usually complete in $1\frac{1}{2}$ or 2 minutes; factor about 16. Diluted 1 dr. to 2 oz. of water and 2 drops of bromide added to each ounce, it makes a first-rate bromide paper developer. The strong solution keeps very well indeed.—Eds. "B.J."]

THE BLEACH-OUT PROCESS.

To the Editors.

Gentlemen,—In No. 2,584, p. 887, you answer that you can give no further information concerning the new bleach-out process. You will find the details in the German Patent Letter, No. 209,993, Klasse 57b, or the inventor, Dr. Hans Stebbe, 12, Robert Schumannstrasse, Leipzig, will give all further information.—Yours very truly,

DR. MEBES.

Berlin, N. 4. Chausseestrasse 105.

COWES CAMERA CLUB.—This club will hold its third open exhibition in the Town Hall, Cowes, I.W., on December 15 and 16, when Mr. S. G. Kimber will perform the work of judging the exhibits. One of the four classes in the open section will be set apart for colour work only, either prints or transparencies, and a number of awards will be placed at the disposal of the judge, in addition to several challenge plaques for special subjects, in both the open and members' classes. Entries close December 6. Further particulars and entry forms may be obtained from the hon. secretary, Mr. E. E. Vincent, 4, High Street, Cowes, I.W.

Answers to Correspondents.

** All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

** Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

** Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.

** For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

G. F. Watson, Park Green Studio, Macclesfield, Cheshire. *Photograph (Combination) entitled, "Far and Wide," C.M.S. Missionary Spectacle, Drill Hall, Macclesfield, October 19 to 27, 1909, Episode: "The Conversion of Mercia."*

J. Mills, 11, Gold Street, Northampton. *Two Photographs of the Princesses Mary and Helena of Teck.*

R. Undethill, 24, Bishopgate, Norwich. *Photograph of Royal Procession on Tombland, Norwich.*

E. B. Hughes 28, Patrick Street, Cork, Ireland. *Photograph of Group containing President, Professors, and Lecturers of University College, Cork, 1909.*

DRAWING REGISTERED:—

The Pansy Portrait Painting Co., "Brompton," 15, Whitehall Road, Thornton Heath, S.E., *Drawing of an Advertisement Design.*

THREE-COLOUR PORTRAITURE.—I should much appreciate your kindly advising me if any firm in London is producing good three-colour portraiture on paper from a gelatine film stained or inked with the necessary three colours. If such work is being done, will you have the kindness to advise me where some specimen prints and the necessary materials can be obtained.—GEO. PENDELL (Callao, Peru).

So far as we know, no one in London is doing such work commercially. You could get good specimens of the process from the Rotary Photographic Co., New Union Street, Moorfields, London, E.C., or from Mr. H. J. Comley, secretary of the Society of Colour Photographers, Surrey House, Stroud, Glos.

COPYING OIL PAINTINGS.—We are requested by a customer to photograph some oil paintings. As ordinary plates would be useless for the purpose, what kind of orthochromatic plates should we require, also what screen, if any, and where obtainable? Could we use, instead of orthochromatic plates, Autochrome transparencies, and thus reproduce the paintings in their natural colours? What lens would be required in either case, and how should we proceed? Any hints on the subject, within the limited space of your valuable journal, would be greatly appreciated by us.—COLOUR.

Most probably you require a panchromatic plate and fairly deep light filter. We cannot say positively without seeing the paintings, but a panchromatic plate, such as the Wratten, will suffice in either case. You should get the shilling book, "The Photography of Coloured Objects," which we reviewed some weeks since. Messrs. Wratten also issue a useful gratis booklet on the subject, and you can get a similar booklet from Messrs. Ilford, Ltd. Of course, you can make a transparency (not a print) in colours on an Autochrome. In either case a good anastigmat lens will suffice, and even a good R.R. lens will probably be quite sufficiently colour corrected.

RETOUCHING (Reply to "J. S. A. C.").—Your work is second-class only. It is merely smoothing up without any special attempt at improving the general modelling. Increase your high-lights more, respect the half-tones, and work with finer and more tender gradation into the shadows. You preserve the likeness well—a strong point in your favour—but avoid obliterating wrinkles to such an extent, and you will be stronger still in this good quality. Why not take some lessons?

H. H. D.—We have no information beyond that in the patent specification, according to which paper is saturated with shellac.

CAMERA.—(1) Can you recommend the ——— folding camera for general professional work—viz., for at home portraiture, interiors of rooms, and exteriors of buildings, or would the absence of a swing back and front be against the camera being used to photograph tall buildings? It is fitted with a rising front.—**BOOTLE.**

(1) It is not the best for the purpose, owing to its insufficient rise of front and inability to take short-focus lenses. You should get a camera of the Sanderson hand-stand type, which is less portable, but possesses the necessary range of movement. Unless you are going to do a good deal of rapid exposure work, you are better without a focal plane shutter. (2) Both are excellent, as good as you can have. A focus of 7in. is best for all-round work on a 5 x 4 plate. For quarter-plate choose 5in., for half-plate 9in., but with camera of the latter size you would find a 5- or 6-inch of frequent use in architectural work.

THE RIGHT TO APPARATUS.—I invented a method by which glass negatives of various thickness could be brought into perfect contact with a collotype plate, this doing away with the use of films and saving the trouble of setting the negatives up in position. I worked this method successfully for about six months. I was then offered a situation as a collotype plate maker by the ———, Limited, of ———. After working there for about two months I introduced my glass negative method, having made the fittings for two frames some time before I was engaged by this firm. I brought them into their works and fitted them to their old frames, and worked them. Later on, I brought out an improvement and protected the whole for six months. I refitted the company's frames with the improvement at my own expense and worked them for about two years. I made the fittings away from the firm, and the company paid nothing whatever in any way. When I came to fit the frames I found I had not fitted a sufficient number of the small rubber blocks with wire stops, so I fitted the few wires to make up the frames in the firm's time. I then put the frames together in the firm's time by sticking the blocks to their glass with fish-glue. The firm found the glass used in the frames. I received nothing whatever for the idea or the material I supplied, but I received notice to leave the company's employ. When I was about to take my fittings away they refused to let me do so, as they said they were attached to their property and some of the blocks were made in their time. Can I legally demand the return of my fittings, or charge them for same, as my property was attached to theirs at their request?—**C. G.**

We are rather inclined to the opinion that you will not be able to recover anything, as you used the contrivance for aiding you in your work while in the firm's employ. However, this is a question you had better refer to a solicitor, who, after hearing the facts, will be better able to advise you than we are. However, it is shabby treatment of the firm not to make you some recompense.

COPYRIGHT.—I took a negative of a very popular clergyman here, which I registered in June, 1900. The sitting was an invitation, and proofs were supplied free. I have sold nearly 1,000 cabinets and also enlargements (nearly 40), so the negative, as you will see, is of value to me. One of the daily papers here published it, and also issued it as a supplement to their weekly paper, with the result that my sale will be completely destroyed. Would you kindly tell me what compensation I should get, or if in the event of taking action (as I may be compelled to do) what kind of case have I? Also, are they liable for both papers—daily and weekly?—**SUPPLEMENT.**

If, as you say, the copyright is yours, as it appears to be, and you did not give the newspaper permission to reproduce the portrait, you can proceed against it for infringement of copyright. You can sue for penalties as well as damages and also obtain an injunction restraining further publication. If you write to the paper saying that you propose taking legal action it will, no doubt, make you a fair offer.

STUDIO.—Will you kindly advise me the best way in which to obtain the side light in my studio, as it's all top light, glass on top measuring 13ft. x 9ft.? I suppose it will have to be done by reflectors, and what material to use, and where to get it? I thought of reflecting with mirrors.—**SIDE LIGHT.**
The only thing to be done is to convert the top light as much as

possible into a side light by means of reflectors. Had the 9ft. dimension been greater the trouble would be less than it is. The best reflectors will be white paper pasted on canvas strained on frames. Glass mirrors are not so good for the purpose. A thin muslin curtain to subdue the direct top light over the head of the sitter will be useful.

WOODLAND LANDSCAPE.—1. Will any plate give the same full scale of gradations that we see in a well-lighted woodland or landscape view? 2. If so, what class of plate, process, ordinary, fast, ortho, panchromatic, with or without filters? 3. If filter is necessary, which is required, Ki, ii, or iii? 4. If full scale can be obtained in negative, what, if any, printing process will reproduce it? 5. Assuming highest light in nature to be a brilliantly lit white cloud or patch of sunlight, and to be represented by 1 (one), what figure will represent deepest shadow, say under heavy foliage of trees at base of a bush? 6. If no negative or print can give same scale, how far will it fall short? Will white paper equal highest light or is it degraded in comparison? Will deepest black in printing process giving longest scale of gradation be as dark as deepest shadow? 7. What was scale used in the original H. and D. experiments, and how did this compare with scale in well-lit landscape?—**TONE.**

1 to 4. No plate will give the great range of contrasts which are actually seen. The best you can do is to use a good plate of medium rapidity, and on it make a negative of plucky quality and print in platinotype or carbon. 5. The range may be from 1 to 200 or more. 6. A negative will give a scale of 1 in 30 or 40. You may choose—you will usually do this—to make the highest light white paper in the print. The deepest shadow will be represented by the deepest black of paper, a tone which is many times lighter than the actual shadow. 7. Messrs. Hurter and Driffield employed a series of known light intensities, obtained by exposing the plate behind a wheel with a series of apertures cut in it. They could thus give a series of exposures greater than the plate could record, and representing more nearly the range of light intensities in a landscape.

COLLODION.—I am anticipating taking up the wet collodion process for making lantern slides. I have made some pyroxyline and collodion by the formula given in the "British Pharmacopœia." and shall be much obliged to you if you will give me a good formula for the iodising solution, one that will be best for lantern slides.—**BEGINNER.**

We may tell you at once that the collodion you have made is of no use for the wet collodion process. The formula given in the "Pharmacopœia" is for surgical purposes, and is of a far too skinny and horney character for photography. As you are a beginner in the wet collodion process, we should advise you to purchase proper photographic collodion (e.g., Mawson's). You will then get the right thing with the proper iodiser. By doing that you will ensure that any failures you may possibly meet with in your first essays are not due to the collodion.

COPYRIGHT LAW IN NEW ZEALAND.—1. Is there a separate Copyright Act for New Zealand? 2. Is this right what the editor of a New Zealand paper tells me after reproducing one of my copyright photographs without permission, viz.:—that under the copyright laws of that country no portrait may be reproduced without the consent of the actual owner (i.e., the person whom it represents), and that whether copyright or not he was justified in reproducing it because he had the permission of the person photographed by me, and that because the mount did not show the name of the photographer (having apparently been cut for a frame) he was doubly justified in reproducing it.—**G. F. B.**

1. Strictly speaking, the Copyright Act of 1862 applies to all the British Colonies and Dependencies, but the formalities differ to some extent, and in most of the Colonies the law is administered with considerable laxity. 2. Under British copyright law, if the copyright was yours the permission of the sitter is not necessary. There is no law requiring the name of the photographer to appear on the photograph. All your editor's statements are untrue.

ALBUMEN PAPER.—Will you kindly tell me the best way to make prints on albumenised paper transparent for the process of

crystoleum painting. Also, if albumenised paper is sold in small quantities and where to obtain it?—CRYSTAL.

A special transparency medium is sold by the dealers. We advise you to purchase, but you can prepare it yourself from—Canada balsam, 5 oz.; paraffin wax, 2 oz.; white wax, 2 oz.; which is melted, the picture immersed, and the whole kept as cool as possible, consistent with remaining fluid. You can purchase albumenised paper from Fallowfield, 146, Charing Cross Road, W.C. No other paper answers so well.

PHOTOGRAPHS OF BUILDINGS.—I should be very much obliged if you could give me any information as to negatives of local buildings, if any one has a right to copy and reproduce them and sell them if they are not copyright?—A READER.

If we understand your query to ask if you are at liberty to photograph local buildings and issue copies, we can tell you that, so far as copyright is concerned, you are at liberty, once you have got the negatives, to do what you like with them. The owners or architects have no copyright in them.

DEXTRINE MOUNTANT.—A formula in "Facts, Figures, and Formulæ" for a dextrine mountant says (pp. 115-7): Dextrine, 25 oz.; alum, 1 oz.; sugar 4 oz.; water, 30 oz.; carbolic acid (10 per cent.), 1½ oz. No instructions are given how to make this up, if to be made up cold or boiled, or in order given, etc. Can you inform me how to make it up, and what sort of sugar to use?—S. E.

We should mix the dextrine in cold water, bring to the boil, and boil for five minutes, then add the sugar and carbolic acid, and finally the alum dissolved in the minimum quantity of hot water (about 2 oz.). We do not advise alum in a mountant, it is a risky constituent, particularly for C.C. prints. The secret of getting a good dextrine paste is to use the best white dextrine, and this, we find, makes the home-made preparation cost practically as much as the excellent pastes on the market. 2. We do not know what the action is. We have tried the method, but have not been led to recommend it.

LESSONS IN CINEMATOGRAPH WORK.—What is the name and address of the school or firm who advertised in the "Journal" some time ago to give lessons in cinematography?—GYWR.

We cannot trace it in our pages. Better address your query to the "Kinematograph Journal."

LOSS OF DENSITY IN FIXING.—I should feel grateful if you will answer me the following through "Correspondence Column" in "Journal":—I am using the paramidophenol developer for bromides, but I find the prints loose in fixing, which I have never had occur with metol.—E. THOMAS.

This simply means under-development. The appearance of the developed image varies considerably with different developers, and you are in this case misjudging the termination of development. We assume that you are using an ordinary fresh fixing bath, and not fixing too long or in a strong light. With a fresh, clean bath there is no actual reduction of the image unless strong light falls on it, or very prolonged soaking is resorted to.

TONING BROMIDES.—(1) When toning bromide prints with platinum the high-lights, and especially the white borders round the picture, get badly stained. I have tried to clear them with a weak solution of hydrochloric acid, and also a 5 per cent. solution of carbonate of soda, but have been unsuccessful. I would deem it a favour if you will kindly let me know how I may overcome this difficulty. (2) Also, are bromide prints, toned with either copper or uranium, permanent?—SIDNEY E. TRELOAR.

(1) You do not say what bath you are using, but if the one given in the "Almanac," page 810, 1909, you will get stained whites, as described in the note to the formula. By adding potassium bromide to the other ingredients you can avoid the stains, but then the tone is a cold, instead of warm, sepia. (2) As a general rule, they may be considered to be of very doubtful permanence, but a good deal depends on the way in which they are kept. If well varnished with celluloid varnish they may last very well indeed, but there is always an element of doubt.

ELECTRIC LIGHT.—I am removing my studio to more convenient premises, and would like to know if I could use an electric lamp for portrait work. The size of the studio at present is about 11ft. wide, 24ft. long, 7ft. to plate, and about 11ft. 6in. to the ridge. I thought of putting the studio 12ft. wide and 8ft. to plate, and

the ridge in proportionate height. Would this be room enough for working the lamp for one or more figures?—ELECTRIC.

We would advise you to get a moderate size lamp of the enclosed arc type, and as these lamps usually have the arc about two feet below the point of suspension, it is well to have your studio fairly lofty. This is always an advantage, as it makes ventilation an easier matter, whether in day or electric light working. The lamp might be hung about three feet from one side of the studio, and as the point of suspension with an eight-foot wall plate would be about 9ft. 6in., giving 7ft. 6in. as the height of the arc, we should regard a slightly higher roof as almost a necessity. If possible, have one side of the roof solid (i.e., not glass), and hang the lamp on that side, protecting the woodwork with a sheet of asbestos. The lamp may be hung about 6ft. in front of the background, and should then give a reasonably good lighting for a group of two or three figures. If possible we should have the width of the studio 14ft. rather than 12ft., as you will then be able to modify the lighting by simply moving the camera more to one side or the other, getting more shadow or more light, according as you move to the shadow or light side of the studio.

CORRUGATED BOARD.—We very much need corrugated board like the enclosed sample, and shall be much obliged if you can favour us with the address of a firm who could supply, as we have failed to get anything like this.—L.YGRA.

Corruganza Manufacturing Company, Summers Town, London, S.W., and Thompson and Norris Manufacturing Company, Ltd., Warple Way, Uxbridge Road, Acton, London, W.

O. T. C.—The results of gold-toning only are not usually so permanent as the use obtained with gold followed by platinum. We should not call the paper as permanent as gaslight, but it is about equal to P.O.P.

L. BALK.—1. Write to the Comptroller of Patents, Southampton Buildings, London, W.C., for the circular of instructions to patentees. The smallest cost is £1 for provisional protection. 2. Fordham and Co., Victoria Works, Walthamstow, London, N.E., and Fourdrinier, Hunt, and Co., 2, Dufferin Street, Bunhill Row, London, E.C.

RIGHT TO PUBLISH.—Your valuable opinion on the following matters will be esteemed. A week or two back I took a photograph of the interior and exterior of a village church a few miles from here for postcards. The sexton of the church let me inside and I got a good picture. I next took a view of the church from the outside, and afterwards took a picture of the vicarage from the roadway. These I printed as postcards, and supplied some copies to a little stationer, etc., in the village, and he soon disposed of a good number and ordered more. The other day the vicar called at the shop and forbade any more being sold. He then came over to me and threatened me with the law if I printed any more copies, as I had taken the pictures without his permission. Please tell me if he can restrain me from selling the prints?—COUNTRY PHOTO.

Go on publishing the pictures. There is no law by which the vicar can prevent you. He might possibly have prevented you from taking the interior of the church had he been present, but having obtained the picture you can do as you like with it. The same with the others. The vicar's threat of the law is simply "bluff" and nothing more.

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The British Journal of Photography

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SUMMARY.

The "1910 British Journal Almanac" will be published throughout the United Kingdom on Wednesday next, December 1.

We regret to record the death of Dr. W. J. Russell, of whose researches on the action of bodies on the photographic plate in the dark a short account is given on p. 919.

Professor Namias has found that it is practicable to obtain reliefs by exposure of a thick film of bichromated gelatine under a negative by a dry process. The exposed film is heated to a moderate extent and thus attains a certain amount of relief, presumably a good deal more than is often obtained by submitting an ordinary surface-dry negative to similar treatment. (Pp. 909 and 912.)

Some most useful novelties in lights and dark-room lamps were shown last week at the Croydon Camera Club by Messrs. E. A. Salt and W. H. Smith. (P. 924.)

We draw attention in an article on p. 910 to the valuable work rendered possible by photography which is carried out at the "Philadelphia Museums."

A vignetter for the studio camera figures in "Patent News." (P. 920.)

A new scientific society, the work of which is likely to benefit photographic workers, has been formed with the title of the Society of Illuminating Engineers. Professor Silvanus Thompson, the first president, delivered an address last week. (P. 910.)

Some useful suggestions for indicating scale in stereoscopic prints are made by Mr. Martin-Duncan in the current "Photographic Journal." (P. 910.)

Mr. Alfred Watkins, in a lengthy communication to the Royal Photographic Society, has reviewed the methods of time development which have led to the latest method—namely, that of thermo-development, in which allowance is made for the temperature of the developer. (P. 913.)

The experience of an American professional photographer in attracting business is given on p. 918.

The twelfth Traill-Taylor memorial lecture was delivered on Tuesday evening last by Professor A. W. Porter. (P. 924.)

The Royal Photographic Society is to set apart one evening in the month for a discussion of more scientific and technical subjects. (P. 909.)

EX CATHEDRA.

Science at the R.P.S.

In this month's issue of the "Journal of the Royal Photographic Society," a rather important step is announced with regard to the meetings held on the first and third Tuesdays in each month. Under "The Proceedings of Council," it is stated "It has been arranged to devote the meeting held on the third Tuesday in each month to scientific and technical subjects, and, as it will be assumed that all who attend have expert knowledge of the subjects announced, elementary introductions will be considered unnecessary. At the meeting on the first Tuesday in each month, subjects of a less advanced character will be dealt with on practical lines." From this we gather it is intended that the third Tuesday shall be a strictly scientific meeting, at which important matters can be discussed in an adequately scientific manner, neither lecturers nor those joining in the discussion being expected to "talk down" to the level of the less advanced members of the audience. Hitherto the knowledge that many of the members present are not conversant with the subject has been a severe handicap to the speakers, and has done much towards nullifying the value of both lecture and discussion. An evening is none too long, and, under ordinary conditions, a good half of the time is wasted in dealing with elementary matters with which all those likely to join in the discussion are already perfectly familiar. This must be the case in any society that concerns itself with a variety of subjects, unless some arrangement such as that now adopted by the R.P.S. is in force. It is absurd to spoil the value of a discussion for the sake of those who do not understand it, and as the R.P.S. exists for the purpose of advancing photography, it is obviously a right move to ensure that once a month scientific subjects shall have the chance of being adequately dealt with. Apparently this new arrangement does not come into force until after Christmas, as the first meeting to which it applies seems to be on January 18, when Dr. E. J. Spitta will open a discussion on "The Illumination of the Object in Photo-Micrography."

* * *

Gelatine Reliefs by Contraction.

On another page we give a paper by Professor Namias on a property of bichromated gelatine that has hitherto passed unnoticed. It is that the film, after exposure to light, undergoes such a change that it is materially affected by a dry heat: the parts that have been exposed contract to a less extent than do those that have been protected from it, so that when the film has been exposed, say, under a negative and is afterwards subjected to heat alone an image in more or less relief is obtained. It is well known that gelatine, whether bichromated or not, contracts greatly when subjected to heat, but so far as we call to mind it has not before been pointed out, in the case of

bichromated gelatine, that contraction is retarded by the light's action. It would seem from what Professor Namias says that this novel property might be turned to useful account in the production of gelatine reliefs for different purposes. If so, it will be less troublesome to work than some of the well-known methods now in use. The author of the paper says that the relief obtainable by his process is not so high as that got by the swelled gelatine method, but for some purposes a very high relief is not at all necessary. The process seems simplicity itself. A metal plate is coated with a thick film of bichromated gelatine, and dried. It is then printed, and afterwards subjected to a tolerably high temperature, when those portions that have been more or less protected by the negative contract to a greater extent than the others, and so an image in relief is obtained. The presence of moisture in the "dry" film is an essential in the working of the process, and this the author of the paper ensures by the addition of glycerine to the gelatine solution with which the metal plates are coated. There is one point that occurs to us in reading the instructions for working the process. Professor Namias directs that, after the plates are sensitised, they should be put away to dry spontaneously. In the case of the thick film of gelatine given in the formula, which film is sensitised by soaking it for fifteen minutes in a tolerably strong solution of the bichromate of ammonia, it will take an unusually long time to dry at this time of year. Such a film as this is (in thickness and condition) very analogous to one for the Woodburytype process, and in the protracted drying would become quite insoluble in warm water, and useless. It would be interesting to know if a film dried so that it becomes insoluble in warm water has its power of contraction by heat similarly affected. Professor Namias' process will doubtless receive attention by those interested in bichromated gelatine photography, for there is certainly some novelty in it.

* * *

Standards of Illumination.

The photographic community has reason to feel gratified by the formation of the Society of Illuminating Engineers, the objects of which, as stated at the inaugural meeting held on Thursday in last week at the Royal Society of Arts, are the study of using light to the best advantage in both indoor and outdoor lighting, emphasising the need of standards of illumination, and encouraging the scientific study of the field of work coming next to the science of light production as distinguished from its effective and economical employment. Professor Sylvanus Thompson, the first president of the society, in delivering his address, dwelt most emphatically on the new era just opening for illumination as an art. The public interest demanded a scientific measurement of illumination, and that could now be given with the candle-foot as a unit. It would be one of the objects of the society to fix standards of illumination of workshops, schools, libraries, and studios, and to impress upon public bodies as well as upon individuals the need of certain specifications being complied with. Under the secretaryship of Mr. Leon Gaster, editor of the "Illuminating Engineer," the society promises to enter upon a sphere of great usefulness.

* * *

Stereoscopic Photographs of Small Specimens.

In an article by Mr. Martin Duncan on "Stereo-Photography in Geological Research," which appears in the current "Photographic Journal," two valuable suggestions are made with regard to the photography of such objects as fossils, etc. The first is that the work should always be carried out to a fixed standard scale of reduction, the author recommending distances of 50 and 100 centimetres (20 and 40 inches respec-

tively) from the lens as a suitable standard to adopt. The second suggestion is that a separate tray or support should be made of a graduated rule on the same standard scale of reduction, so that the object may at any time be approximately measured by laying the scale transversely over the other slide. Both these are excellent ideas, but it cannot be too strongly insisted that a scientific photographic record loses half its value if no scale is indicated. The author makes an alternative suggestion to the effect that a scale may be photographed together with the object, and he objects to this on the ground that the inclusion of the scale rather spoils the appearance of the slide. We would suggest that the least objectionable method of including a scale is to use a background faintly ruled in squares together with a "floor-cloth" similarly ruled. When photographing small specimens, both background and floor-cloth may consist of a piece of ruled cardboard bent at a right angle. If the specimen is placed right in the angle so that it touches both surfaces, a very good idea of the size of the object in three dimensions can be obtained in the stereoscope.

* * *

Portraits at the New Gallery.

The New Gallery is now occupied with the exhibition of the Society of Portrait Painters. To photographers it must appear a marvellously diverse and catholic show, for although confined strictly to portraiture it embraces such variety in matters of point of view, motive, arrangement, and treatment that a professional camera portraitist need to his own work and that of his competitors, can but see in it another proof of the limitations of his own methods. The newest developments come from Wm Orpen, A.R.H.A., who continues his series of small scale figures taking their natural and usual place in various interiors. In this he goes one point beyond Hogarth, who used the interior as a background, and often grouped the figures. Even his "conversation" pieces lacked the commonplace naturalism of Mr. Orpen's peers at domestic intimacy. Sargent has also done this sort of work, but in a less intimate way. The most striking of Mr. Orpen's here shown is "A Portrait" (22) of a lady reclining amongst the cushions of a lounge in her bedchamber. She is a mere accessory to the scene which boasts as its chief motive the gorgeous four-posted bed with its hanging and tester. The painting of this interior reaches the high water mark of Mr. Orpen's skill. Its colour and tonal harmonies, and in the perfect presentation of the bright but gentle light that pierces the shadowy recesses, the picture will stand as a great achievement. T. B. Kaminerton's "Portrait of a Lady" (65) is quite photographic in its realistic force.



PHOTOGRAPHY IN A GREAT PUBLIC WORK

THE paper read by Sir Martin Conway before the recent Congress of the Museums Association has brought us a budget of literature from Mr. Fred D. Maesch, the photographer of the "Philadelphia Museum," an institution established only in 1894, but now engaged upon many of the able departments of public commercial work. Unlike the ideal institution which Sir Martin Conway forebadowed the object of which was to provide a record of the art of all nations, the "Philadelphia Museum" (we follow the American friends in using the singular verb after the title) has for its object the collection and classification of specimens and photographs for the purpose of promoting the commerce of America with foreign lands, and securing of disseminating through the United States a wider knowledge of the customs and conditions of the nations of the world. It would lead us too far from our present purpose which is to draw attention to the great work which has been

made of photography in this work, to enlarge upon the many forms of activity which the "Museums" has shown. Suffice it to say that, apart from its work in collecting and exhibiting specimens and photographs, it publishes a weekly and monthly periodical aiming to interest foreign buyers in American goods, organises a translation department through which manufacturers may ensure the correctness of literature which they send to foreign customers, contains a library specially selected for giving the merchant a knowledge of new and possible markets, and in several other ways forms a centre of contact between manufacturers and United States Consuls. In this great work the camera has been very largely employed. Mr. Maisch tells us that the "Museums" collection of photographs now amounts to 5,000, all of which are catalogued and cross-referenced, whilst the yearly accession to this number amounts to 2,000 prints. The subjects of these are not only towns, countries, and types of people, but include also photographs of means of transport, and of methods of production of raw products in countries which are as yet in an uncivilised or semi-civilised state, the collections being accumulated with the object of showing manufacturers and exporters the conditions of foreign markets.

With characteristic American foresight, the resources of the "Museums" have been applied to the education of the American boy and girl in these branches of commercially valuable knowledge. The "Museums" has organised series of lectures, which are delivered within its buildings in connection with visits which detachments of students from the schools make to the galleries. But, realising that such a form of instruction can be only local, under a monetary grant from each State a large series of lectures have been prepared—in each case with lantern illustrations—and are sent out, slides, manuscript, lantern, and even the lantern screen, to schools from the Atlantic to the Pacific coast, the cost to the school being only the carriage to and from Philadelphia. But going even further than this, the "Museums" makes up specimen cases for use in elementary and secondary schools of all grades and designed to reach the scholars by actual exhibition the nature of commercial products, of the means taken to prepare them for the market, and of the uses which are made of them. Each specimen case consists of labelled examples of the raw, re-dried, and manufactured products, interspersed to an almost equal proportion with actual photographs showing, for example, the natural surroundings of the raw material, the conditions of growing and harvesting, and of the processes of refining. Perhaps we can best illustrate the form which this eminently practical method of education takes by quoting the contents of one shelf of a case dealing with tea and sugar.

Sugar cane.

Raw cane sugar.

Photographs.

Cutting sugar cane, Hawaii.

Pressing sugar cane, Java.

Sugar factory, Java.

Map.

Geographic distribution of cane and beet sugar.

Raw beet sugar.

Grape sugar.

Tea, green and black.

Photographs.

Tea-leaves, flowers and fruits.

Picking tea, Japan.

Preparing tea, pan-firing, Japan.

Map.

Geographic distribution of tea and cacao.

In a recent issue of the "Photographic Times," Mr. Maisch has dealt in particular with these educational de-

partments of the "Museums," and we reproduce from his article a half-tone illustration showing the shelf arrangement of one of these exhibition cases, the subject in this case being the cocoon and its uses. Others which we would equally like to reproduce deal with cotton and its bye-products, and silk from the cocoon to the fabric, in



each case employing photographs in conjunction with the actual specimens, and impressing upon the mind of the scholar by means of the map, which is not very clearly shown in the right-hand corner of the drawing, the geographical distribution of the products—in other words, the opportunities for American trade.

WATER SUPPLY IN WINTER.

THE recent spell of cold weather, accompanied as it has been in all parts of the United Kingdom by frost and snow, has been quite sufficient to remind us all that winter is at hand. Our present object is to give some practical hints, or reminders, that may be the means of saving, by a few precautionary measures being taken, some of the inconveniences that may arise from the stoppage of water supply, surely one of the greatest inconveniences that a studio can experience in winter. It practically puts a stop to business—or at least to printing operations—and customers are not always easily convinced that climatic influences are the cause of the delay in the execution of their orders. It is only those who have actually experienced these troubles that can realise them to their full extent. It is true that it has not been often during the past decade or so that we have had very inclement weather of long duration. Some of our older readers will well remember the winter we had some few years ago—the hard frost that lasted unbroken for many weeks, and the troubles thereby incurred. Some, perhaps, realised how this might have been avoided had a few simple precautions been taken beforehand. Not only is business impeded by a frozen water supply, but considerable damage may be done by burst pipes and the water flooding the premises when a thaw sets in, if the fracture is not discovered beforehand and the injury repaired. The really simple precautions should be taken without delay. In the first place, all exposed pipes should receive protection. If out of doors, and if detached from the building, they may be bound round with hay-bands, which may be had at any livery stables, or where horses are kept, for a few pence. A couple of thicknesses of these will usually afford ample protection. If the pipes are attached to a wall, of course, they cannot be dealt with in this way, but the hay bands may be laid along them, and secured closely by a piece of sacking nailed over them. At most ironmongers' a special kind of felt is sold for the protection of water pipes against frost, and this material being an excellent non-conductor of heat, is very effective, while at the same time it is very inexpensive. Angles or sharp bends in the pipes should receive special attention, for it is at such points that the water is prone to freeze first. The

outside pipes having been made secure, the main cock from the street should receive attention. The space in the ground in which it is usually situated should be filled up with some old flannel or blanket, which is one of the best non-conducting mediums we can well have; failing that, hay firmly pressed in will answer well. The water meter, if there is one, should be similarly protected. Some supply pipes from the main in the street to the house are laid very close to the surface, and in very inclement weather there is a risk of their becoming frozen. In this case it is a good plan to put some more earth over them so far as the premises extend, or, better still, six inches or so of stable manure; with that there need be little fear that frost, however severe, will reach the pipes.

If the above precautions be taken, there is small risk of the outside pipes getting frozen; but those inside the building must not be neglected, the more especially if the workrooms through which they pass are not always kept above the freezing point of water. In many cases the water is supplied to a cistern, which is sometimes fixed in a more or less exposed place. When this is the case the ball-cock should be specially protected, as its freezing would often be almost as bad as being quite frozen out. This may be done by binding it over with the special felt sold for such purposes. A good way, in the case of the water being drawn from a cistern, of protecting the pipes from it to the workrooms is to empty them every night after the day's work is done, while keeping the water in the tank for the next day's use. This can be done in the following way:—There is obtained a piece of iron barrel, say half an inch in diameter (obtainable of any gasfitter), and of sufficient length to reach a little above the level of the water when the tank is full. One end is wound round with a piece of rag so as to make it fit the outlet pipe from the cistern. This is then plugged in, and when all the lower taps are opened the pipes will be emptied, when, of course, there will be nothing to freeze. If the outlet from the tank were plugged with a solid plug, the pipes would remain full, even though all the taps were open, but the pipe plug supplies a vent by admitting air, so that the water runs out at the taps. In the morning the tube is removed, when the supply to the taps is restored. It is at night that the pipes freeze, as it is scarcely possible

for them to do so in the daytime when they are continually being drawn from and the water is in constant motion.

If perchance, through insufficient precaution, a pipe gets frozen, it should at once be carefully examined throughout its length, to find out if it has burst anywhere. A burst can be detected by the feel, as the pipe will always be considerably bulged at the part. When that is discovered, the aid of a plumber should at once be sought to do the needful. Failing this aid, the photographer can make a temporary repair himself as follows:—The pipe should be gently pulled away from the wall, and the ice picked out at the fracture with, say, a bradawl. Then with a couple of hammers (one used as an anvil), by gently tapping, the fractured edges can be brought neatly together. Some white and red lead are then mixed together and spread as a thick plaster on a piece of calico. This is then bound tightly over the place, and then the plaster is wound over with several layers of thick tape, and this bound tightly on with string. A fractured pipe thus temporarily repaired will last for weeks, or months, if the work is carefully done.

If it should happen that a burst has not been found out until a thaw revealed it, and the water is flooding the place, the best procedure in the emergency is to batter up the pipe a few inches from the break with a hammer. This treatment, though it will slightly increase the plumber's bill, will often save a lot of expense and annoyance in the shape of damaged ceilings, soaked walls, and other troubles. Sometimes the ceilings are not only stained by the water, but come down altogether, and in the case of walls that have become saturated with the water, they may take even months before they become sufficiently dry to be re-papered.

Freezing of the water in the pipes may generally be avoided by leaving all the taps dribbling during the night; but this water companies object to, if they find it out though, of course, they do not demur if the water is paid for by meter! The main object of the foregoing is to remind readers that, by taking a few simple precautions at the right time, much trouble may often be avoided. Although at the end of the winter they may be found unnecessary, still the trouble expended has been but trivial; while if the season happens to turn out severe, the labour of the preventive measures will be amply repaid.

MAKING RELIEFS ON BICHROMATED GELATINE BY A CONTRACTION PROCESS.

(A paper in "Eder's Jahrbuch.")

BICHROMATED gelatine, as is well known, possesses the property, after exposure to light, of losing its ability to swell up in water. On this fact are based the methods for the preparation of reliefs by photographic means. Another method for the production of gelatine reliefs is based upon the further property of bichromated gelatine to become insoluble in warm water on exposure to light. In the process for the making of a gelatine relief, which is described below, neither the swelling method nor that based on dissolution of the gelatine is employed. In the course of a series of experiments on the making of reliefs by the swelling method, I have noticed a characteristic which bichromated gelatine assumes on exposure to light. This is a kind of contraction which the gelatine undergoes when it is subjected to moderate dry heat. A film of gelatine rendered insoluble by exposure to light and moderately warmed over a lamp contracts to an appreciably less extent than one not affected by light. As a result of this, if one has upon the same metal plate a film consisting partly of light-affected gelatine and partly of that which has not been exposed, and if this film be heated, there is produced a species of relief in the parts

which have not been exposed. And this relief occurs not only in the parts of the film which have been most strongly affected but also throughout the gradation of the subject. I have noticed that the contraction which takes place, and the relief thereby produced, are more marked the damper the film. The process would thus appear to be a species of fusion (melting) of the normal gelatine in presence of a sufficient, but small quantity of water. The gelatine, which has become insoluble even at a considerable temperature does not absorb water, and therefore cannot undergo this melting process, and therefore the contraction which occurs in these parts is considerably less.

The Gelatine Coating Mixture.

The gelatine film (on the plate) must be actually dry, otherwise it could not be exposed under a negative or a drawing, but even in the so-called dry state the gelatine still retains sufficient moisture to give rise to the production of relief. In order to secure uniform results, and also to enhance the depth of the relief, it is an advantage, it has been found, to add a small quantity of glycerine to the gelatine. Glycerine has the same

effect as water, but is free from the drawback of evaporating, and owing to its hygroscopic nature it also reduces the tendency of water to leave the film, and thus assists the production of the relief. In practice the following method is used. A solution of gelatine is prepared as follows:—

Gelatine (emulsion or collotype)	30 gms.
Water	100 ccs.
Glycerine	5 ccs.

This solution is prepared on the water bath and warmed until a froth forms on the surface. The mixture is then filtered, avoiding further frothing as much as possible, through very fine muslin. Any froth now remaining on the surface should be skimmed off with a piece of card. The solution is now heated to 120 to 140 deg. F., and applied on to a polished and cleaned zinc plate, which has been previously warmed and placed perfectly level. The zinc plate may be given an edging of wax in order to prevent the solution running over. The quantity of gelatine mixture for a plate 4 by 3 inches is 30 ccs. (1 oz.). Naturally, the higher the degree of relief required the thicker must be the gelatine film, and therefore the maximum quantity of gelatine solution is applied to the plate. Any air-bubbles are removed with a bit of card whilst the mixture is still liquid. The solution should be allowed to stand in a place free from draughts, otherwise the coating will be striated and the plate will be of no use. When the gelatine has set the plates are transferred to an ordinary drying-box and put away to dry free from dust. When coated they keep for an unlimited time.

Sensitising.

In order to render the coated plates sensitive they are immersed in the following solution:—

Ammonium bichromate	60 gms.
Water	1,000 ccs.
Ammonia	To render the solution pale yellow.

In this bath the plates remain for 15 minutes. Sensitising can be done in a fairly bright light, providing that the dish is kept covered. The plates are then put away to dry spontaneously in the dark. They are then printed under a strong near negative of good contrast. Pressure in the printing-machine must be strong in order to bring the whole of the plate in contact with the negative, and therefore the screw form of printing-frame should be used. Printing is done in sunlight or in ordinary bright daylight, and will take from 10 to 30

minutes according to the light and the character of the negative. In ordinary diffused daylight five times the exposure must be given.

As no indication can be obtained during printing of the progress of exposure an actinometer must be used, but it is much simpler to judge of printing by the appearance of the metal plate projecting round the edges of the negative, for which reason a plate larger than the negative should be used. These edges should become chocolate-brown in colour.

Heating to Get Relief

After printing the plate requires only to be heated, for which purpose it is mounted on a whirler and rotated over a gas or spirit flame. Care should be taken not to employ a degree of heat which will scorch the gelatine. As soon as heating is begun it is seen that the gelatine, in the parts protected from the action of light, greatly contracts. This is noticeable in a less degree in the half-tones, whilst the parts of the print corresponding to the deepest shadows of the negative remain unaltered. The heating is stopped at this point, as further heating will have the effect of reducing instead of increasing the relief.

Although the relief thus obtained is not great, still it is very exact throughout the subject. The reliefs keep indefinitely, and can be used without further treatment for taking impressions in wax, or for producing castings in a readily fusible metal. Impressions in plaster of Paris may also be made, although this is the least desirable method, as the water in the mixture of plaster can easily cause the swelling of the film. The process is one possessing no difficulties, and provides the worker with a ready means of making quickly reliefs of monograms, etc., and it may be used for decoration by electrotyping and similar processes. Although the relief is less than that obtained by a swelled gelatine process, the process is much easier and quicker, and the matrixes are quite permanent. By means of solutions of aniline dyes made up with a mixture of water and alcohol the gelatine film can be dyed and small decorative zinc plates prepared in this way. This process is thus suited for the reproduction of drawings which are prepared specially for reproduction by the swelled gelatine method. Portrait negatives may also be used when they are taken in profile, and particularly when they show strong effects of lighting.

R. NAMIAS.

THERMO-TIME DEVELOPMENT.

[In a communication to the "Photographic Journal," published on the 20th inst., Mr. Alfred Watkins, under the title, "Some Recent Aids to Development," has given the following very useful review of the methods of allowing for variation in the temperature of the developing solution when developing by the time (non-inspection) system.—Eds. "B.J."]

ALTHOUGH in a sense all methods of development may be termed time development, I think it will be conceded that the term only applies only where results are controlled solely by time, without modifying that time from an examination of the plate during the latter period of the development.

Probably the systematic application of time development commenced with the memorable paper of Hurter and Drifffield (*Journal Soc. Chem. Industry*, May, 1890). In this paper they pointed out that the degree of contrast between the tones of a negative could be settled—to an extent amply sufficient for practical purposes—by variation of time only, without any need to vary the composition of the developer to attain the same end. They also (in this or in subsequent papers) made obvious the fact that a given brand of plate developed at a standard temperature with a standardised developer for a standard time will always give (within limits of error of manufacture in the plate) a standard amount of printing contrast between two

standard tones in the subject, and that this rule is (within limits) independent of time of exposure.

There followed from this the obvious fact that, given the standard conditions enumerated above, a uniform and settled time of development will in all cases be right in practice, except where, for reasons connected with special subjects and the limited range of gradation available in printing papers, it is desired to increase or lessen the contrast between two standard tones of the subject.

This simple method of time development was the one adopted in the first place by Messrs. Kodak for their film tanks, they providing a standard film and a standard developer, and asking the photographer to make an attempt to standardise temperature by adding (in cold weather) hot water to that used to dissolve the developing powders.

But in practice it is extremely difficult, if not impossible, for an ordinary photographer to work at the same temperature all

the year round. The only way is either to keep the whole of the room at the standard temperature, or to use a water bath ensuring an equable temperature. Merely to heat or cool the developer before pouring it into a dish or tank and on to plates or films all at a different temperature introduces large and serious errors. When it is considered that with an average developer (temp. coeff. 1.9) the right time of development at 50 deg. F. is just double the right time at 70 deg. F. (and these are variations often met with), it will be seen that temperature is all important in time development.

It was to allow for variations in temperature that I devised (in 1893) factorial development, and it has come into extensive use; for the time of appearance has been found in practice to make an accurate indication of changes in the energy of the developer due to temperature. But this method does not come within the scope of the present paper; and for some years I have felt that, useful as it is, it must gradually make way for simple time development in which calculated allowances are made for temperature variations. The newer method can most conveniently be designated Thermo-Development, to distinguish it from time development at a fixed temperature, and from Factorial Development. All three are, of course, time methods.

It may be useful to glance rapidly at the stages by which thermo-development has been introduced.

Commandant Houdaille in 1903 published an observation that a variation in temperature of 1 deg. C. means a variation of 5 per cent. in the appearance of the image and total duration of development. It will be noted that there is here an indication of utilising an observation of the time of appearance for the purpose of drawing up a table of development times for different temperatures.

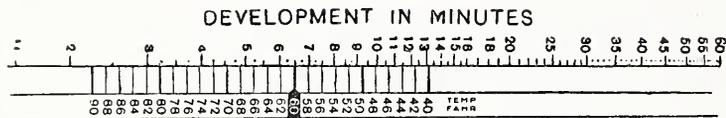


Fig. 1.

In the "Photographic Journal," March, 1905, Howard and Ferguson gave a graphic method of determining the time of development at different temperatures, and this was followed by mathematical papers by Sheppard and Mees and by Ferguson, the last ("Photographic Journal," May, 1906) giving very complete equations and formulæ for calculating times at different temperatures. During 1906 tables of times at different temperatures for a specified developer appeared both in America (G. M. Alves, "Photo Beacon," June) and England (H.M.T.S., "Focus," November 14).

It should be noted here that these tables, and tables constructed from the Ferguson formula could only be applicable to a specified brand of plate or film, different emulsions varying enormously in their speed of development with the same developer. It was at this point I commenced in 1907 the improvements (or inventions) which are the chief subject-matter of this paper.

The starting point was my discovery that a table of times and temperatures calculated by the Ferguson (and Houdaille) formulæ could be accurately represented by a logarithmic scale of figures representing time, placed in contact with an even division scale of temperatures. For the benefit of the non-mathematical reader I should explain that in a logarithmic scale the figures are placed at such distances apart that an equal distance multiplies or divides by the same amount at all parts of the scale. Thus, the distance between 1 and 2 (doubling the value) is exactly the same as the distance between 5 and 10 (again doubling the value).

Such a scale has this distinct advantage over a mere table of times and temperatures: that by making it relatively movable, it can be adjusted for any plate, or for a diluted form of the same developer.

Fig. 1 represents such a scale constructed for a developer of temperature coefficient 1.9. The making of such scales for a particular plate and developer is quite simple, and requires only two trials to find the correct times for a given contrast at two temperatures, for when these two temperatures are marked against their times on the logarithmic scale, all other temperatures can be marked in to form an even division scale without making a calculation of any kind.

Before proceeding further it seems desirable to glance at the three factors in this matter, and to examine methods of estimating variations in time caused by variations of these factors.

Factor No. 1—The Plate.

Different emulsions require widely different development times in order to attain the same standard of contrast with the same developer.

The trial to ascertain this time is made by exposing a plate behind a revolving sector in a H. and D. exposing apparatus, to develop this plate (in sections) for three different times, to measure in a photometer the density of the gradations of each slip, and to plot each out on a H. and D. diagram to ascertain its Hurter and Driffield development factor or gamma (γ). From these three results it is not difficult to find the time for γ 1, or whatever the standard of steepness adopted. In my own practice, I find the time by a graphic method. I take a fan-shaped series of lines equally spaced (similar to those of Fig. 6) and figure them for development factors .8, .9, 1., 1.1



Fig. 2.

and so on. By applying a movable log scale (the slide from slide rule) to this diagram, so that the two times of the trial come against the two resulting factors, the time for the standard factor can be read off.

One great difficulty sometimes occurs at this point. The method assumes that the emulsion is capable of attaining development factor over the standard of γ 1. But in some cases of rapid plates the highest development factor attainable (or gamma infinity) is very near or less than γ 1. In such a case a new standard of a lesser development factor has to be taken.

Of course the temperature of development is carefully noted and the corresponding time for 60 deg. is calculated on a thermo-calculator to be described presently.

These times (for 60 deg. F. with my standard time developer) vary from 2¼ minutes for some of the slow-speed plates to 11¼ minutes for some of the rapid (exposure speed) plates, and for convenience in giving information regarding the development speed of plates—divide them into seven groups according to their time of development. These groups, with the average time (as above) in minutes are given below, the code letters being founded on the words quick, slow, and medium.

VQ	Q	MQ	M	MS	S	VS
2¼	3	4	5	6½	8½	11¼

It will be seen later on that instead of advising the user to give different times for these different classes of plates I have found it more convenient to give different dilutions of the developers for the different groups, the time of development for 60 deg. F. being the same (6½ minutes) for all.

I am bound to point out that it is impossible to say that a

given brand of plate will always be in the same group, and, indeed, the development speed of a plate will often fall off (requiring longer time) by keeping. Since I published this plan of grouping development speeds it has been adopted, in modified form, by Messrs. Burroughs and Wellcome.

It will be convenient here to describe a small developing tank holding three plates (Fig. 2) which I have found convenient for developing plates for three different times without cutting them into slips. It is a plain upright zinc tank with grooves to take three plates. Outside is a down spout or tube, open at the top, closed at the bottom, but with a bottom communication to the tank. Developer poured into this spout flows in at the bottom of the tank. The three trial times of development are decided upon, and enough developer to fill the tank is divided into three parts, each in a separate measure. The group times given under the code letters are (for convenience) taken. For example, the times selected may be (if the plate or plates are supposed to be slow developers) 4, 6½, and 11¼ minutes.

The first third of the developer is poured in at 0 minute. The second part of the developer is poured in at 11¼—6½ minutes = equals 4¾ minutes.

their temperature coefficient is different, and they require different temperature scales for calculation.

It is therefore most important to ascertain the temperature coefficient of a developer, and it must be done before it can be supplied with a scale for calculation. It is one of the difficulties in giving information about thermo development that intending users cannot grasp the fact that the same scale or table of times cannot apply to widely different developers, even if the alkali is so adjusted as to bring them to the same energy at 60 deg. F.

The temperature coefficient of a developer is the ratio of time between correct development at temperatures 10 deg. C. (18 deg. F.) apart. A temperature coefficient of 1.5 means that the ratio between the time at, say, 60 deg., to that at 42 deg. is as 1 is to 1.5.

Fortunately, it is not at all difficult to ascertain the temperature coefficient of a developer; taking advantage of the fact that the time of appearance of a given tone is affected by temperature in the same ratio as the time of development is affected. I use a water bath, a shallow tin tank in a felt-lined wood case with a felt-lined cover. The tank is filled with water at

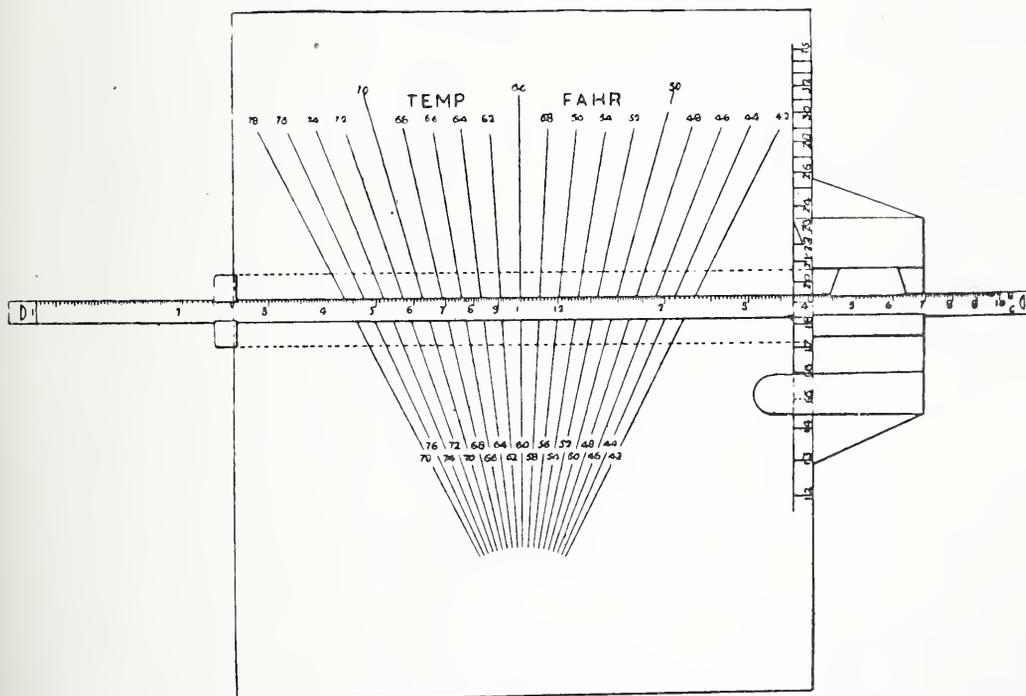


Fig. 3.

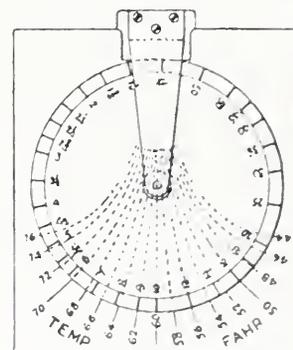


Fig. 4.

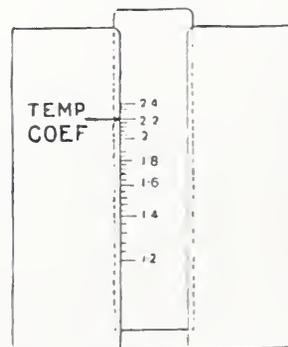


Fig. 5.

The third part of the developer is poured in at 11¼ — 4 minutes = 7¼ minutes from commencement.

The developer is poured off and the plates washed at 11¼ minutes (the longest time).

It will be seen that development will have been for the required 4, 6½, and 11¼ minutes on the three sections of the plates, and three different brands can be developed at one time. The tank must not be rocked or moved. It is shown in Fig. 2 in section and plan.

Factor No. 2—The Developer.

For thermo development it is necessary to test two distinct attributes of a developer, namely, its *temperature coefficient*, and its *energy* or development speed.

To show the difference between these attributes, a metal developer and a hydroquinone developer can be so adjusted in amount of alkali that they require the same time at 60 deg. F.—say 5 minutes. But try them both at 42 deg. F., and the metal would only require about 7½ minutes, while the hydroquinone would require about 11½ minutes. In other words,

the desired temperature, say 75 deg. for the warm trial and 50 deg. for the cold trial. Two stamped tin dishes float on the water. In the one is placed a slip of the exposed plate, in the other some of the developer, and the lid is put on for a time to allow all to attain a uniform temperature, a thermometer in the bath being noted before and after. The plate and amount of exposure is unimportant (a few seconds to a gas jet with the shutter of dark slide half drawn). The dark-room light is arranged to throw a good light on the developing dish, the developer poured on, and the time of appearance in seconds carefully noted. It is often well to make a second trial at the same temperature. The trial at the other temperature is then made, temperature being again carefully noted.

The two times of appearance and the two temperatures being known, it is easy to find the temperature coefficient on either of the thermo calculators illustrated in Figs. 3, 4, and 5. The two motions of either instrument are so adjusted that the two times coincide with the lines of the two temperatures: when this is done the indicator at the side of the straight line instrument or at the back of the more compact circular instrument,

indicates the temperature coefficient. Or it may be done on the diagram Fig. 6 (borrowed from the Watkins' Manual). A slip of paper is laid against the logarithmic scale and the two times marked off; this slip is then laid over the diagram, and adjusted so that the two marks touch the lines of the two temperatures. The point where the paper slip intersects the radial temperature lines is marked with the right temperature coefficient.

Temperature Coefficients.

I am afraid that investigation and trials are not yet sufficient to make it possible to give a reliable list of temperature coefficients of different developers. Besides, the addition of bromide seems to alter the coefficient, but the amount of bromide present does not seem to make much difference. Dilution seems to have an uncertain effect, but does not greatly alter the coefficient, in some cases not at all. As a rule, the plate used does not affect the coefficient, and it is possible that the few exceptions are those plates which contain soluble bromides.

I have found hydroquinone the most perplexing developer, and have found the different coefficients of different formulæ and tablets to range from 1.4 up to 2.25. Sheppard and Mees make it 2.20 and 2.80 with different plates.

The following are a few results. Those marked B. and W. are coefficients deduced from the temperature tables recently published by Messrs. Burroughs and Wellcome for their tabloid developers:—

Pyro soda, "Manual" formula without bromide (Watkins)	1.5
Pyro soda, "Manual" formula with bromide (Watkins) ...	1.9
Pyro soda, H. and D. formula without bromide (Ferguson)	1.48
Pyro soda, Kodak powders (Watkins)...	1.9
Pyro soda, tabloid (B. and W.)...	2.15
Pyro soda, tabloid, Ilford formulæ (B. and W.) ...	2.04
Rodinal (Watkins) ...	1.9
Azol (Watkins) ...	1.9
Victol (Watkins) ...	1.9
Certinal (Watkins) ...	1.9
Metol quinol, time developer (Watkins) ...	1.9
Metol quinol, tabloid (B. and W.) ...	1.86
Glycin tabloid (B. and W.) ...	2.3
Rytol tabloid (B. and W.) ...	1.84
Rytol tabloid (Watkins)...	2.2
Hydroquinone tabloid (B. and W.) ...	2.3
Hydroquinone tabloid (Watkins) ...	2.25
Paramidophenol tabloid (B. and W.) ...	2.4
Amidol tabloid (B. and W.) ...	2.06
Ortol tabloid (B. and W.) ...	2.06

It must be noted that the temperature coefficient of a developer must be decided before a scale or a table of times can be fitted to it. That is, a different scale or table is required for different developers, unless the adjustable instruments illustrated in Figs. 3 and 4 are used, or the diagram Fig. 6.

But even when the temperature co-efficient is ascertained, the time for a stated temperature depends upon the amount of alkali or the concentration of the solution. There is therefore a second attribute to be tested, namely, the energy.

Energy of Developer.

This requires a standard brand of plate (whose development classification in the Watkins group is known) to be exposed in the H. and D. exposing apparatus, and developed for two or three different times in the way already described under the heading "Plate." The object of the trial is to find the time of development which gives the standard development factor 1. The trial is made as near 60 deg. F. as convenient, and the resulting time (ascertained on the thermo calculator as described) is translated into the time for 60 deg., this time being right for plates of the same Watkins group as the one tested. The times for other groups (at 60 deg. F.) can be estimated by proportion, using the table already given. There is an expedient for saving time

in ascertaining the development factor of an exposed slip, which is, I think, new. In the usual way a H. and D. slip has to be measured in each of its gradations and the result plotted out on a H. and D. diagram before its development factor (the γ , or gamma, of our mathematical friends) can be ascertained. But if the inertia of a plate is once known, and a single exposure of ten times that inertia be made to the same light with which the plate was tested, the density of the single exposed tone will be the same value as the development factor.

Factor No. 3—the Temperature

The third and final factor in estimating time of development has already been treated under the other headings. An ordinary thermometer is used to ascertain the temperature, and if the developer and water used for dilution has already stood for some time in the room, there is no need to dip it in the solution, a test of the air-temperature being sufficient. The improvement by which I apply the logarithmic time scale direct to the thermometer tube without marking a temperature scale at all will, I think, much simplify matters.

Practical Application.

The thermo calculators illustrated in Figs. 3, 4, and 5 are intended for laboratory, not popular, use.

But the diagram Fig. 6 can be used by any non-scientific photographer for drawing up a table of times and temperatures for the plate and developer he fancies. He must ascertain by trial the time at a cold temperature which gives him the result he wants, and also the time at a warm temperature giving the same result. A strip of note-paper is taken, and the two ascertained times marked on the edge of it by means of the logarithmic scale. This strip is then applied to the temperature lines, keeping it parallel to the logarithmic scale, and adjusted until the two marks on it coincide with the two temperatures at which the trials were made. The position of each temperature line is then marked on the edge of the strip and the temperature figure written opposite it. The point at which the strip intersects the fan-shaped lines is marked on the diagram with the temperature coefficient of the developer tested. The marked strip of paper is again applied to the logarithmic scale, so that the temperatures of the tests again coincide with their right times; and from these adjacent scales a complete table of times and temperatures is written out for the future use of the photographer. Another way of attaining the same end where the temperature coefficient of a developer is known is to use either of the thermo calculators, setting it to the coefficient, make of one a test of the developer and plate at any temperature, and use this in future to set the instrument reading off the time for any other temperature.

Commercial Applications

There is a decided demand for still more definite and simplified information than that hitherto indicated, so that the use of a stated brand of plate and a stated developer can be told the exact time to develop that plate with that developer at any temperature without making any trials for himself.

For this purpose I devised the time developer illustrated Fig. 7 used in conjunction with the code letters already described under the heading "Plate." Every plate made in England is marked on the speed card (issued by the firm which handles my inventions) with these code letters, indicating the development speed of the plate, and by them actual times of development are also indicated.

On the label of the bottle the time and temperature scale illustrated in Fig. 1 is given. Up to the present date the temperature scale is on a separate band of paper revolvable round the bottle, and to use the scale the 60 deg. mark is set to the time given for the code letter of the plate, a standard dilution of the developer (1 dram to 1 oz.) being used. Thus on a plate marked M the 60 deg. pointer is set to 5 minutes, and

BUSINESS PRINCIPLES FOR THE PHOTOGRAPHER.

(A paper in the "Philadelphia Bulletin of Photography.")

ALL members of the profession will concede that it is necessary for the photographer to be an artist if he is to instil into his work the proper degree of feeling. But when we consider the talent of the photographer from a business standpoint we do not find it so well developed. Of course, there are exceptions, but it is generally conceded that the majority of portrait workers are indifferent business men. We may, perhaps, attribute this fact to the innate feeling which every worker has, or should have, for the art itself. In many cases this is so great as to engulf all thoughts of business, as well as other work which may have its origin outside of the studio workrooms.

If the photographer is located in one of the smaller towns, and it is to such that these words are addressed chiefly, the business part of the profession is not so important. Even then, however, one cannot make the mistake of thinking that work will come to him without an effort. If you desire to increase the volume of business being done it is up to you to *hustle*. To a certain extent an artist must create demand for his product. Of course, there are the children, lovers, and some others, for whom pictures must be made, but there are lots of people who need "coaxing," those who keep delaying until a more opportune time, which in many cases never arrives. It is to tell how you may possibly increase the output of pictures from your studio that this article is written.

First, let me say that I do not consider the field of work limited to studio portraiture alone. I have taken up home portraiture work with much success, and, in fact, at one time followed this exclusively. If your outfit contains a good flash lamp you can secure very pleasing pictures of children in their natural home surroundings. Indeed, you will, doubtless, find that better results can be secured in this way than if the subjects were brought to the studio. Then there are the old people. During the wintry months it is hard to get them far from the warm, cosy fireplace, but if you specialise on home portraiture, say just after the holidays, you will succeed in making a number of negatives of such subjects. Let the people know you are doing this work, and then get their orders for sittings.

Making pictures for illustrative purposes offers a remunerative field of work. There is always a demand for photographs representing original ideas or depicting anything out of the ordinary. Do not overlook the opportunities in out-door view work. People want this class of work done, and if you don't get out for it others will.

The watchword in photography is "hustle," and, above all, be on the lookout for new ideas. Study your customers. Find out their tastes, and then cater to the demand. Do not neglect taking up a certain kind of work because, in your opinion, it is not to be classed with portraiture. On the other hand, no greater mistake could be made than to do a grade of work which does not appeal to your trade, although you may think it artistic. Remember that you are making pictures to sell, and not for your own enjoyment.

I shall herein devote considerable space to the value of advertising, which, as a factor in creating business, cannot be overlooked. Of course, there are, even in this age of competition, those who look upon advertising as a needless waste of effort, not to say money. My own experience, however, teaches me that one cannot overestimate the returns resulting from a systematic campaign of advertising.

Before taking up this matter further, it should be stated that it is necessary to exercise great care in keeping up the standard of your work, for it is on this principle that one's reputation is made or upheld. In my own practice I deliver no work which might in any way be improved by a re-sitting. I am aware that there are some who will say that their patrons cannot detect the difference between good work and that of

an inferior grade. But if they cannot, perhaps some friends more critical will pass their opinion on the photograph in question, and when the customer's confidence in your ability to do uniform work is shaken, it is a difficult matter to restore it. If you are able to turn out the best work and do justice to this ability, the quality of your work will be your best advertisement. You may then have no fear in making "quality" a leader in your newspaper advertising, and if you have a competitor, people will sit up and take notice. But it is the height of folly to advertise in this manner unless your work will uphold it.

Not only through the circulation of his work may the photographer be open to praise or criticism, but the show case at the entrance of his establishment may exert its force either to repel or attract customers. In the first place, the case of samples should be kept clean. The glass should be washed at frequent intervals, and the interior kept free from dust, and, as to the pictures, let them be your best. Have a variety not only in poses, but styles of mountings and finish. I have in mind a photographer's show case in which, at present, are displayed nine pictures arranged in three parallel rows of three pictures each. The prints are all cabinet square in size and, with one exception, are mounted on a white card of the same style. It is needless to comment on the unattractiveness of such a display.

In my advertising considerable stress is laid upon the question of variety. People are constantly on the lookout for something different, and they welcome new ideas in the photograph as well as other lines. My samples include about sixty different styles in cards and folders, and my customers are at liberty to choose from any of these. Appropriate mounts for aristos or platinum, mounted solid or otherwise, are shown. Right here is where I believe a great many photographers are in error. They follow a short-sighted policy in their belief that their trade will not warrant getting out samples in the more expensive styles. Their specimens merely include the regular grade of staples. Oftentimes, in my own experience, I have been surprised by the demand evinced among certain ones for the higher grade work. A picture, if ever so good, will strike the customer's fancy much quicker if finished in a more elaborate style, and the better work will bring better prices. People are not having pictures made every day. Consequently, when they visit your studio they are, in many cases, willing to pay good money for something a little above the ordinary.

In speaking of the photographer's display case, the necessity of changing the prints often should be emphasised. A merchant would be open to ridicule, indeed, if the same goods were to be seen displayed in his show windows from month to month. Then why is it that so many portrait workers look upon this matter with indifference? People wish not only to examine your work often, but if they find new samples shown at intervals of every few weeks they will get the idea that a good business is being done.

There are various ways to give the public the impression that you are a successful business man. Always make it a point to be engaged in some work whenever in the studio, and do not neglect your dress. You will find it to your advantage to wear good clothes in the studio as well as on the street. A good appearance, more than aught else, gives the impression that you are enjoying prosperity. Don't be seen lounging around the streets, since if you wish to get business you must appear businesslike.

I find there is an inclination on the part of some to "knock" their business. They are sometimes heard lamenting the fact that things are slow, and instead of hustling all the more, they allow themselves to become discouraged. The public is not

going to boost the photographer if he himself does not exert any efforts in his behalf. In answer to inquiries, say, "Business is fine," "Couldn't be better," or something to the same effect.

In regard to advertising, don't do this at infrequent intervals, but keep your name and business constantly before the public. Make a yearly contract for space in your home paper, and then keep plugging away. Change the copy each week, and it will not be long before you commence getting results. Some think because returns fail to come right on the start they should give up. This is wrong, for benefits from use of the advertising columns will come only with constant "hammering." During the dull season following the holidays it would seem rather useless to invest money in advertising. But think a moment. Is not the stimulation of trade the main purpose in advertising? Hence the greater need for this at a time when business is quiet. If your name is constantly before the public they will not forget you, and when photographs are desired you will be given the preference.

In my advertisements particular emphasis is given quality. Since I have a competitor in the field, I consider this a good subject on which to talk. For example, I announced some time ago that in my advertisements each week would be named one essential element of a first-class picture, such as artistic posing, correct lighting, etc. In this manner I was able to make up quite catchy as well as effective little advertisements. But I will say again, if you contemplate following this method, you cannot afford to retract from the high quality of your work, even so far as one picture is concerned. I know a photographer in one of the smaller towns who is very particular in keeping up the standard of his work. Within the radius of twenty miles there are several villages, in one or two of which are photographers more or less indifferent to their work. The result is that members of the community will go miles that they may have their work done by the first-mentioned artist. Such is the merit resulting from a reputation, but foolish is the photographer who, having eventually succeeded in securing the bulk of the trade, will jeopardise his business by turning out work known to be not up to the usual standard. It is a difficult proposition, indeed, to dispute the value of good sound advertising coupled with high grade work upon the photographer's part.

It has been a frequent occurrence for different ones to speak to me regarding pictures they wished to have made. In some cases there seemed, however, an inclination for these same people to seemingly forget the matter or delay unusually long in calling for a sitting. A plan was, therefore, adopted and put into execution at times when business was a little quiet in the studio. A quantity of circulars were printed. These called the prospective customers' attention to the fact that I would be pleased to make his or her picture, and incidentally a word or two was said as to the good quality of my work. As an inducement for them to call at once for a sitting an offer was made to include, free of charge, with the regular order, one high grade folder. In most cases people will not neglect taking advantage of this offer.

Strictly speaking, the public, as a whole, does not look upon pictures as an absolute necessity. Hence, advertising, that is, constantly having your name before the public, to say nothing of any new business methods practised, are of great value in the photograph profession.

In my opinion, no worker will ever find it of profit to cut prices in an effort to get extra business. As before stated, those desiring pictures are willing to pay a fair price for work that is good. But should they at any time secure cut rates, they will expect the same thing at the next sitting.

As I am about to conclude these remarks, another thought occurs to me. Should work of yours ever receive recognition from any source, or an occurrence out of the ordinary take

place in your photographic work, it is well to have a note made of it in the local paper.

The principle of competition is the overcoming of one's competitors. By this is not meant that you are to resort to questionable methods in an effort to attain this result. The producing of clean, uniform work of a high grade quality is sure to bring its reward. And if you will employ the most up-to-date business methods, and be quick to follow up any advantage gained, the confidence of the entire community will eventually be secured.

With the thought in mind that an account of a few of my methods might be of benefit to others, I have been led to write this article. In conclusion, it is hoped that this article may therefore fulfil its purpose in contributing, if in a small measure only, to the success of fellow-workers.

G. W. N.

DEATH OF DR. W. J. RUSSELL, F.R.S.

Photographers will learn with regret of the death of Dr. W. J. Russell, Ph.D., F.R.S., which took place on Friday, November 12.

Born in 1830, Dr. Russell took his degree at Heidelberg, and was for many years lecturer on chemistry at St. Bartholomew's Hospital. Well known to chemists by his researches on the atomic weights of nickel and cobalt, the estimation of urea, and his report jointly with Sir W. Abney on the "Fading of Water Colours," photographers will remember him best by the work which occupied the later years of his life.

From 1897 to 1908 he published a series of papers dealing with the action of substances of all kinds upon a photographic plate in the dark; a subject upon which nothing was then known. The metals were first investigated and divided into those able to produce a developable image upon a plate in the dark and those which could not do so, the former being arranged in the order of their activity. Dr. Russell showed later that the active metals all formed hydrogen peroxide as a product of their oxidation when a clean surface was exposed to ordinary air. Hydrogen peroxide was found to act with remarkable vigour on a plate, a solution of 1 in 1,000,000 of water being strong enough to affect a plate placed above it for twenty-four hours. Not only this, but the activity was able to pass through media such as gelatine, guttapercha, celluloid, etc., and, in the case of very thin media, with but little blurring of the picture. Moisture was usually the carrier of the peroxide in these cases, but some volatile substances were able to act in its place, e.g., camphor in the instance of celluloid. Subsequent investigations showed that most organic substances which oxidised in the air acted on a plate in the dark, and in some cases it was possible to prove the production of hydrogen peroxide. The woods, for instance, were all active, and gave a very remarkable series of pictures of great sharpness, the picture in some cases being quite different to that seen with the eye or under the microscope.

Many of the vegetable oils, the terpenes, the resins (but not the true gums), coal, and most fibres of vegetable origin, if unbleached, were all shown to be more or less active. The "rosin" resins were less active than ordinary resins, amber being only slightly so, and the oldest formed coals, such as cannel, possessed but little activity. Thus, as these natural products become more completely oxidised, they are less able to act on a plate in the dark.

These actions were shown to be chemical, and to have no relation to emanations of the radium type. They were unable to pass through the thinnest glass or lead foil; through mica or aluminium foil of a thickness of 1-1,000 inch; on the other hand, they could be carried along a tube and round corners: were stimulated in an atmosphere of oxygen, and completely prevented from taking place in one of carbon dioxide. A further point of interest was the remarkable increase in activity of many of the organic products when exposed to the sunlight or arc lamp.

It was found to be thus possible to stimulate perfectly inactive printed matter from the seventeenth century so that it gave a distinct picture in the dark: the quantity of unoxidised matter remaining in the printing ink must have been infinitesimal. Amber, the resins, oils, and woods all behaved in this manner, but the metals and coals were not affected by exposure to the light.

Dr. Russell showed that this stimulation was caused by the blue

end of the spectrum, and there seems to be but little doubt that oxidation was thus promoted and a supply of hydrogen peroxide formed.

In Dr. Russell photographers have thus lost a patient and original investigator; there is much to learn from his researches, and in his papers will be found a wealth of information which should be of great value to both makers and users of plates.

FORTHCOMING EXHIBITIONS.

- November 25 to 26.—Southampton Camera Club. Sec., S. G. Kimber, Oakdene, Highfield, Southampton.
- November 29 to December 2.—Lancaster Photographic Society. Sec., Thomas Holt, 4, Parliament Street, Lancaster.
- December 4, 1909, to January 1, 1910.—Southport Photographic Society. Sec., J. McLellan, 2, Pilkington Road, Southport.
- December 15 to 16.—Coves Camera Club. Entries close December 6. Sec., E. E. Vincent, 4, High Street, Coves, I.W.
- December 31, 1909, to January 8, 1910.—Wishaw Photographic Association. Entries close December 18. Sec., R. Telfer, 138, Glasgow Road, Wishaw, N.B.
- 1910.
- January 26 to 29.—Bolton Camera Club. Entries close January 12. Sec., H. Mills, Higher Bank, Southills, Bolton.
- April 5 to 9.—Sheffield Photographic Society. Secs., J. A. George and J. R. Wigfull, 14, Parade Chambers, Sheffield.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents have been received between November 8 and November 13:—

- SHUTTER.**—No. 25,715. Air-regulated automatic camera shutter. Thomas Henry Carruthers, 153, Sharrow Vale Road, Sheffield.
- APPARATUS.**—No. 25,724. Improvements in apparatus to facilitate the contact between two bands, flexible or otherwise, for making photographic or other reproductions. Charles Raleigh, Birkbeck Bank Chambers, Southampton Buildings, London.
- PRINTING FRAMES.**—No. 25,797. Improvements in or connected with photographic printing frames and the like. Herbert Malcolm MacCallam, 58, St. Vincent Street, Glasgow.
- CAMERA STANDS.**—No. 25,941. Improvements in or relating to the heads or tops of photographic camera stands. David Henry Robinson, 24, Temple Row, Birmingham.
- COLOUR PHOTOGRAPHY.**—No. 25,998. Improvements in colour photography. Rudolf Ruth, Birkbeck Bank Chambers, Southampton Buildings, London.
- DEVELOPING.**—No. 26,117. Photographic and developing apparatus. George Chae Beidler, 33, Cannon Street, London.
- STEREOSCOPY.**—No. 26,135. Improved stereoscopic apparatus for use with photographs. Auguste Jules Touppillier, 285, High Holborn, London.
- DEVELOPING.**—No. 26,194. Improvements in and relating to means for developing photographic plates, films, and the like. Percy Albert Craven, 16, Warmington Road, Herne Hill, London.
- STAMP PHOTOGRAPHS.**—No. 26,208. Improved method for the production of stamp and panel photographs and the like. Harry Reginald Ellis Coker and Frank Victor Hemery, 1, Hanover Street, Peckham, London.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

STUDIO VIGNETTER.—No. 27,229, 1908 (December 15, 1908). The invention relates to a vignetter for use with a camera, its object

being to enable the vignetting screen to be adjusted by the operator while still looking at the image on the focussing screen.

In order to obtain the desired effect with accuracy and speed it is necessary that the vignetting screen has four distinct movements—viz.:

1. A movement towards and away from the camera.
2. A vertical movement.
3. A movement across the lens horizontally.
4. A swinging movement which will not displace the serrated edge of the screen towards or away from the camera to an appreciable extent.

The serrated vignetting screen is mounted in a triple frame, one of which frames enables the screen to move vertically, another allows of horizontal movement, and the third supports the screen on trunnions situated at or near the top or serrated edge of the screen to allow of the swinging movement of the screen. By mounting the screen at its upper edge instead of at the centre the screen may be swung without moving the serrated edge thereof appreciably nearer to or away from the lens after setting the screen at the proper distance from the camera.

The movements of the screen are effected as follows:—The triple frame which supports the screen is attached to a piece of wood or metal, which is secured to a rod or tube, which slides in a tube of wood. This may be readily attached to or removed from the camera board by means of a suitable catch. The tube and the piece to which the triple frame is attached are grooved to receive strings or wires, by means of which the operator is enabled to adjust the screen.

To enable the operator to adjust the distance of the screen from the camera one end of a wire is attached to the camera end of the inner tube, this wire is passed through an eye attached to the tube which is attached to the camera board, and is brought back to the hand of the operator; on pulling this wire the screen is moved away from the camera. A second wire is attached to the camera end of the inner rod or tube, and is led through an eye in the spring catch to the hand of the operator. By pulling on this cord, string, or wire, the catch is released, and the screen moved towards the camera.

The movement of the screen across the lens is effected by cords, which act on Bowden wires attached to the outer screen frame, which latter moves in a cross slide secured to the piece of wood or metal, which is attached to the inner tube or rod.

The movement of the screen in a vertical direction is effected by cords or strings, which, by means of Bowden wires attached thereto, actuate a plunger which raises and lowers the frame carrying the screen.

Finally, the swinging movement of the screen is effected by means of cords or strings, which actuate Bowden wires forming part of one of the trunnions which support the screen.

These cords or strings which effect the vertical, horizontal, and swinging movements of the screen, are led from the frames through grooves in the supporting tube and the piece of wood or metal supporting the cross slide, to apertures in a piece of wood attached to the camera board, being passed through suitable weights to keep them taut as the screen is moved away from the camera, or towards the same.

The cords and weights are placed close to the hand of the operator, and, pulling on one cord or string, moves the screen in one direction, whilst pulling on the other cord or string attached to the same part of the apparatus moves the screen in the opposite direction.

The ends of the strings may be connected to a controller instead of hanging loose, and one may use Bowden wires throughout, instead of cords or strings, or partly cords or strings and partly Bowden wires. Alexander Good, 103, Whitestile Road, Brentford.

PLATE CINEMATOGRAPH.—No. 16,441, 1909 (August 11, 1908). The invention consists of a cinematographic apparatus for the continuous exposure and projection of photographic plates. It embodies the combination of a movable carriage carrying the plates with a drum provided on its periphery, with a cam forming a helicoidal incline with a half pitch to the right and a half pitch to the left. This constitutes a continuous path, displacing the carriage alternately from left to right, and from right to left, the forward movement being produced at intervals separated by a given period of stoppage. The helicoidal

incline is divided for this purpose into parts at right angles to the generating lines of the drum, separated by parts oblique to these generatrices, the perpendicular parts corresponding to the periods of exposure of the plate, and the inclined parts to the period during which the plate is conveyed for changing the view in one and the same horizontal row. The carriage is appropriately guided by means of rollers. Rene Achille Robin, 62, rue d'Allemagne, Paris.

PNEUMATIC PRINTING FRAMES FOR PLANS.—No. 43,790, 1909 (February 26, 1909). The invention consists of a pneumatic printing frame, in which is used (in combination with a deeply recessed outer frame carrying the glass surface) a flexible backing sheet, having inner and outer stiffened layers of material surrounding the orifice of the suction tube. The inner layer is formed with passages leading from the orifice to the edge of the stiff material; a separate removable holding frame is adapted to fit within the deep recess of the outer frame, and rotatable levers are provided, having inclined surfaces working on inclines on the holding frame. There are also means for exhausting the air from between the sheet and the glass surface. A. W. Penrose and Company, Ltd., and William Gamble, 109, Farringdon Road, E.C.

CINEMATOPHONOGRAPH.—No. 23,153, 1908 (October 30, 1909). This invention relates to an improved means for securing synchronous movement in moving picture and talking machines, by a modification of the method according to which these are employed. By this method discs over which hands move to indicate the respective speeds has been proposed to photograph into the machine film a disc, index hand, or part, moved by the cinematograph, and to project upon the screen at the time of reproduction an image of an object such as a disc or index hand moved by the talking machine, the intention being that the operator of the cinematograph machine may drive his machine at a speed to accord with that of the talking machine by watching two index hands and keeping that of the cinematograph equal with that of the talking machine.

According to the present invention the projection of the second image of the talking machine is not required, and a very great simplification in the working is thus introduced. This is effected by photographing a visible speed indicator or the like moved by the talking machine directly into the film, so that an accurate record of the speed of the latter is obtained in the film, and in projecting nothing more is required than for the operator of the machine to keep it synchronous with the talking machine by comparing the photographed index with the index of the talking machine when the latter is reproducing, and accelerating or slowing down accordingly. William George Barker and William Cecil Jeapes, 117, Charing Cross Road, London.

The following complete specification, etc., is open to public inspection, before acceptance, under the Patents Act, 1901:—

APPARATUS.—No. 25,724. Apparatus to facilitate the contact between two bands, flexible or otherwise, for making photographic or other reproductions. Raleigh.

New Trade Names.

SYLVAX.—No. 316,738. A chemical preparation for use in photography. Augustus Harry Garner, 34, Nicholas Lane, London, accountant. September 30, 1909.

LINEN CLOTH FOR ENLARGEMENTS.—To prepare such for enlargements or copies in oil it is first washed with a wet cloth and afterwards coated with—

Warm water	300 ccs.
Common salt	4.5 grams.
Gelatine	0.4 grams.
Acetic acid	10 drops.

When dried, which may be done by heat, 3 to 4 grams of ammonio-nitrate of silver are rubbed over it with a sponge and once again after drying, when it is ready to be printed under a negative. After printing, the unaffected silver is to be washed out and the picture fixed in hypo.

Analecta.

Extracts from our weekly and monthly contemporaries.

Loss of Light by Reflection from the Glasses of Lenses.

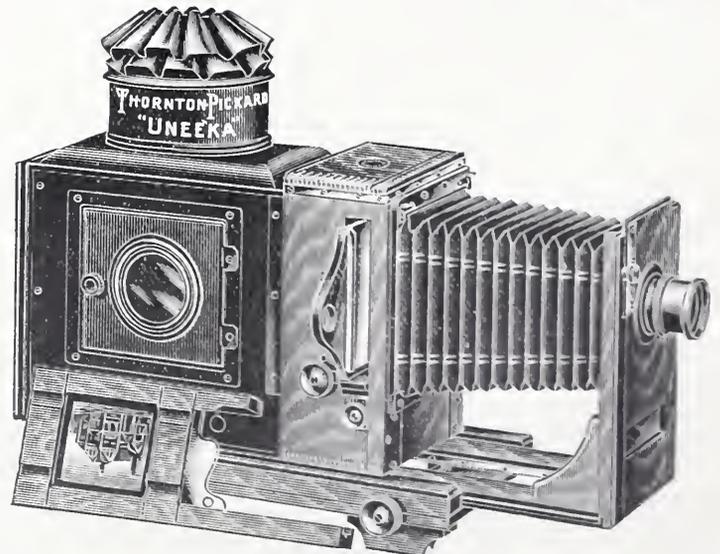
I believe there is a sort of unwritten custom (writes Mr. T. Bolas, in "The Amateur Photographer and Photographic News" for November 23) among working opticians to allow 5 per cent. for the loss of light at each reflecting surface, whether from air to glass or from glass to air; at any rate, this estimate may be taken as approximately correct for average lenses and average polish and finish. To give some kind of documentary support to this estimate, I may refer to page 79 of the 1899 edition of Dr. Rohr's classic work on the photographic lens ("Theorie und Geschichte des photographischen Objectives"). The loss by reflection due to two surfaces is taken as about 9½ per cent.; four surfaces, somewhat over 18 per cent.; and six surfaces almost 25 per cent.

In order to prevent misunderstanding, it may be well to point out that a single landscape lens has two air surfaces, but no air gap, a cemented doublet has four air surfaces, and one air gap; a three-element system, as a triplet, has two air gaps and six air surfaces; a four-element system has three air gaps and eight air surfaces; a five-element system has four air gaps and ten air surfaces. Element in this paragraph stands for a unit having two air surfaces, and the unit may be a single glass or a cemented group.

New Apparatus, &c.

Thornton-Pickard "Uneeka" and "Royal Ruby" Enlargers. Made by the Thornton-Pickard Manufacturing Company, Ltd., Altrincham, Cheshire.

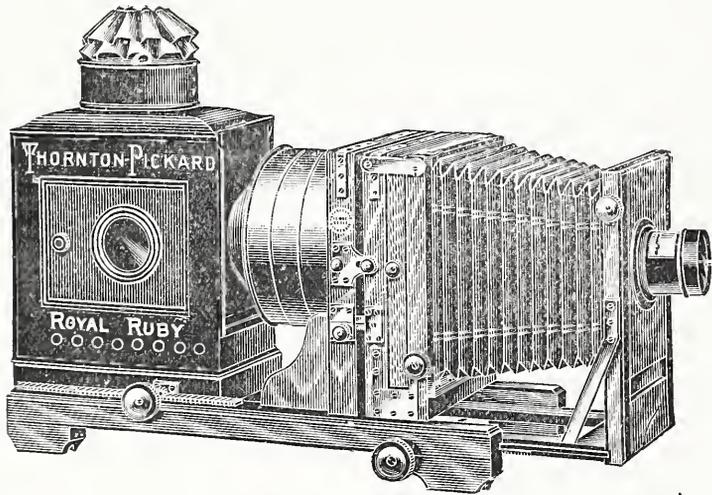
The "Uneeka" fills a gap in enlargers, since it provides, at a moderate price, a lantern for the enlargement of 3½ x 2½ negatives, and is equally efficient when used for projecting ordinary lantern slides or for science demonstrations in the open stage afforded by the removal of the bellows. It is fitted with 4¼ in. condenser, mounted in a mahogany box, in which also is the negative or lantern slide stage, the box resting on the base of the lantern and secured in place by a screw inserted from below and readily withdrawn when it is required to polish the condensers. The stage allows of the central swing of the negative, rise and fall, and rotating movements, in each case by rack and pinion, whilst the negative may



also be adjusted sideways. Although made primarily for the 3½ x 2½ size, the lantern is fitted with negative carrier to hold a quarter-plate, part of which may thus be enlarged, whilst an inner carrier serves to hold the 2.5/16 x 1¼ negative, now coming largely into use in what we may call the "ultra-pocket" cameras. The carrier being removed, the stage takes the "Merito" lantern-slide

carrier, and then serves equally well as a projection lantern, whilst the ready removal of the bellows from its support at each end allows of pieces of scientific apparatus, troughs, etc., to be placed in the optical system. The apparatus is strong, but weight is removed from all portions where it fails to give strength, so that the lantern is surprisingly light. Complete with achromatic projection lens, lantern slide carrier, and tray, but without light, the price is £5.

In the "Royal Ruby" the Thornton-Pickard Company have embodied many of the excellencies of their cameras in an enlarging apparatus, all the movements of which—and they include everything which an enlarger can be expected to do—are actuated by rack and pinion. Thus the lantern body, the three separate movements of the negative carrier (tilt, rise and fall, and rotatory), together with the rise and fall of the lens, are fitted with rack and pinion, the pinion head in several instances serving also to lock the moving part. The lens front and the condenser frame are rigidly held by right-angled stays, whilst the bellows may be completely removed and the

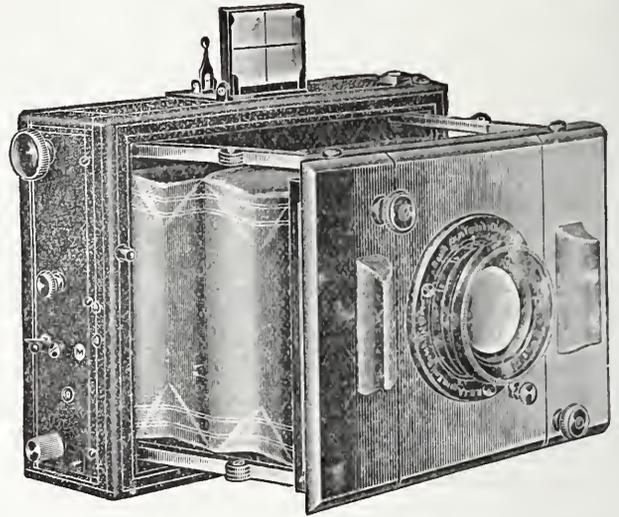


lantern used for optical and scientific projection. One excellent feature of the series is that the negative carrier of each lantern is built large enough to hold a negative of the next larger size; though the whole negative is not completely covered by the condenser, parts may nevertheless be enlarged. The price of the enlarger, complete with condenser and portrait objective, is £10 10s. in quarter-plate, £11 15s. in 5 x 4 and postcard, and £14 10s. in half-plate. The very convenient movements and excellent workmanship of the instrument deserve every commendation. A separate frame is provided to replace the negative carrier, when the "Merito" lantern-slide carrier is being used. This, together with extra 4½ condenser and the slide carrier, costs 25s. in quarter-plate, 5 x 4, and postcard sizes, 30s. in half-plate.

Busch Folding Focal-Plane Cameras. Made by the Emil Busch Optical Company, 35, Charlotte Street, Hatton Garden, London, E.C.

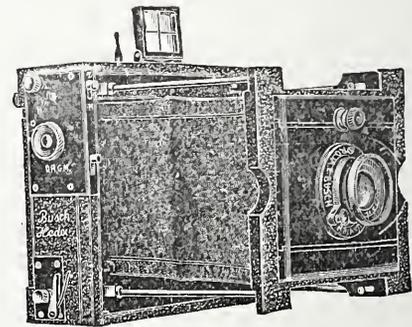
Two new models of the convenient folding focal-plane cameras have been placed on the market by the Busch Company, the first, the "Planor," being a further improvement of the camera hitherto marketed under that name. The lens board is most rigidly supported by four stout metal struts, each hinged half way between front and back, and giving the highest degree of rigidity to the front board. The camera is very easily and quickly collapsed by simple pressure on the hinges. It is quickly opened simply by pulling out the pair of clips seen on either side of the lens in the drawing. The camera is fitted with two-way rising front, giving both a rise and fall of one inch the vertical way of the plate, in addition to rise and fall the landscape way of the plates. The shutter is very simple and rapid in its manipulation, the slit being adjusted by winding the blind until the upper part of the aperture is level with the top of the plate, when pressure of a knob on the left of the camera allows of the slit being enlarged or contracted by winding a small head on the right just above the winding key. The adjustment for alteration of tension is provided in the usual way, the two in conjunction giving speeds up to 1-1,000 sec. Time exposures are very simply obtained by opening the slit to the full

width of the plate, when pressure on the release opens the shutter and a second pressure closes it. Mention should also be made of the brake attachment for the shutter, convenient at times for still further slowing down the slowest speeds given by the shutter. In several points the details of construction make for convenience. For example, the catch for the dark slide or focussing screen is



operated by pressing down the lever instead of raising it, an improvement which, although of minor importance, nevertheless conduces to smoothness of working. The camera is provided with strong bushes for adjustment to the tripod, and complete with three excellent double plate-holders, with pull-out shutters and Busch "Detective" Aplanat, the price is £8 10s. 6d. With "Omnia" anastigmat, Series III., No. 2B, the price is £9 10s. The camera can also be adapted to carry the "Premo" film pack at the price of 12s., whilst extra double plate-holders are obtainable at 10s. each.

The "Heda" is a still cheaper variety of the camera sold at the low price, complete with three single metal slides and Busch Aplanat, f/8, of £5 7s. 6d. The extension in this case is provided by four metal rods, and certainly gives a very rigid front board. Rise and fall of front are provided the vertical way of the plate, whilst the lens board is further made rotatable, so that the rise and fall can be obtained either way of the plate. The shutter, with the exception



of the brake attachment, is the same as that fitted to the "Planor." Adjustments of the width of the slit and for time exposures are made as with the "Planor," and the "Heda," like the "Planor," is also fitted with direct-vision finder. The cameras, both of which are listed at present only in the quarter-plate size, are most efficient instruments of their type, and may be recommended for the many descriptions of hand camera photography, particularly that of rapidly moving objects.

"Excelsior" Metal Tripods. Sold by F. G. Phillips, 12, Charterhouse Street, London, E.C.

Three patterns of very portable telescopic tripods are supplied under this name, each in a series of six or seven sizes, affording a total length of leg when fully extended of from 44in. to 58in. The A pattern of extra strong type is composed of round brass tubes with an outer tube of black or nickel; the B pattern is similar, but somewhat lighter, whilst the C is fitted with aluminium tubes and is thus extremely light. In each case the tripod is fitted with

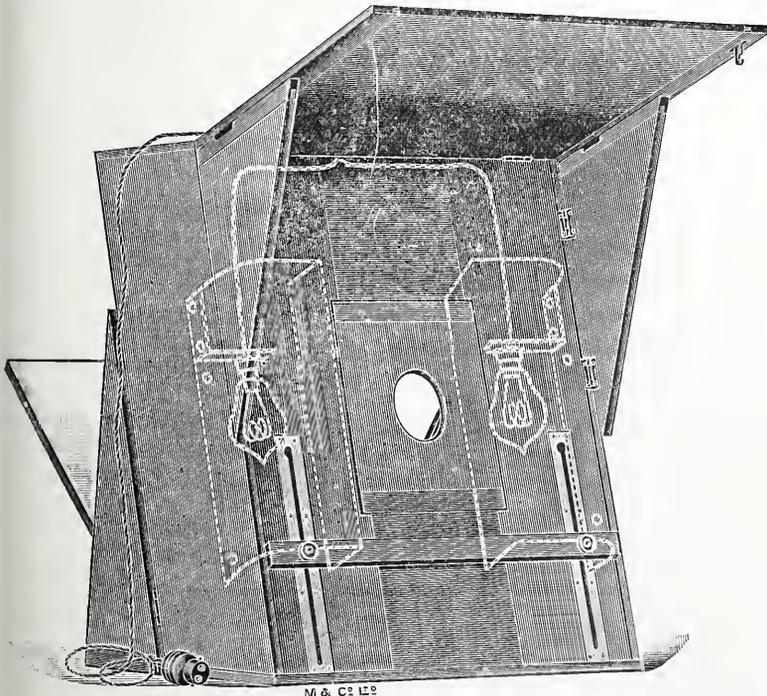
double-spring catches lying loose in the tubes and, therefore, not liable to get broken off; moreover, the tubes engage only at the ends, so that they work very free when opening and closing; further, the head of the tripod is reversible, one side being fitted



with the English standard screw and the other with the Continental. The prices of these very portable and rigid tripods range from 7s. 6d. for an A pattern, 44in. when extended, to 18s. for a C pattern, extending to 50in.

The Robinson Professional Retouching Desk. Sold by Marion and Co., 22-23, Soho Square, London, W.C.

In this new desk for the professional retoucher the makers have employed two of the metallic filament lamps, thus providing the user with a constant, powerful, and inexpensive light, which has the further advantage that it does not heat the retouching room unduly. The construction of the lamp affords a perfectly adequate shading of the light, whilst the stage of the desk is made to accom-



modate negatives from the smallest up to 12 x 10. The whole apparatus is very strongly made, and, as we might expect from a photographer of the long experience of Mr. Ralph W. Robinson, its design fully provides for the most effective retouching practice. Complete with the two lamps, flexible connection, and adapter serving to connect the latter to any ordinary electric light, the price is 65s.

New Materials, &c.

"Vitramic" Photographic Enamels. Made by J. W. Beaufort, The Studio, Easy Row, Birmingham.

We have received some examples of these photographic enamels from Mr. Beaufort, who, within the past few years, has raised this branch of photographic work to a pitch of technical perfection and to an industry of very considerable proportions. The process, which has been worked out by him, has been applied, not only in the making of photographic enamel miniatures, such as still form a profitable branch of a professional photographer's business, but also in the wholesale production of badges of a kind not to be confused with the celluloid or photo-paper button which is still very largely made, but has not, of course, a title of the permanency of the real enamel, which, short of deliberate destruction with a hammer, is imperishable. As we understand it, the "Vitramic" enamel is a photographic equivalent of the genuine painted enamel in which the picture lies imbedded between two enamel layers. The fact that the enamels themselves, as well as the colours, are manufactured by Mr. Beaufort in his establishment allows of the method, in his hands, being most readily adapted to all descriptions of work, and some of the small coloured badges which we have examined, for example, one bearing the familiar legend, "Votes for Women," and another of the John Bull League—of which 100,000 are to be made—are most beautiful examples of this finest of photographic processes.

We have dwelt more upon the wholesale work of the Beaufort firm, for the reason that credit is surely due to it for the creation of this new description of business, but we should not overlook the fact that Mr. Beaufort specially appeals to professional photographers on account of his unique facilities for producing enamel miniatures both in monochrome and colour at most moderate prices and with great punctuality. The prices of miniatures from photographers' own negatives are from 5s. 6d. each, up to one-inch circle; enamelling on silver articles costs about the same as plaques, plus the cost of the silver support.

CATALOGUES AND TRADE NOTICES

THE LUMIERE PRICE-LIST.—The new edition of the general catalogue and price-list of Messrs Lumière is now a book of seventy-four pages, and though primarily a list of prices is much more than this owing to the inclusion of instructions for working the celebrated Lumière products in the way of plates and papers, the Autochrome process and the series of distinctive chemical preparations worked out by MM. Lumière. Thus particular attention may be directed to the formulæ for developers from p. 52 to 60, to the simplification in formulæ produced by the use of formo-sulphite as a single substitute for both sulphite and alkali, and to the directions for the use of the persulphate and cerium reducers, bi-sulphite solution, the permanent and rapid mercuric-iodide intensifier, etc. The list, which is one often found valuable for reference, is sent free on application to the Lumière N. A. Company, 89, Great Russell Street, London, W.C.

PHOTOGRAPHIC PENNY POSTCARDS.—Mr. Philip G. Hunt, 34, Paternoster Row, London, E.C., has just issued a booklet describing the works of which he is proprietor at 332, Balham High Road, London, S.W., where a most complete plant has been laid down to produce postcards on a large commercial scale. Mr. Hunt rightly lays stress on the many directions in which the penny picture postcard can be used with profit to the photographer, and the latter may certainly be advised to make himself acquainted with the excellent "real photographic" toned glossy cards made by Mr. Hunt at most moderate rates from photographers' own negatives.

FLASHLIGHT PHOTOGRAPHY.—Messrs. Chas. Zimmermann and Co., 9 and 10, St. Mary-at-Hill, London, E.C., have just published a 14-page booklet of "Hints on Flashlight Photography," which, while written in reference to the Agfa flash-powder and the Agfa flash-lamps—on which account there is no occasion for apologies—contains a good many useful hints on making portraits by magnesium flash, on employing the light for copying small originals, and on developing the negatives. Amateur workers of flashlight will find

it quite worth their while to apply for the booklet, which is sent free on receipt of a postcard. Dealers should find it to their advantage to keep the booklet at hand as a ready and efficient means of answering flashlight questions.

"THE PROFESSIONAL PHOTOGRAPHER."—The November issue of this attractive monthly publication, published by Kodak, Ltd., contains notes on photographic chemicals, correcting negatives, in addition to giving particulars of a number of useful novelties for the studio and professional dark-room.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, NOVEMBER 26.

Bideford Camera Club. "Large Prints from Small Negatives." W. F. Slater.
Lincoln Amateur Photographic Society. "Modern Photographic Apparatus and Exhibition of T. P. Prize Slides." R. Hesketh.
Mill Camera Club. "Autotype Carbon." Demonstration.

SATURDAY, NOVEMBER 27.

Idlers' Camera Club (Bristol) "What Can be Done with a Hand Camera." C. P. Goerz, Ltd.
Edinburgh Photographic Society. "Breton Customs, Coifs and Calvaries." James Oliver.

MONDAY, NOVEMBER 29.

Southampton Camera Club. "Ensyna." F. J. Stedman.
Exeter Camera Club. "Large Prints from Small Negatives." W. F. Slater.
Stafford Photographic Society. "Modern Photographic Apparatus and Exhibition of T. P. Prize Slides." R. Hesketh.
Leek Photographic Society. "Amateur Photographer and Photographic News Prize Slides."
South London Photographic Society. "Preparing the Negative for Pictorial Purposes." E. W. Taylor.
Scarborough and District Photographic Society. "A Sicilian Holiday." R. F. Jameson.

TUESDAY, NOVEMBER 30.

Royal Photographic Society. "Glimpses of Scenery in Ceylon and Burmah." S. E. Tench.
Hackney Photographic Society. "Handwork on Negative and Print." B. C. Wickison.
Leeds Photographic Society. "Walks in the English Lake District." Gilbert Middleton.
Manchester Amateur Photographic Society. Opening of New Rooms.
Worthing Camera Club. "A Trip Round the World." E. C. Patching.
Glasgow Southern Photographic Association. Monthly Lantern Slide Competition. "Photographic Facts and Fallacies."
Birmingham Photographic Society. "Modern Photographic Apparatus and Exhibition of T. P. Prize Slides." R. Hesketh.
Reading Literary Club Photographic Society. "Large Prints from Small Negatives." W. F. Slater.
Rotherham Photographic Society. "Peeps at Nature with a Camera." Rev. Bernard Butler.

WEDNESDAY, DECEMBER 1.

Croydon Camera Club. "Some Delightful Walks in Surrey."
Woodford Photographic Society. "Large Prints from Small Negatives." W. F. Slater.
Tamworth and District Photographic Society. "Modern Photographic Apparatus and Exhibition of T. P. Prize Slides." R. Hesketh.
Sale Photographic Society. "On the Broads." F. Mahler.
Borough Polytechnic Photographic Society. First Lantern Slide Competition.
Edinburgh Photographic Society. "Mistakes I Have Made." James Baillie.

THURSDAY, DECEMBER 2.

Watford Camera Club. "Photography and Focus Slides, 1909."
L.C.C. School, Bolt Court, E.C. "Press Photography." Fried O. Penberthy.
Hull Photographic Society. "In Central France." J. V. Saunders
Rodley, Faisley, Calverley, and Bramley Photographic Society. Members' Night.
Handsworth Photographic Society. "Modern Photographic Apparatus and Exhibition of T. P. Prize Slides." R. Hesketh.
Southend-on-Sea Photographic Society. "Large Prints from Small Negatives." W. F. Slater.
Dundee and East of Scotland Photographic Association. "Some Shetland Impressions." Rev. H. M. Davidson.
Leigh Photographic Society. "Ancient and Modern Methods of Illustration." W. Perry.
Midlothian Photographic Association. "A Midlothian Bazaar." John Reid and R. M. Reddie.
Liverpool Amateur Photographic Association. "Promoil." F. J. Motimer.
Tynemouth Photographic Society. "Ensyna." F. J. Stedman.
London and Provincial Photographic Society. "Ensyna." F. Marshall.

ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held Tuesday, November 23, Mr. George E. Brown in the chair. The twelfth Traill-Taylor Memorial Lecture was delivered by Professor A. W. Porter, B.Sc., F.R.A.S., on "The Growth of the Photographic Image." The lecture consisted of two parts. In the first the lecturer dealt with the representation of the action of light on a photographic plate as first adopted by Hurter and Driffield and commonly accepted as a statement of the physico-chemical change which takes place on an emulsion being exposed to a series of light impressions of increasing intensity. He explained the H. and D. curve of the plate, and the measurement of the inertia from which

the speed measurement of a plate was usually taken. Several lantern experiments were made to illustrate the kind of action which exhibited inertia, this phenomenon being marked in the case of the action of an acid on a solution of hyposulphite of soda, the decomposition of which was small at the start and continued with increasing rapidity up to a maximum, after which it fell off again. Professor Porter dissented from the view that the actual physico-chemical action of light on a photographic plate partakes of this same character. If the quantities of light-affected haloid were plotted against the light intensities a curve was obtained which had not this inertia character familiar in every H. and D. curve. The lecturer had worked out a formula for the theoretical rate of growth of the latent image which, he thought, was simpler in its application than that adopted by Hurter and Driffield. It was:—

Rate of growth of latent image = $a I (m_0 - m)$, where I is the intensity of the light, m the mass of latent image formed, m_0 the total mass of silver haloid, and a , a constant. This formula could be given the form

$$m = m_0 (1 - e^{-a I t})$$

The second part of the paper dealt with the resolving power of photographic plates—that is to say, the ability of an emulsion to give an image of extreme fineness. The lecturer's examples and experimental results were drawn from a paper by Dr. C. E. K. Mees, to be published shortly by the Royal Society. From the lantern-slide reproductions of Dr. Mees' experimental results, shown by courtesy of Messrs. Wratten and Wainwright, it was seen that the capability of a plate to give extremely fine images was not proportional to the fineness of grain of the emulsion. A process plate, the size of grain in which was .001 mm., gave considerably greater resolving power than a lantern emulsion of .0004 mm. grain. There was every reason to agree that the explanation given of this phenomenon by Dr. Mees—namely, that the lessened resolving power was the result of diffraction in the film—was the correct one. The lecturer very clearly demonstrated the kind of spreading action which was caused by refracting media, and, further, drew attention to the fact that in the photographic plate, just as in ordinary diffraction phenomenon, the quantity of spreading action varied with the wave-length of the light. Unfortunately, he said, the laws governing the scatter of light by granular media of the fineness of the photographic plate had not been theoretically worked out. In the case of very much finer scattering media, as also in that of much coarser media, laws (quite different in the two cases) had been derived, but the structure corresponding to that of the photographic plate represented a field between the two, of which, as yet, there had not been a theoretical investigation. On the proposition of the Rev. F. C. Lambert, seconded by Mr. W. B. Ferguson, the lecturer was accorded the thanks of the society, and was made the recipient of the medal presented to each Traill-Taylor lecturer.

CROYDON CAMERA CLUB.—Messrs. W. H. Smith and E. A. Salt gave a joint demonstration last week on home-made primary batteries for illuminating small Osram lamps, chiefly for use in the dark-room, with suggestions as to the construction of dark lanterns and safe-lights. The table was literally crowded with various types of batteries running many miniature lights, and a number of different models of dark lanterns constructed by the lecturers. Mr. Salt opened the proceedings with a general sketch of the principles underlying the generation of constant currents, and, assisted by many diagrams, outlined Ohm's law and its important applications to actual work. Both he and Mr. Smith had been in the field when the first Swan lamps saw the light of day, and the former well remembered running several 5 c.p. lamps from gigantic batteries at considerable trouble and expense. The advent of the tungsten filament Osram lamps, requiring, as they do, only about one-fourth the current for a given candle-power, had obviously altered the aspect of things and made lighting on the small scale perfectly feasible at little cost. A small Osram lamp, if run from a good constant-current battery, or, better, an accumulator, formed an extremely convenient, and a very constant source of light for contact printing on bromide papers, as well as for the illumination of dark rooms. Of the many primary batteries described and shown, perhaps a modification of the Leclanché cell, devised by Mr. Salt, aroused most interest. In one example, 2 lb. jam jars (about 5½ in. by 3½ in.) were utilised, each containing one zinc element, 5 in. x 1½ in. x 4 in.,

sandwiched between two carbons, $6\frac{1}{2}$ in. x $1\frac{1}{2}$ in. x $\frac{1}{4}$ in., the cell being tightly packed with about $1\frac{3}{4}$ lb. of crushed carbon, and the same quantity of granular manganese dioxide. The zinc element was kept apart from the carbon and manganese granules by being wrapped round with two thicknesses of ordinary white blotting-paper, followed by two thicknesses of unbleached calico, held in position by a winding of thread, and a final single thickness of blotting-paper. Sealing-wax was useful in securing joints at the top, bottom, and sides. The charge was a 10 per cent. solution of "Selectron," in lieu of the more usual salammoniac solution, so apt to form insoluble deposits. Three such cells (costing approximately 3s. 6d.) brilliantly lit a 1 c.p. 4-volt $\frac{2}{5}$ amp. lamp for over an hour, and it was stated they would probably be good for a year for intermittent lighting. A somewhat larger battery of three cells had been tested for two months' running of lamps from 1 to 3 c.p. for periods of three hours to twenty minutes each day, and showed no signs of exhaustion.

From the varied types of specially designed lanterns shown, each possessing some point of novelty, either in construction or design, a revolving one, due to Mr. Smith, came easily first in point of ingenuity. Four grades of filters, from bright yellow to deep red, at a touch were brought into operation, the light from the filter not required being automatically cut off. A second electric bulb, in an opal globe on top, afforded white light when required on touching a switch. Messrs. A. E. Staley and Co.'s "Geka" filters had been found useful, cheap, and efficient, and, there being practically no heat evolved, no buckling resulted. Messrs. Wratten were also prepared to adjust their well-known safe-lights for use with small electric lights.

During the evening several mysterious little lamps in coloured globes had been steadily displaying a bright circle of light, and were apparently neither electric nor oil. Towards the termination of the lecture Mr. Smith explained their construction. They illustrated another little idea of his own, and an extremely good one. A brass container, holding methylated spirit, supported a fine vertical tube, with a tiny wick running its length. This tube was closed on top, but a minute hole on one side at its upper end permitted the ignition of spirit vapour on the application of a lighted match for a few seconds to the orifice. The almost invisible blue flame jet impinged horizontally on a disc of Welsbach mantle about the size of a sixpence, held in a mica frame contiguous, giving a bright if small light. The lamps had been primarily designed for night lights, but were also applicable to small dark lanterns. By fitting a lever arm the jet could be directed away from the mantle and darkness secured.

In the discussion which followed, Mr. S. H. Wratten described suitable methods for mounting the disc-mantles in the Smith lamp. Mr. Harpur discovered some relevancy of the new lamp to an instrument alluded to by him as a "guillotine," and presumably an improved form of print trimmer. Mr. Geo. E. Brown congratulated both lecturers on a very complete exposition of an interesting subject. He was particularly struck with Mr. Smith's midget methylated spirit lamp, and suggested, by a small modification, it might be made into a highly efficient and portable travelling dark lamp. Mr. C. Welborne Piper, Mr. Raffety, F.R.A.S., and Mr. Oliver Dawson continued the discussion. The President, Mr. J. M. Sellors, in proposing a vote of thanks, alluded to the enormous amount of trouble which must have been occasioned in the preparation of the capital lecture they had heard. It was extremely fortunate that the society could rely so largely on its members for demonstrations of the most varied character. He was also pleased to see so many distinguished visitors present, and, on behalf of the club, most cordially welcomed them.

MIDLOTHIAN PHOTOGRAPHIC ASSOCIATION.—At a meeting of the Midlothian Photographic Association on Thursday, the 18th inst., Dr. Drinkwater delivered a lecture on "Light: Its Nature and Use in Photography." After stating that the knowledge of light was derived from observation of its properties, and explaining the accepted theory that it consisted in wave motions on the ether which are conveyed by the eye to the nerve centres of the human brain, the lecturer proceeded to demonstrate those properties which were of particular interest to photographers. Some simple experiments were made to show that light becomes visible only by reflection—on particles of dust or moisture in the atmosphere—and that the diffusion and degradation of pure light so caused was of advan-

tage to the camera. The nature of refraction was explained, and by means of lantern-slide diagrams, and of a spectrum projected through a simple prism, the varying dispersions of the colours and the refractive powers of prisms of different density were demonstrated. The lecturer then proceeded to show the necessity for the correction of a photographic lens, and the method of doing so. In theory this consisted in placing two series of prisms of different refractive powers together so that by first dispersing and then collecting the rays the visual and chemical foci were brought together.

After a vote of thanks had been conveyed to Dr. Drinkwater, the question-box of the Association was opened, and among the replies given for the information of beginners it was stated that the loss of density of a negative in the fixing-bath varied according to the developer and to the density-giving property of the plate used, and that a worker who did not wish to adhere to one formula required a knowledge of these variations to secure evenness of results. Some discussion on the use of a single solution developer as the most satisfactory for a beginner showed a difference of opinion, but it was pointed out that by using a combined developer at its standard strength, the simplicity of the single developer was obtained and a knowledge was secured of the qualities of the combined solutions, which would be in good stead when the worker had advanced to the stage of desiring control in development. At the same time, the trouble of mastering the peculiarities of a new developer would be avoided when that stage was reached.

A large collection of the pictures of Mr. Cleland, one of the prominent workers in the Association, was on view, and was inspected with great interest at the close of the meeting.

Commercial & Legal Intelligence.

SEQUEL TO BRIGHTON AMENITIES.—At the Brighton Bench last week, a coloured photographer named "D'jornette Plummer," of 56, Western Road, was summoned by a photographer's assistant named Benno Piltin, of 5, Brighton Place, to show cause why he should not forfeit the recognisance of £10 to keep the peace which he entered into on October 29.

Mr. Marx (for complainant) explained that originally his client had to issue a summons against defendant for wages. This was settled out of Court by mutual consent, one of the conditions being that the defendant was to give Piltin employment for six months. While working he was threatened, with the result that a summons was issued, and defendant (as reported in the "B.J." for November 5) was bound over to keep the peace. Subsequent happenings had resulted in this case.

Complainant swore that he resumed work after the last proceedings at two o'clock on October 29, when defendant was bound over in the sum of £10 to keep the peace and to pay a sum of £2 14s. 6d. as costs. He was at once ordered to clean the floor of the dark-room, and he did this work, though he was really engaged as a photographer's assistant. He heard Mr. and Mrs. Plummer having a row together in French about him, though he could not understand what the conversation was. Subsequently Mrs. Plummer made a statement to him, and after she had gone away defendant came to him, and held a "very dark conversation" with him at the back of the premises. After the proceedings he was in a bad temper, and said, "The Court is a play to me, and I will treat you worse than before. I am used to the Court already." He also threatened violence. Taking money from his pocket he showed it him and said, "I am rich, I will do you bad, I will ruin you, and the money will help me in the Court. I buy the Court with money."

Piltin said that after telling the young lady in the shop to keep her place, defendant sent him in the cellar to wash the plates. He went there, it was very dark, and glass came flying down on so him and ringing on to the floor. In consequence of this he could not do his work, and on striking a match he saw that glass was falling around him. Putting away the plates, he ran upstairs, and saw defendant creeping away from the back of the premises to the front. There were a lot of openings in the floor of the studio, and he did not know through which of them the glass came. Witness was frightened, and asked defendant why he threw the glass. He

replied, "Go out, you crazy man, go out to the back and do your duty." At eleven o'clock on the following day he applied to the Court, and had not since been back to defendant's premises, as he was afraid of Plummer.

In cross-examination he said he was of Scandinavian nationality. Part of the conversation he had sworn to was in German and part in English. The studio where it took place was like a stable. There was rubbish there and amongst it some broken glass. He had not brought any of the glass with him. He did not tell the young lady in the shop that he had made Mr. Plummer pay and that he would make him pay still more. He said nothing about advice the solicitor had given him.

A plan of the premises was produced by Mr. John L. Denman, of the firm of Messrs. Denman and Matthews. He denied the statement of the plaintiff that a person standing at the shop door could not see into the studio. There was a lot of rubbish in the dark room, and amongst it was some broken glass, on which a person might have trodden in walking to the sink. There was no position on the ground floor from which glass could be thrown at a person at the sink. He had stood in the shop and could hear part of a conversation in the studio.

In cross-examination he said he was prepared to say that it was absolutely impossible for a person standing either at the sink or at the foot of the stairs to be struck with glass from above.

Complainant was then again put in the box, and in reply to Mr. Grantham, he admitted that when he spoke to the lady assistant about the glass she said it must have been a ghost—"She must have meant Mr. Plummer," the witness added amid loud laughter. That lady, Miss Flint, told him she was afraid to leave him in a room with Mr. Plummer.

Miss Flint (from the back of the Court): I didn't say that, how dare you?

Mr. Grantham: Be quiet, Miss Flint.

In cross-examination the witness said he was quite prepared to carry out his contract with Mr. Plummer had he been allowed to do so.

This concluded the plaintiff's case, and Mr. Grantham at once submitted he had no case to answer as there was no corroboration whatever, while Mr. Denman's evidence had put the complainant out of Court altogether.

The Bench, however, ruled that there was a case to answer.

In his evidence Plummer said that for some years he had carried on business in Brighton, Hastings, and other parts of England. It was untrue that he threatened Piltin on the day in question or that anyone threw glass at him. He denied that he was creeping away when Piltin came up from the dark-room; as a matter of fact, he was standing in the shop talking to the assistant. He went away to Brussels on the Saturday afternoon, and had had to come back specially to answer this case. He suggested that the proceedings were taken with a view to extracting money from him. As a matter of fact after the previous case an offer was made to settle the whole affair for £25, but he refused it.

In reply to Mr. Marx, he denied that he had no further use for complainant's services, as a matter of fact he wanted all the men he was able to take on, and had done so ever since he had been in business. He had not said he had no use for Piltin, as a matter of fact he intended to send him to a shop he was opening at Hastings. He denied telling one of his managers to give Piltin hell and to work him to death. It was quite untrue that he had threatened complainant at any time. It was a concocted story between him and his witness on the last occasion. His wife had never complained to him of his treatment of Piltin.

Bessie Flint, the lady assistant at the West Street branch, said that she remembered the afternoon after the previous proceedings, Piltin then told her it was all right on his side, Mr. Plummer had to pay the costs, £2 14s. and £10. He also said, "I have made Mr. Plummer pay that, and I'll make him pay more. My solicitor said Mr. Plummer's only got to say one word to me and I'm to go to him." He also told her he was to remain for six months and asked her if Mr. Plummer was keeping it on all the winter. She said, "I don't know, I understand so," and he replied, "It'll be cold here, won't it." She advised him to try to settle matters and leave, and after speaking to his wife on the subject he agreed that witness should speak to Mr. Plummer with regard to it. She was in the shop all the afternoon and evening and heard complainant and defendant

talking, but regarded plaintiff's story of glass-throwing as a romance. When he came up from the dark-room he asked Plummer if he had thrown glass at him, and he replied by asking him what he meant. Subsequently Piltin told her the master must have thrown glass at him, but, with a laugh, she replied, "Impossible, it must have been the ghost you were talking about the other night. You know you are frightened to go down after dark because the other night you heard someone walking in the rubbish." When there was some talk about a settlement so that he could leave, Piltin said, "He will have to give me three months' wages."

Addressing the Bench, Mr. Grantham submitted that he had supplied an adequate answer to the charge, and that it was all actuated with an idea of getting money from his client.

The Bench retired to consider the matter, and on returning into Court the Mayor said the summons would be dismissed.

Mr. Grantham applied for costs, pointing out that his client was similarly condemned in the previous case. He argued that costs should follow the event.

The Magistrates refused to make any order.

NEW COMPANIES.

PROVINCIAL CINEMATOGRAPH THEATRES, LTD.—Registered office, Clarence House, 24, St. Martin's Lane, Cannon Street, E.C. This company was registered on November 12, with a capital of £100,000, in £1 shares. Its objects are to carry on any business, or operations, connected with the business of providers of entertainment and cinematograph pictures, etc. The signatories are: R. L. Jupp, 101, Jermyn Street, S.W.; W. W. Cresswell and J. W. Lovett, both of 9, Quality Court, Chancery Lane, W.C.; A. Meares Willows, Whitchurch, Glamorgan; L. Davis, 13, Berners Street, W.; W. H. Cresswell, 80, Station Road, Barnes; and R. J. Norbury, 11, Frobisher Road, Hornsey. Directors: Sir William H. Bass, Bart., Byrkley Lodge, Burton-on-Trent (chairman); J. J. Newbould, Tatenhill, Burton-on-Trent; and R. T. Jupp, 101, Jermyn Street, S.W.

News and Notes.

DECORATIVE PHOTOGRAPHS.—A number of specimens of a process for producing coloured photographs on glass, into which a further local embellishment with mother-of-pearl can be introduced, have been sent to us by the inventor, Herr P. S. Wolff, of Munich. The process is applicable to making highly decorated views, etc., and we understand that the inventor is open to introduce it to firms in this country.

PRESS PHOTOGRAPHY.—Messrs. Gallichan and Gasquoine, established as Press agents in the heart of printers' land at 188, Strand, London, W.C., send us their prospectus of terms for placing photographs, etc., with the illustrated Press. Messrs. Gallichan and Gasquoine are conveniently situated for showing work to the daily and weekly Press, and photographers in the provinces and abroad may be glad to make a note of their address.

R.P.S. MEETINGS.—The Council of the Royal Photographic Society has been requested to hold one meeting in each month at an earlier hour than in the past. Members who desire such a change to be made are requested to send post-cards to the Secretary to that effect, and to state whether they would prefer the meeting to be held at 5.30, or at 7 p.m. Those who prefer that the hour of meeting should be at 8 p.m. are also requested to state their views. So far, very few expressions of opinion on the subject have been received.

GLASGOW PHOTOGRAPHIC ART CIRCLE.—The Circle at its last meeting had a novel subject—viz., a criticism of prints (by well-known workers), belonging to Mr. J. M. Whitehead. The portfolio contained fifty-four prints, including the work of Mrs. Barton, Mrs. Cottam, Miss Warburg, Messrs. S. G. Kimber, C. F. Inston, Arthur Marshall, L. J. Steele, Dan Filshill, Charles Gaitley, W. R. Bland, H. Y. Simmons, Harry Lindoe, W. G. Clark, etc. Mr. Archibald Cochrane was critic, and treated each print individually, pointing out its strong and weak points. He opened his remarks by stating that it might seem somewhat presumptuous to criticise pictures, some with a dozen awards noted down on the back of them, but it was education that was desired, and he would criticise from as broad a standpoint of sympathy as possible. If they were all going out to

seek for pictures they would not all see the same beauty. One might set up his camera at what he considered the best the district afforded, while another would pass on; the first worker might know to leave out the hurtful features, while another worker would try from another standpoint. His aim was to get them to see that any suggestion made was an improvement; that was the most that could be expected.

A NICE HOBBY IF—!—We quote the following paragraph from a provincial paper, for obvious reasons suppressing the name of the gas-employee who finds photography "a nice hobby if you make it pay":—One of the workmen of the gas company (Mr. ———, of ———) has attained such skill in amateur photography that his employers on Wednesday last honoured him with the commission to do all the photographic work in connection with the inauguration of the new purifying plant. Photography has been a profitable hobby with Mr. ——— for several years. He makes most of his apparatus, and he uses a little bedroom as a dark-room. Mr. ———, who has been employed at the gas-works for about fourteen years, has done exceedingly good work, as his large stock of photographs shows. These include wedding groups, flowers, street scenes, flower gardens, etc., one of the photographs being that of a fellow-workman, Mr. ———, in his wonderful chrysanthemum garden at ———. "Photography is a nice hobby so long as you make it pay," said Mr. ——— yesterday. "I could not afford to carry it on unless I made it pay." The fact that he makes it pay is proof of the excellence of his work, in which he receives every encouragement from his employers.

A PHOTOGRAPHIC DETECTOR.—In our issue of November 12, under "Patent News," we mentioned an application by Mrs. Rose Stevens, of 25, Church Stile, Rochdale, for a patent respecting a "Photographic Detector." This lady now sends us the following particulars. The invention is for obtaining the portraits of persons requesting banks and large public buildings so as to provide a clue in case of fraud and burglary. The system is the combination of a balanced mat connected with a camera in such a manner as to be put in operation by a person treading upon the mat.

Correspondence.

- Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.
- We do not undertake responsibility for the opinions expressed by our correspondents.

POSITIVES DIRECT.

To the Editors.

Gentlemen,—The process to which you refer under the above heading was suggested by Professor Corsi, according to Woodbury's Encyclopædic Dictionary of Photography, 1896, p. 141, and the instructions are to immerse in an acidified bichromate solution till the image turns red, then in three successive baths of chrome alum and boric acid, and dissolve the chromate of silver by potassium bromide and hydrate and then develop. Obviously some one has blundered, and the process hardly possesses even the merits of novelty.

E. J. WALL

November 20, 1909.

CONCENTRATED SINGLE SOLUTION M.Q. DEVELOPER.

To the Editors.

Gentlemen,—In formula for a concentrated No. 2 developer in this week's "B. J.," the water is given as 24 ozs.; it should be only 4 ozs. so, in par giving the strength of developer per oz., it will contain 6 grs. of soda sulphite and not 2 grs. as stated. This second mistake is of course, not yours, as it is a misprint in "The Photographic Manual."—Yours faithfully,

R. L. BOYD.

10, Annesley Park, Rathmines, Dublin,
November 20, 1909.

STEREOSCOPIC PORTRAITURE.

To the Editors.

Gentlemen,—I wish to remark, in reference to the article on this subject in last week's "B. J.," that while the plane portraiture depends largely on tonality, or contrast in obtaining the relief of the subject from the background, stereo work has this effect binocularly, and uses the lighting of the subject or sitter to obtain roundness solely. To make my meaning clear, let me say that most

backgrounds are painted so that in a portrait the lighted side of the head is contrasted against a dark portion, and the shadow side is similarly relieved by a lighter tone in background. This, to emphasise certain important characteristic outlines, but the stereoscopic artist abhors painted backgrounds, as both unsatisfactory and belittling his work, and he, in order to obtain in a more natural manner the relief effect, looks around for materials for backgrounds among common-place articles, of which there are many cheap enough (like the built-up window or panelling) now on the market. For my own part, I wish manufacturers would turn attention to the once popular "Alto Relievo Ground," as I find them excellent for stereoscopic portraiture. Plain ground are no use for this class of work, as the eyes when "seeing round" the sitter must have some pattern, object, or moulded form to mask the spot it covers on the background, otherwise there is no relief effect, and for this reason cloud grounds are scarcely better. A capital background may be constructed by a wood trellis, covered as to taste with entwined artificial flowers, and if the question of cost is great, wall-papers of tasteful design stand forward as eminently suitable—different patterns to be chosen to suit each class of subject. Six would be a complete assortment for any studio. Next in importance to a suitable background, is the placing of accessories midway between sitter and the background. These should be used to show the amount of perspective desired, but should be subordinate to the subject or motif expressed. Chair backs, palms, table tops, pedestals, or, in genre group work, other figures may be thrown out of focus as accessory to the main theme. For example, if the subject is a street flower-girl, what would be more natural and unobtrusive than passers-by shown in less relief between subject and distance. Again, great care must be observed in the disposition of the arrangement of accessories in front of the sitter. They must be usual, and tend to lead the eye to the chief portion of the picture without attracting attention solely to itself. Few appreciate more fully the high standard of Mr. Elwin S. Neame's work in plane photography, and I believe that, after the style of the late Lord Leighton, he values beauty of outline as of primary importance. I would feel gratified to find him give expression to his talents by modern stereoscopy. Now, as to size of picture. I don't see that large work is necessary, as a 3in. picture, 9in. from the eyes, might appear as a 300ft. arena at 100 yards' perspective distance, providing the work is accurately carried out by an educated, up-to-date stereoscopist who possesses some of the spirit of Michael Angelo, who, when his friends asked him why he scraped and examined a rough block of marble, said, "I see an angel in it, and I must release him"—and he did.—Yours faithfully,

9, Mary Street, Dublin.

GILBERT DYAS.

BRITISH TRADE WITH PERSIA.—In competing with Russia for Persian trade Great Britain labours under serious disadvantages. The north of Persia, which contains more than one-half of the entire population of the country, produces such valuable products as cotton, dried fruits, hides, and precious stones, and manufactures such goods as carpets, and cotton and silk tissues, all of which are suitable for export to the protected market of Russia. In other words, the trade is reciprocal. The geographical position, too, is very favourable for Russia. A merchant trading with the United Kingdom or India can only turn over his money once in the year, as against five or six times in the case of merchants dealing with Russia. The fact that British goods are still imported is either due to their great excellence or to the fact that Russia cannot produce the articles. Another factor of Russian success, as Major Sykes. His Majesty's Consul-General for Khorasan points out (No. 4,376 Annual Series), is the transport company, which is ready to book an order on a Russian firm if 10 per cent. of the value be paid on account, although for breakable articles 50 per cent. is required. By the contract, the purchaser agrees to pay the balance in two or three months' time—i.e., upon the arrival of the goods. If, however, he fails to pay, he is charged interest at 8 per cent., and the goods are released as he pays for 55 per cent. of the value of his consignment in cash, on which advance he also pays 8 per cent. interest. All carriage is paid by the consignee, and everything is insured by the purchaser at 1 per cent. Major Sykes considers this system admirably adapted for Persia, where merchants trade on very small capital, and urges that it is worth being carefully studied, and perhaps imitated, by British traders.

Answers to Correspondents.

- ** All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.**
- ** Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.**
- ** Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.**
- ** For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.**

PHOTOGRAPHS REGISTERED:—

- F. Burton, 13, Preston New Road, Blackburn. *Photograph of a Combined Photograph and Drawing of a placed Group of the Blackburn Rovers.*
- Leo. Legge & Co., 12, Grainger Street, Newcastle-on-Tyne. *Three Photographs of Richard Collins, Bishop of Hexham.*
- W. A. Singleton, 23A, Victoria Chambers, Knowsley Street, Bolton. *Photograph, Laying Foundation Stone of Astley Bridge Library, November 3, 1909.*
- R. T. Watson, 70, Anlaby Road, Hull. *Photograph, Group of Sergeants 5th Batt'n East Yorkshire Regiment (Territorials).*

TWO-COLOUR OIL PROCESS.—I should be much obliged to you if you could give me some particulars of the oil pigment process in two colours—for instance, a slightly different colour for the sky in a landscape (sunset) or for the figure in a portrait—what colours to use. Is there any indication in a book on the subject?—C. G.

No book has been published on this special branch. So far, oil-prints in colours have not been successful. The most pleasing have been the portraits done in colour-inks and shown by Mr. F. C. Tilney at the last P.P.S. Exhibition. All these were kept in light tones. Multicolour oils in full dark tones have so far proved very incongruous. The technique is the same as the ordinary (monochrome) process. A considerable range of colour inks are supplied by Jas. A. Sinclair, Ltd, 54, Haymarket, London, S.W.

COMBINED BATH.—I am using a combined toning bath composed of the following ingredients:—

Sulphocyanide of ammonia	7 drs.
Citric acid	2 drs.
Sugar of lead	3 drs.
Alum	2 drs.
Hypo	9 ozs.
Gold chloride	15 grs.
Water	40 ozs.

I should be glad to know if you consider P.O.P. prints toned in that bath are permanent. I might add after toning I fix in hypo bath, 3oz. to one pint, for about ten minutes.—COMBINED (Jersey).

We must say that we prefer, for the sake of more permanent results, a bath of the alkaline type or one, at any rate, without acid—as given on page 760 of the forthcoming "Almanac"—but we recognise that these will not give sufficiently cold tones with all papers. Provided that your formula is not used when exhausted of gold, it should give satisfactory results, particularly with the after-fixing, which is a good plan. We should advise replenishing the bath with gold according to the prints toned—say, 3 to 4 grains of gold for each sheet of paper.

PENNY PHOTOGRAPHS.—I should be obliged if you could tell me the process for taking sitters direct on to paper, as I believe this is the way that the penny photograph game is worked, and I should like to know, if you could possibly tell me.—OLD PRO.

So far as we know no process of taking direct on to the bromide paper is worked. The exposures are made on dry plates, and printed on bromide paper.

TUBE CINEMATOGRAPH.—I was much interested in your note about the Tube Railway, for I had often talked about its possibility as a cinematograph, and been told that it would add a new horror to travelling. My idea was to have enlarged biograph pictures fixed on the wall of the Tube alternately with black spaces of

the same size, and the light from the carriage as it passes would supply the illumination. As all my knowledge of kinematograph projection was gained at shows before the C.C. shut them in fireproof boxes I imagined that the black spaces would serve the same purpose that the string that used to revolve in front of the lantern did, and I am curious to know whether you think any way would not give just as good a result as the elaborate one you describe.—C. B. S.

We quite agree that the idea is likely to add a new terror to travelling if it is ever carried out. We do not think your idea would work, as each picture would be visible for so long that the movement would destroy the effect.

W. BOOTH.—You would find the *f*/6.8 lens better for all-round work. The other is not much used now on account of the care and shading needed when using it against a strong light, in consequence of the many glasses. The *f*/5 lens will not be quite as much more rapid than the *f*/6.8 as would be thought from the respective aperture numbers, owing to this same cause.

COPYRIGHT.—I see by your reply to my query that you have misunderstood me, so I will give you the facts in full. For the last two or three years I have been taking negatives of local buildings and country scenes for picture postcards to sell in my shop, and a printer a few doors below me has bought the best of my views and reproduced them, and is selling them at half price, and it has completely destroyed my sale. What I wish to know is, if there is any way to prevent him reproducing my views? I wish you to understand that my negs. are not copyright.—A READER OF "JOURNAL."

If you wish to stop the infringements you must register the copyrights in your views, or, say, in twenty of them. You can then stop further sales. Your best plan will be to register, and then employ a solicitor to write the printer, asking him what he proposes doing.

J. P. O'HEA, H. M. S., and others.—In our next.

A. GEO. B.—If you cannot obtain sharp focus at *f*/6 it is evident the lens is suffering from spherical aberration. If this is the case, the use of the smaller stop is the only remedy.

RE-SITINGS.—After some years' practice as an amateur, I have started a studio in this town as a professional. I find the sitters are very troublesome, as so many want re-sittings, although the photographs are excellent. When I ask for extra payment for taking again they grumble and say they will not pay for it. I shall be obliged if you will be good enough to tell me what is the general rule amongst professionals with regard to re-sittings when the photograph is really good and it is only the expression or the pose that is not liked by the customer?—PROFESSIONAL BEGINNER.

We see by your memo. heading that "a satisfactory likeness guaranteed." In face of that you cannot expect your sitters to pay for re-sittings if the portrait is not satisfactory. As a rule the better class portraitists are only too pleased to give a re-sitting when a portrait is not liked, their object being to please the sitters under all circumstances and so increase their business. You will do well to do the same. As you say "so many" of your sitters complain of their portraits it would seem that you are not sufficiently experienced in studio work.

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SUMMARY.

Mr. Welborne Piper describes a method of producing positives rect by a process of reversal depending on phosphorescence which as being worked out by the late Mr. Douglas Carnegie at the time of his death. (P. 932.)

We draw attention again to the fallacies involved in suggested methods of obtaining colour effects by combination of the two prints each differently coloured) of a stereoscopic pair. (P. 929.)

One of the most painful tragedies in which photography has played a part occurred at Portsmouth on Tuesday last. (P. 941.)

Colour screen-plates, cameras for full-size focussing, and diaphragm shutters figure under "Patents of the Week." (P. 936.)

A paper read before an American professional photographers' meeting dwells upon a number of the factors in a studio's commercial prosperity. (P. 933.)

"The Selection of Originals for Press Illustrations," "The Reduction of Pencil Drawings, etc.," are topics treated under "Photo-Mechanical Notes." (P. 934.)

An exhibition of oil and bromoil prints is now open at the Sinclair Gallery, Haymarket, S.W. (P. 935.)

Further steps are being taken towards establishing a camera club in London. (P. 941.)

"Dum" photographs. (P. 940.)

Mr. W. Gamble, in a letter on page 942, sends us documents showing that the idea of the production of animated photographs of a tube railway was suggested by a photo-engraver in Rotterdam some months ago.

"COLOUR PHOTOGRAPHY" SUPPLEMENT.

Mr. Colin N. Bennett contributes an article dealing with the adjustment of the compensating filter to the "Thames" plate. (P. 89.)

Herr E. Valenta has examined a large number of dyes with a view to their suitability for three-colour inks. The results are given in an article on page 92.

M. V. Cremier has published one or two useful notes on the uses of the defects most usually met with by beginners with the autochrome process. (P. 94.)

M. Francis Sforza, in a letter on page 95, criticises the use of the ferric bichromate method for dealing with subjects of extreme contrasts when making Autochromes.

Professor R. Namias has made further experiments in the use of iron compounds in the so-called "Diachrome" process, and has discovered a simplified method of obtaining three-colour transparencies by this means. (P. 91.)

EX CATHEDRA.

The Contents of the 1910 Almanac.

As has been already announced in advertisements of the Almanac, the general arrangement of the volume remains unchanged. It is hoped that the section "Epitome of Progress," which during the past few years has become a highly appreciated feature of the book, is this year still more useful from the fact that each item in it is somewhat more fully dealt with than previously. It has been thought that, particularly to readers in distant parts of the world, an abstract of any paper which has been published during the year should give every necessary detail as far as possible, and in this respect it is believed that the epitome of the progress recorded in 1909 will be found of greater practical usefulness than hitherto. The reviews of new apparatus have run to a somewhat greater length, though it cannot be said that they embody descriptions of many articles which represent radical developments in apparatus. As in last year's issue, the Index to Goods Advertised, which occupies the last seven pages of the book, will, it is hoped, prove an actual shop-window of the photographic trade, inasmuch as it provides a rapid reference to the enormous variety of materials and apparatus offered for sale in the Almanac.

* * *

A Binocular Fallacy.

We have been struck of late by the persistence with which the old myth with regard to the combination of colours by binocular vision holds its ground. Long ago it was demolished by Du Tour and by Wheatstone, but it is now revived and actually made to serve as the basis of methods of producing stereoscopic photographs in natural colours. The ignorance which prevails on the subject is evidenced by the fact that in one projected process the colours are assumed to combine additively, while in another they have to combine on subtractive principles. Both cannot be right, while it is quite clear to anyone who has experimented with the binocular combination of colours that actually both are wrong. The result is not a mixture of the two colours, but confusion. If, for example, one image is red and the other blue in a stereoscopic slide we may intermittently see a violet image, but in between whiles we shall see alternating blue and red images. If, as an alternative experiment, we view a white object through blue and red glasses we get very similarly changing effects, with the difference that the colours are so feeble as to look almost like neutral tints. One explanation of these variable phenomena is that the eyes always see alternately. This was advanced by Du Tour and a few others, but it is hardly a proved fact. Another suggestion is that the changes are due to non-coincident after-images, but this again is hardly feasible. Possibly the simplest and truest explanation is that our eyes are not constructed for the purpose of combining

colours in this fashion. We know that if red and blue together strike one retinal unit in the eye, we get the sensation of violet, but there is no warrant for assuming that when red meets one retinal unit in one eye and blue a corresponding unit in the other, that we shall again get a sensation of violet. Theory has not a scrap of evidence to suggest that we should do so, while practice proves that we only do so occasionally and by a kind of fluke. The neglect of both theory and practice must surely be responsible for these suggested colour processes. It is interesting to note that we meet with a similar visual breakdown when we try to combine two quite dissimilar monochrome images. Even when they are simple regular line patterns we do not see the two combined to form a more complex regular pattern. All we see is sometimes one pattern and sometimes the other, while these appearances alternate with glimpses of what appear to be broken bits of each pattern. Wheatstone attempted an explanation which practically amounts to suggesting that the brain is inattentive to intelligence sent to it through the eyes when the two eyes simultaneously tell quite different tales. When we meet with two witnesses who spin quite different yarns and both talk at the same time, the only thing to be done is to separate them and make each tell his tale by himself, and it is quite reasonable to assume that this is what the brain does when its scouts, the eyes, contradict one another. It then studies the subject through the medium of each eye alternately until some general idea is obtained.

* * *

The Illustrated Press.

Mr. Thorne Baker, in replying to the discussion which arose out of his paper on photo-telegraphy at the Society of Arts last week, made one statement with which we are in hearty agreement. Speaking of the choice between drawings and photographs for the illustrated press, he said, in regard to the latter, that the demand was "extraordinary." It must be, if the British public obtains any satisfaction other than amusement in the reproductions of events which appear in the halfpenny daily press. The other week, in the "Daily Mirror," we saw a photograph alleged to be—and we have no reason to question the correctness of the allegation—of Mr. Snowden Ward opening a bazaar. If it had been described as Rip van Winkle or the Apostle Paul it would have given us less surprise. And this, of course, was not a telegraphed picture, some of which latter, if we may judge from a page of reproductions, which we see in a daily paper, might form the basis for an interesting guessing competition. We were glad to hear that Sir Henry Trueman Wood expressed his scepticism of the practical service of the telegraphic transmission of photographs.

* * *

The Johannesburg Photographic Art Circle.

The above society, which was formed in January of the present year for the furtherance of pictorial photography in South Africa, held its first annual exhibition in the picture gallery of the Transvaal University College from November 1 to 6. The exhibits consisted entirely of South African work, the major portion being contributed by photographers in Johannesburg, though Cape Town, Pretoria, Greytown, and other places were also represented. The labours of the selecting committee resulted in the hanging of seventy-eight pictures, very varied in subject and in methods of treatment, and—in the majority of cases, at any rate—giving evidence of care and artistic feeling on the part of the authors in the selection of the subjects, and skill in the manipulation of the various processes by which each attained his final result. No awards were offered, and the pictures were effectively hung in panels, the whole forming an attractive display

which drew a large attendance of the general public, who testified their appreciation of the pictorial character and artistic display of the photographs submitted for their inspection. The promoters of the exhibition, and Mr. Harold Smith, the secretary, should feel encouraged by the success of their first effort to raise the standard of photographic exhibitions in South Africa, to look forward with confidence to much greater advances in this direction in 1910.

* * *

"Dum" Photographs. When is a photograph not a photograph? The answer is, when it is a "dum," photograph, which word, we would say at once, is not a misprint for another differing from it only by a single vowel. At the Leicester Police Court last week a photographer was charged for receiving sums of money from persons on account of photographs of themselves or their houses of which he is alleged to have promised delivery. According to the report, which we reprint in another column, the entry "dum" made in a notebook was explained in court to refer to the fact that, in these cases, no exposure had been made. Another instance of commercial candour.

* * *

Percentage Solutions. The old question of percentage solutions is revived in a contemporary, and we are surprised to see that a querist is told that he may safely take grains as corresponding with minims, and ounces with fluid ounces. He may perhaps do so with safety so far as most photographic operations are concerned, but it would be just as well to let him know that if he takes grains as corresponding with minims, he gets a stronger solution than when he takes ounces only. In fact, ten ounces of ten per cent. solution made up by the first method will contain 42 grains more of the solid than ten ounces made up by the second method. There is no equivalence between the grain and the minim, and solutions made up with these units should not be styled percentage solutions at all, but be described under the system of so many grains per ounce. This is a highly convenient system in use, but only confusion results when it is mixed up with the percentage system in which the gramme and cubic centimetre or the ounce and fluid ounce are the units employed.



A SUGGESTED METHOD OF MEASURING VARIATIONS IN THE "RAPIDITY" OF LENSES DUE TO REFLECTION FROM THE GLASSES.

MR. THOMAS BOLAS, in one of our contemporaries, calls attention to the importance of not neglecting what he calls the "lens factor" when estimating the relative rapidity of different objectives: that is to say, the fact that light is lost by reflection and by absorption during its passage through a lens is one that should not be forgotten. The writer quotes what he describes as an "unwritten custom" among working opticians to allow 5 per cent. for the loss by reflection from each air surface of the lens. This rule, however, takes no account of the absorption of the glass with which the lens is constructed, and it is also clear that it cannot be correct to make the same allowance for each surface, for a great deal depends on the form of the surface. If, for example, divergent light falls on a convex reflecting surface the loss by reflection must be greater than when a similar pencil of light meets a concave surface. A good deal depends on the arrangement of the lens surfaces, and by bearing this point in mind the designer can sometimes gain a little in rapidity. The absorption of light by the glass is also not a negligible matter, even in new lenses, for this factor varies with

the thickness of the glass used, and to some extent with its composition. Here again we have a variable factor that cannot well be estimated, and it is evident that what is wanted is a system of measurement. It has occurred to us that such a measurement might well be carried out at the same time that the aperture of the lens is measured. Suppose we are measuring the aperture by the well-known method that involves placing a brightly illuminated pinhole at the principal focus of the lens. If we place a dry-plate against the lens-hood and expose for a short time, development gives a circular dark patch, the density of which, measured in a photometer, must record the relative power of the light reaching the plate. If we now assume the lens to neither absorb nor reflect any light, it seems evident that the intensity of the light reaching the plate should be exactly the same as that of the light which reaches the entrance pupil of the lens; therefore, if we remove the lens, place a plate in the position of the entrance pupil, and expose for the same time to the same illuminated pinhole, we should get a patch of equal density, while any difference in density should afford a measure of the loss of light due to reflection and absorption. Such a test would not be difficult to arrange, and the results of a series of tests with different lenses should give some valuable positive information to replace the speculations upon which we now rely so much.

OUTDOOR WINTER EFFECTS IN THE STUDIO.

If weather prophets were to be relied upon, we are to have a long and severe winter. But all of us have heard prophecies with regard to weather, and know full well that they are not to be relied upon, and possibly this may prove to be the case in the present instance. Anyhow, what we have experienced so early in the season, should continue through the next three or four months, will mean a very long winter, and by no means a profitable one with most photographers. We recently gave some practical hints as to how some of the inconveniences sometimes experienced in the practice of photography may be avoided, or, if not entirely avoided, at least reduced to a minimum. Although during the past decade or so this country has not experienced what some call a "good old-fashioned winter," many of us will not at all regret such a season, particularly were it of very long duration. In some countries where winters are long and severe portraitists turn them to a fairly good account by making a feature of producing portraits in the studio depicting wintry aspects out of doors. For this purpose special backgrounds are painted representing snow-clad scenes; the accessories also are covered with apparent snow, and the effect is enhanced by apparent snow falling on and about the figure.

The object of the present article is to point out how a realistic winter scene may be arranged in the studio by the photographer himself, with but little trouble, and at the most trivial outlay. Even though little direct business accrues, specimens taken under extreme wintry conditions would prove attractive in showcases or windows, and thus form a good advertisement. We have more than once felt upon the subject that the specimens exhibited should be always in unison with the season: in winter particularly it is desirable that those shown should be in accord with winter, and under wintry aspects.

There are few portrait photographers who are not in possession of one or more outdoor backgrounds, and one of these, although it may represent a summer scene, can easily be converted into a winter one to serve our present purpose quite well. If it is an old and otherwise useless one, it will answer whether it be in flatted oil or distemper.

In the first place, we take a white pastel or crayon, or even a lump of chalk, and whiten over those parts of the scene upon which falling snow would settle were the scene a natural one—such as on the branches of trees, the tops of buildings, ruins, and the like. A mere more or less broad line only is necessary, as its sharp outline may be softened off by rubbing it over with a piece of rag folded up and used as a stump, or even with the finger. If the background is a very bright and sunny one, it may be advantageous to subdue some of the brightest portions with grey or even black pastel in the same way, so as to destroy some of the brightest effects. The work need only be roughly done, as, the background being out of focus, the roughness will not show in the picture. If the work is done on a flatted oil background it can be cleaned off at any time with a damp sponge, when it will be as good as ever for future use. If, however, it is a distemper one, the case is different, as then the chalk cannot be removed completely.

The background itself being finished, we next turn our attention to the accessories, and here it goes without saying that they must be outdoor ones, such as rustic seats, stiles, balustrades, rockwork, and similar things that are to be seen in most studios. The tops should be whitened to resemble settled snow. Instead of chalking them over, a better and more natural appearance is obtained by covering the tops with cotton wool. At linendrapers' shops is sold sheet wadding, about a yard wide, at a few pence a yard. This material is really better for the purpose than the cotton-wool, and has the further advantage that it is very much cheaper. Added to that, it can be cut to size with scissors and secured in position by drawing-pins or tacks.

This part of the work having been done, we get a very fair representation of an outdoor winter scene. But it will be obvious to everyone that we must not stop here: the arrangements are not yet complete, for it is clear that all this snow-like appearance could not exist unless the ground was also covered with snow. All that has to be further done is to cover over the portion of the floor where the sitter is posed with the sheet wadding. Two kinds of this material are sold at the draper's, the bleached and the unbleached. The latter is to be preferred for the floor, as it has not the glaring whiteness of the former, and for this reason is not so trying to the eyes of sitters, and it is not so likely to interfere with the lighting of the model. In this simple way it is a very easy matter to arrange in the studio a scene that will convey a good idea of an outdoor one under severe winter conditions.

In some portraits we have seen done in Canada, and also in Russia, the wintry effects have been further enhanced by a representation of snow falling on and around the figure, but not before the face of the sitter. This, of course, makes the picture look incongruous in the extreme. This glaring incongruity may, however, be avoided, whilst still preserving the face, by getting the model to hold a small umbrella in a position which would be adopted in shielding the head from falling snow. The umbrella used for the purpose should have some of the sheet wadding stitched upon it. The whole thing would then appear fairly natural.

We will now add a few words to say how the falling snow effect is obtained. It is done by spraying, or splashing, over the negative with an opaque pigment—say flake white. The usual method is to grind up the colour with water and to just touch the tips of the bristles of a tooth-brush on the colour. Then, holding the brush at some little distance from the negative, the back of a knife is passed over the bristles so as to flick the colour over the film. The uneven splashes produced in this way will give a very good idea of the varying size of flakes of falling snow. The colour may be wiped off from the face, which will then be left

unobscured. It is a good plan, it may be mentioned, to varnish the negative before the spraying is done, as then it can more easily be removed, if not satisfactory, than if it were unvarnished. The above is penned to point out how easily what is not an actual new thing may be of service as a novelty in the way of a seasonable attraction in showcases or windows, and may prove a good advertisement to the photographer. Though not in any sense a novelty—the idea and methods may be said to be

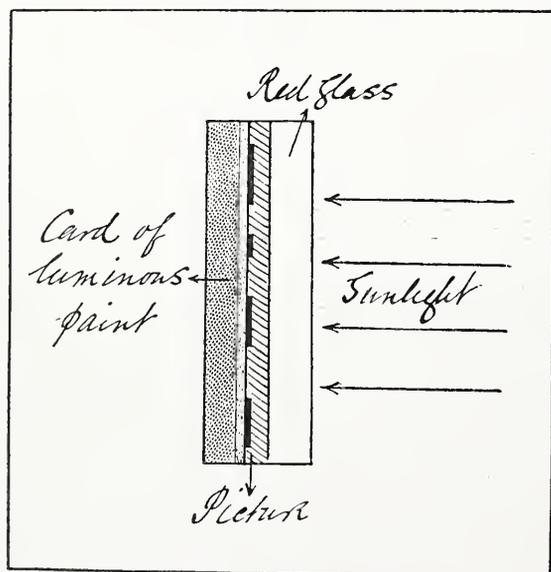
so old as to have become, in the cycles of time, new again—in studios which are engaged chiefly in middle-class business it may be employed with advantage in interesting customers in a photographer's work. The exhibition of specimens of Christmas and New Year's greeting portraits, taken with winter surroundings, would doubtless prove a remunerative line in many places, seeing that they can be produced with so little trouble, and for so trivial an outlay in the first instance.

MR. DOUGLAS CARNEGIE'S LAST PROCESS OF REVERSAL.

SEVERAL methods of producing negatives from negatives or positives from positives have been described in this journal by the late Mr. Douglas Carnegie (see "B.J.," October 23, 1908, and July 9, 1909), all of which methods depended on chemical "reversing" processes. A short time ago, however, Carnegie gave much time to the study of another method of reversal not dependent on chemical processes at all, and he got on so well with it that he anticipated it would be a very useful method when all the details were perfected. Unfortunately, I am not in a position to give exact details of his method as he worked it, and I have not yet come across any written notes on the subject. I have, however, found some of the materials he used experimentally, and have tried the process as I remember it to have been described by him, and the first attempt certainly indicates that it is a very promising one. The following is a brief description of the principles upon which it depends.

Reversal by Phosphorescence.

If we take a slab that has been coated with a variety of luminous paint, keep it in the dark long enough to render it



quite inert, and then expose it to a strong light behind an ordinary negative, the result is, of course, a luminous negative image that can be seen quite distinctly in the dark. If we place this luminous negative image in close contact with an unexposed dry plate or piece of bromide paper, it produces a latent positive image, which we can develop, the result being the same as if we had made a print direct from the original

negative. Obviously such a process of printing has no advantages, but by a very simple modification we can produce a reversed luminous image which will yield a negative instead of a positive result. To do this we vary the procedure as follows:—Take the luminous slab and expose it to strong sunlight or to magnesium until it glows brilliantly when examined in a dark-room. Then place it behind a negative, just as in the previous method, and expose to red light. The red light destroys or reverses the effect of the preliminary exposure, and so the transparent parts of the negative become represented by dark places on the luminous surface, and we have this time a luminous *positive* image instead of a negative. When this is placed in contact with a sensitive film a negative is, of course, produced, and so we obtain the reversed result required.

The Method and its Present Drawbacks.

Mr. Carnegie apparently used a piece of ground ruby glass placed in the printing-frame for making the second exposure. This red glass was inserted first, then the negative, film side up, and finally the excited luminous slab. How long he exposed I do not know, but in my test I exposed to about a foot of magnesium for the second exposure, and finally left the new plate in contact with the slab for one minute. The result was fairly good as regards exposure, but showed a coarse grain that was not visible at all in any of the results that Mr. Carnegie himself had shown me. This coarse grain was evidently due to the fact that I had used the wrong luminous slab. Its surface was rough, and among the several slabs found, there are finer ones, which will no doubt work better. But I have not found a perfect one, and I understood that Carnegie had great difficulty in producing a good surface, and an even greater difficulty in finding a perfectly suitable material for it. If the details of this work are not found, it will be necessary to re-work out the process before results like his can be attained, but, judging from those he possessed, it will be quite worthwhile to undertake this work.

How far the process may be considered new I am uncertain. I was not previously aware of the fact that red light destroys the luminosity, and was surprised to find it act as rapidly and completely as it does. The discovery of this reversing action may or may not be his, but in any case I believe no one else has hitherto taken advantage of the phenomenon for the purpose of producing reversed photographic images.

The diagram is reproduced from one found among the materials, and it illustrates well the method of working the process.

C. WELBORNE PIPER.

ENSIGN COMPETITION.—Mr. Chas. H. Coulton, 111, Oxford Street, London, W., is the winner of the "Ensign" Roll Film Competition for November. Houghtons Limited offer a Three-Guinea Camera

every month for the best negative on "Ensign" Film. The entries close on the 3rd of the month. Entrance is free, and a competition form is enclosed with every spool of "Ensign" Film.

PROFIT AND LOSS.

(A Paper read before the Nebraska Photographers' Association.)

In treating the subject assigned me by our president, I feel incompetent, indeed, for its vastness covers more than the experience and observation of any one man.

It is a problem in which we are all interested, whether located in the heart of a great commercial centre or in the smallest hamlet of Nebraska. If we cannot realise a profit from our labours, work soon becomes a drudgery, and an unhappy, discontented existence follows. There are, therefore, some fundamental principles which must be applied in every case.

Statistics show that 95 per cent. of all business men meet either partial failure or total loss. I am convinced that this statement is true.

How few men are in business, for instance, in Lincoln to-day who were the bone and sinew of the commercial Lincoln twenty-five, yes, twenty, years ago? There is a reason for this, and no doubt every business man sometimes attempts to solve the problem and stem the tide that is defeating the vast majority.

No man cares to continue long in a business where profit does not exist. I want to repeat what I have said before from this platform, that the accumulation of a competency for old age is of the most vital importance to practical men, and all lines of progress should be founded on practical principles. Men have been and are accumulating profits sufficient to establish homes and provide the luxuries of life for their families out of the photograph business. The man who cannot do this has no right to remain in the profession, for every man is entitled to a competency for his labours. If he fails, in most cases he alone is to blame.

In our profession we find many who merely eke out an existence and live, metaphorically speaking, from hand to mouth. I believe you will agree with me when I say that these are not the men who attend our conventions. Therefore, the conclusion is that attendance at meetings of this kind is profitable financially as well as helpful from the artistic standpoint. The association, one with another, means more to us in the months following than appears during the few days we are together.

Many of us are not successful because we do not possess perseverance and are constantly changing from one location to another. Success does not come in a day, a month, or even a year, and only application and concentration of thought and energy will enable us to possess it. True, a sitting hen never gets fat, but she will have more to show for the sitting than she would if she changed nests every clear day.

Injudicious advertising enters largely into our failures. Advertise, a necessity, of course, but in a way that will dignify the profession and demand the respect of the appreciative public. Too many of us spend money in a way that is not worth the paper on which the contract is written, and wonder why we do not obtain results. A set of rules for advertising cannot be laid down, for conditions vary, and it is up to the individual to choose well the method best adapted to his locality and then study well the matter used.

We little realise how profitable is the proper care of our display medium. Herein the public judge, and judge wisely. Only a suggestion should be needed on this much-discussed subject, and yet look about you and see how shamefully we neglect the words of wisdom offered by every speaker and writer.

We fall far short of the many opportunities of increasing our profits by the failure to grasp the scope of our profession as applied to the desires and, in some measure, the necessities of the common people. I want to call attention to a few that stand out most prominently, and first the duplicate business.

The money lost in this one avenue of trade is appalling if not properly handled. Many men have no system for their negatives, and if able to fill an order it is only after much effort and loss of time. A system should be in vogue in every well-regulated studio which would enable anyone to turn at a moment's notice to the negative. Herein lies the velvet of our earnings and profit.

Reminding customers of the fact that their negative is about to be filed for storage, and a suggestion that it would be well to have additional prints made now, might bring in many a dollar that otherwise would not reach us.

Just a word to sitters who are tardy in ordering does much to hasten the completion of orders. We must not forget our own tendency to procrastinate, as well as our customers', for many of us are very negligent in finishing our orders. Herein is no small item of loss, for the sooner an order is completed the larger the duplicate business, and from this order and its influence many follow. I insist that, were it possible to complete an order the second day after the sitting, our business would be increased to double its capacity. We see this verified in the methods adopted by the postal card and view men who come into our towns and make pictures of school children and of business blocks. The speculative order is ready for delivery the next day, and you know the results. It is through these little things or the lack of them that losses creep in.

I have no doubt that many of us have parts of orders in our cases that should have been called for weeks ago, on which perhaps is a balance due. These delayed deliveries should be looked after as zealously as new business, and no apology is needed for sending them to their owners, with a statement of the balance still unpaid. Many a customer thinks because he has made a payment, and perhaps received one portrait, that he is relieved of any further obligation. I would rather have the entire order in the customer's hands than to hold it for a remittance. It is easier to collect the account.

This work naturally requires systematising, and should be under the direction of the receptionist. This brings to our attention the reception-room and its management. Too much cannot be said concerning the efficiency in this department, for herein lies one of the secrets of success.

The receptionist in a large degree is mediator between profit and loss. To those of us who are not making money enough, who economically are doing a fair business, but still are not laying aside anything for the future, I would say, "Raise our prices." We may say that we cannot get more, and I will answer, "If such is the case, our work is not worth more." We must make our work worth the advance before we can ask it. When we have achieved this the receptionist must be equal to every occasion; with enthusiasm bring the customer to a realisation of the true value of our product.

The first order from a sitting should be only the commencement of a profitable business with a customer. This is especially true in "child portraiture," where speculative enlargements, water-colours, etc., usually meet with lucrative returns.

I believe it would surprise us to learn what we are losing daily by failing to grasp this opportunity of increasing our business.

We all, no doubt, have moods when we vow we will cut down the number of exposures. Apparently, it would seem that here is an item where economy should be instituted, and yet, after all, if we are judicious, does not a number of proofs in the hands of this ideal receptionist really result in profit rather than loss?

The most natural place to look for loss is in the printing department, and there is no question that in the hands of careless workmen this is true. This being the case, it needs only a passing thought at this time, for we all are aware that if there is a department in the studio that requires thought, care, and skill, it is the printing room. Men who possess the qualities so necessary in the management of this important branch of our business are in demand.

"Economy of time." The ability of making our heads save our heels is a virtue we should all strive to possess, for by this means we will find great profit in saving throughout all the branches of our work.

The men who are ambitious for success are not looking the market over for cheap, inferior goods, but rather are searching for the best that money can procure. It does not always mean addition in profits to purchase an article because of its discount. It does, however, amount to a great deal if every legitimate discount is taken advantage of, and herein lies permanency of business success.

We are engaged in a business we should feel proud of, and by careful study along these business lines not only reap personally a financial standing in the community to which we belong, but assist in maintaining its advanced position in the business world.

ALVA C. TOWNSEND.

GOLFERS AND THE CINEMATOGRAPH.

(From the "Times.")

If the cinematograph ever comes to be sold at such a price as to be within the reach of the comparatively humble, there will doubtless be a great demand for it among the more theoretic of golfers, since one of the great difficulties in the curing of golfing diseases is the patient's inability to see himself as others see him. A looking-glass is better than nothing, but the player has to perform unnatural movements which rob his experiment of any great value. He has, in the first place, to stop at the top of his swing to look at himself, and in order to do that he must take his eye completely off the ball and almost inevitably move his head. Then, too, he can only observe himself at the top and at the end of his swing; he cannot stop his swing either half-way up or half-way down to see how its component parts are getting on; or at least he cannot do so with the faintest hope of reproducing his natural attitude. For these reasons a private cinematograph would not only be an engrossing toy but a useful adjunct to study for the golfing theorist. At the same time, while he would derive from it enormous pleasure, he would also suffer one bitter though salutary disappointment.

CHANGES OF "STYLE."

Nearly everyone has been heard to say at one time or another that he is "changing his style," and there are many who have, in their own imaginations, almost as many "styles" as there are days in the week. Yet, if we go out to play with one of these protean golfers, it is most probable that, even although he has explained to us the far-reaching nature of his latest reformation, we shall be utterly unable to detect the very slightest difference. The ball may fly better or worse than usual, but his characteristic appearance in striking it will seem to our unseeing eyes wholly unchanged. The curious part of it is that, though we laugh in our sleeve at the enthusiast's self-deception, we should be quite indignant if it was suggested that there was a similar beam in our own eye. It is the hardest thing in the world for the golfer to realise that he has a style of his own which to the eyes of others is definite and unchanging. It is the same difficulty which besets each one of us in realising that he has a characteristic walk or voice. When the average golfer makes that which he deems to be some improvement in his "style," he cannot but believe that he appears to his most familiar friends as a new and gloriously transformed creature, whereas those friends are, in fact, talking to each other of poor old So-and-So's extraordinary style, which they would know a mile away.

INDIVIDUAL FAULTS.

The cinematograph would show him to his face that which his friends are careful to say only behind his back. He would see that, in his hours of brightest triumph or blackest despair, there is practically no difference to be seen in that which is usually termed "style," except in the one essential of club and ball meeting at the right or wrong time. There would be, no doubt, a horrid shock of disappointment at first, but, if he were a wise man, he would thenceforward cease to agitate himself about his style, and confine his theories simply to his hitting method.

At the same time a minute investigation of "biographic" views of ourselves in the art of striking would, no doubt, reveal differences of method, not style, on different days, and would teach us another valuable lesson—namely, that our faults are less numerous and more persistent than we imagine. The golfer in his very early stages may miss the ball in a particular way from a great variety of causes, but the more mature player has nearly always one or two stereotyped vices into which he periodically relapses. Those who play with him often know these vices quite well; they will say to each other that So-and-So would be quite a good driver if it were not for that fatal habit of jumping in the middle of his swing. The man himself has a more or less hazy idea as to this besetting jump, but he does not properly appreciate it; he feels such an entirely different player in his different moods that he cannot believe that it is, in fact, the same old crime which is responsible for each new breakdown. A comparison of several different records of the cinematograph would let in upon his mind a flood of light. On seeing the presentment of his misfortunes unroll itself with sufficient slowness before him he would suddenly say to himself, "I am looking exactly like I did when I had that horrible fit of topping a year ago last Easter. I

cured that by keeping my head still; let me see if that will do any good this time." After this had happened several times he would begin dimly to understand that his one particular wickedness was the moving of his head, although it might disguise itself under a number of apparently different sensations. Thus, when things began to go wrong he would, instead of groping helplessly for a remedy, be able to attack the old trouble at once with an overwhelming balance of probability that it was also the new one.

Mr. Low has recorded that Mr. Tait, when putting badly, never asked what he was doing wrong, but merely whether he was moving his body, or not taking his club back straight. In the same way most golfers could reduce their sins to their lowest terms, to the great simplification of their cure, if only they could visualise exactly what they were doing. This lack of the power of visualising would be remedied by a series of moving pictures. To be followed round by his own cinematograph, a luxury now only within the reach of millionaires, would be destructive to the golfer's sense of humour, but might be intensely valuable towards the improvement of his game.

Photo-Mechanical Notes.

The Selection of Originals for Illustrated Papers.

On Thursday, November 18, at the L.C.C. School of Photo-Engraving, Mr. Arthur Johnson, the Art Editor of the "Tatler," delivered an address on the above subject, full of good practical points, and all of them copiously illustrated with actual examples.

He stated that the first thing to consider was the journal the work was to appear in. If it were a newspaper printed on a rotary press, such as a daily newspaper, something bolder, with interest concentrated on a central subject, should be offered, rather than the delicate picture full of detail with attractive background that could be accepted by the carefully printed high-class weekly. He said the sort of print preferred was a glossy bromide, but not too glossy, and the negative should be "pin-sharp," as there was certain to be some loss on reproduction. He showed how a flat picture was often much improved by reduction in size, and a contrasted picture improved by enlargement. Dealing with wash drawings, he said that generally the most successful were those made of pure wash alone, though many practised artists could use body colour successfully. Line work should be open, and all lines black on good white ground. Charcoal and chalk was frequently used now, sometimes reproduced as a line block, sometimes very effectively with half-tone screen. Slides were shown of various kinds of work, also many originals, together with their reproductions, which fully bore out the lecturer's remarks.

Duplex Half-tones.

We have recently seen in a little pamphlet, issued as an advertisement by a portrait photographer, some very good blocks in so far as richness of colour and relief were concerned, but the effect was somewhat marred by the pattern caused by the superposition of the two blocks. Why did not the block-maker use a Metzograph screen to make the negative for the tint plate? There would have been just as rich an effect, just as much relief, and no pattern at all to disturb the appreciation of the skilful block-making and printing, and, let us hope, portraiture.

Reproducing Faint Pencil Drawings.

A faint pencil drawing is one of the most troublesome pieces of work to reproduce by any process, by reason of the difficulty of securing a negative which will give a print showing all the detail of the drawing, and at the same time free from unevenness. The most practical way is to give a minimum of exposure, and develop only so as to obtain a negative that will give a print on a gaslight paper, and then work from this. Or a transparency can be made on a process plate and the screen negative made from this, if the reproduction is to be in half-tone. The contrast will probably be much exaggerated in this way, but it is only possible to secure the detail by exaggerating the contrast if printing is done in black ink; but if the printing is done in a grey ink instead of black, then a facsimile effect can be obtained. Some very useful reproduc-

ns of silverpoints, which are even more delicate than pencil drawings, have been made in the manner described above.

The Paynetype Process,

Mr. Arthur Payne has presented the set of stages of his process exhibited at the Royal Photographic Society's Exhibition to the Society, and he has presented the block of the first portrait from the direct on metal (from which we recently printed in these columns), and also an example of his line etching with copper deposited resist the L.C.C. School of Photo-Engraving.

PHOTO-MECHANICAL PATENTS.

The following patent has been applied for:—
PROCESS WORK.—No. 22,776. Process of making pictures. Saalburg.

Exhibitions.

LAND AND BROMOIL PRINTS AT THE SINCLAIR GALLERY.

The prints sent in to the recent competition organised by Messrs. James A. Sinclair and Co., Limited, are now being shown at this artist's establishment, 54, Haymarket, London, S.W., where they will remain on view until Wednesday next, December 8. They may be seen daily from 10 a.m. to 4 p.m., or until 1 p.m. on Saturday, admission being free. The collection runs to 84 prints, about equally divided between the oil and bromoil processes, and in every instance accompanied with the Sinclair permanent inks. With one exception all prints are all in monochrome, the only example (No. 22) in which multi-colour inking has been resorted to being that by John Tucker. "After the Shower, Bruges." We cannot say that this print shows any advance in the technique of multi-colour oil, the application of colour, in our judgment, altogether lacking congruity apart from the addition and degradation which, in the hands of most workers, appears to be inevitable to the multi-colour oil process where the artist is at a full scale of tones. In a number of instances there would seem to have been comparatively little attempt made at obtaining striking effects—that is to say, of using to the full the power which the oil process places in the worker's hands—and we must confess that these prints strike us as among the most pleasing and satisfying on the walls. An example of this reserve type of work is "Landscape" (No. 53), by R. C. Chapman, but other instances could be pointed

As examples of another kind of reserve—the refusal to pile on ink—we may mention one or two quite delightful prints all in light tones. These are "Betsy" (No. 16), by C. David Kay, and "The Shell Gatherers" (No. 28), by R. Lincoln Cocks. A criticism which has been levelled against both the oil and bromoil processes is that while it secures enormous advantages for the worker regarding control, it puts him at something of a disadvantage in the rendering of textures. In many of the prints to be seen at 54, Haymarket, this criticism may quite well be sustained. A few prints may be singled out to disprove it; for example, the flesh tints in "Ariana" (No. 3), by Bertram Park, are remarkably good, but among the prints as a whole we do not find such good rendering of texture as we should get, say, in an exhibition composed of carbon and platinotype prints. Perhaps the subjects in which the oil process shows itself supreme are those in which strong effects of light are still further heightened by the pigmenting brush. A very good example of this, though not of much pictorial interest otherwise, is "A Sunlit Court" (No. 32), by James C. Nunn. Another almost equally good, though perhaps lacking a little of the welcome warmth of No. 32, is "Sunlight" (No. 38), by C. David Kay. The former is by the oil and the latter by the bromoil process.

EDINBURGH MEMBERS' EXHIBITION.

On Saturday, following the precedent of last year, the members of the Edinburgh Photographic Society had an exhibition of their work in the Club Room, Castle Street, when 143 entries were forwarded. Landscape and seascape was the strongest class, the medalled pictures being all seascapes, two of the medals going to a Western member, who also gained the only two awarded in portraiture. Seascape and Seascape.—Medals: A. G. Watson (2), J. G. Angus, and W. J. Hansell; hon. men.: A. G. Watson and Mrs. Watt.

Portraiture, etc.—A. G. Watson (2); hon. men.: T. Drummond and Shiels. Architecture.—D. Lumgair; hon. men.: W. G. Collin. Subjects in Motion.—Medal: C. D. Paton; hon. men.: A. W. McGregor. Colour Photography.—Hon. men.: W. Mitchell. Lantern Slides.—Hon. men.: D. G. Christian, J. A. Angus, and R. A. Malcolm. The judges were Messrs. A. Eddington, R. S. Webster, and J. C. H. Balmain. The absence of the newer printing processes was remarked on.

THE NEW ENGLISH ART CLUB.

This club has felt the levelling effect that time has upon all movements of a revolutionary nature. Starting originally as a band of rabid secessionists, it is now a company of workers doing things but little different from all the rest, and its exhibitions are merely two more a year added to the struggling many with no longer anything out of the way to recommend them. The present show, which is held at the Galleries of the Royal British Artists, is famous for a fine Sargent, "Mrs. Wedgwood" (55), a colour and texture harmony of black silk and silvery-brown fur, out of which the warm-toned flesh tints of the elderly lady beam with much richness of effect. Henry Tonks displays more than usual exaggeration of colour-perception in his study of conflicting lights—outdoor and indoor—entitled "The Baby's Bath" (17), and exhibiting a very posey mother and nurse. It is pleasant to turn to the highly romantic and truly felt landscapes of C. J. Homes, who, by enthusiastically observing and honestly depicting certain effects of storm or light amongst crags and mountains, creates arresting pictures that make a direct appeal to imaginative minds. A. Carruthers Gould is also a good observer, as the cold light of the brilliant sunshine in his "Hawkcombe Valley" (28) clearly shows. William Orpen is represented here by outdoor figure studies, of which his gypsies, bear, and caravan, "In the Dublin Mountains" (34), is the most characteristic. Geo. Lambert's "Portrait Group," where the heads of father, mother and child are arranged at equal distances along a diagonal line, does not show an engaging composition. In fact, composition of traditional kind is not much respected by the New Englishers; the only obvious attempt at it is in Nelson Dawson's "Brigantine" (94), although Alfred Streeton displays highly successful picture-making in his fine "Corfe Castle" (81), in which sun and shadow are employed to the best advantage. The water-colours of Alfred W. Rich dwarf all the others, as usual.

FORTHCOMING EXHIBITIONS.

- December 4, 1909, to January 1, 1910.—Southport Photographic Society. Sec., J. McLellan, 2, Pilkington Road, Southport.
December 15 to 16.—Cowes Camera Club. Entries close December 6. Sec., E. E. Vincent, 4, High Street, Cowes, I.W.
December 31, 1909, to January 8, 1910.—Wishaw Photographic Association. Entries close December 18. Sec., R. Telfer, 138, Glasgow Road, Wishaw, N.B.
1910.
January 26 to 29.—Bolton Camera Club. Entries close January 12. Sec., H. Mills, Higher Bank, Southills, Bolton.
April 5 to 9.—Sheffield Photographic Society. Secs., J. A. George and J. R. Wigfull, 14, Parade Chambers, Sheffield.

THE HALIFAX PHOTOGRAPHIC Co. advise us that the London depot for their goods is The Tella Co., 68, High Holborn, London, W.C.

BOROUGH POLYTECHNIC PHOTOGRAPHIC SOCIETY.—To meet the requirements of its less advanced workers, quite a number of whom have recently joined the ranks of the above society, a course of elementary instruction has been arranged. This includes twenty-four lectures, covering a wide range of subjects, which will be held on Friday evenings, in addition to the usual meetings of the society, which are held on Wednesdays. South London photographers desirous of joining a society of this kind may be glad to know that at the Borough Polytechnic, for the moderate fee of 5s. per annum, they would have at their disposal the use of two fully equipped dark rooms and an enlarging room, in which latter the lantern has recently been brought up to date and fitted with an 11-inch condenser and "Cooke" lens. Full details as to the work of the society may be obtained on application to the hon. secretary, Mr. Alfred G. Buckham, 105, Borough Road, S.E.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

Applications for the following patents have been received from November 15 to 20:—

ANIMATED PICTURES.—No. 26,423. Improvements in or connected with the manufacture of ribbons for the production of living or moving pictures. Sherard Osborn Cowper-Coles, 82, Victoria Street, Westminster, London.

BINDING DEVICE.—No. 26,455. Improvements in and relating to binding devices particularly applicable to lantern-slides, passe-partouts, and the like. Harold Waring Atkinson and Ernest Cuthbert Atkinson, 1, Queen Victoria Street, London.

CAMERAS.—No. 26,501. Improvements in or relating to photographic cameras. Auguste Vautier-Dufour, 111, Hatton Garden, London.

COLOUR PHOTOGRAPHY.—No. 26,911. Device for production of three-colour reticules for colour photography. Robert Krayn, 33, Cannon Street, London.

VIEW FINDERS.—No. 27,002. Improvements in photographic view finders. Otto Halbach, 53, Chancery Lane, London.

FILM-PACKS.—No. 27,024. Improvements in film-packs. Johann Georg Schneider, 6, Lord Street, Liverpool.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

COLOUR SCREEN-PLATES.—No. 3,601, 1909 (February 13, 1909). The invention consists in a process of preparing a three-colour screen-plate from a line screen. A plate is sensitised with bichromate, printed under the line screen, and dyed in a mixture of two dyes, one of which attaches to the exposed and the other to the unexposed parts of the gelatine. The excess dye is washed out, the plate re-sensitised with bichromate, and again printed from the line screen, this time at an angle, being finally washed and dyed.

The second stage in the process may also be carried out in such a manner that one of the two dye-stuffs applied in the first step is washed out (after the second exposure to light) from the elements of unaltered gelatine and then the third dye-stuff is fixed only to elements of unaltered gelatine. The process (No. 1) is as follows:—A glass plate, or flat film, is coated with a thin layer of gelatine, sensitised with potassium bichromate. The plate thus prepared is exposed to light under a black-white screen of about 20 lines per millimeter, all of the same width, obtaining thus a set of lines in the gelatine alternately attacked and not attacked by the action of light, after which the excess of the bichromate is washed out. The plate is then immersed in a dyeing solution containing a red and a blue dye-stuff and prepared by mixing equal volumes of a one per cent. solution of Ponceau BO and a one per cent. solution of brilliant azurine, so that the gelatine altered by light fixes only the red colour, whereas the blue colour dyes only the unaltered gelatine. The respective parts of the gelatine being sufficiently coloured the excess of the colouring matters is eliminated by washing with water, a two-colour screen being thus obtained.

This screen is converted into a three-colour screen in the following way:—The plate is sensitised for a second time by bichromate and then exposed to light under the same black-white screen, but so that the lines cross the lines of the first exposure at a suitable angle, such as for instance 45 degrees, whereupon the plate is washed to remove the excess of the bichromate. By this operation the blue lines obtained by the dyeing of the unaltered gelatine in the first step are divided into two series of small quadrangular elements, the one series consisting of altered gelatine and the other of unaltered gelatine.

The excess of bichromate is then washed out by a short treatment with water without essentially altering the intensity of the colours. The plate is then immersed in a solution of a yellow dye-

stuff, for instance into a one per cent. solution of flavazine. In this solution only those quadrangular blue elements which consist of unaltered gelatine fix the yellow colour and become green. The excess of the yellow dye-stuff being removed by washing with water there is produced the three-colour screen showing symmetrically arranged blue and green quadrangular elements between the red lines and not having any spaces between the coloured elements.

One of the characteristics of the second stage in the process is that after the second exposure to light the third dye is applied to the small quadrangular elements consisting of unaltered gelatine without eliminating a part of one of the two dye-stuffs applied in the first step. But this second stage may be carried out in a somewhat varied form in that one of the two dye-stuffs first applied is washed out of the unaltered gelatine after the second exposure to light so that the third dye-stuff is only fixed to these elements of unaltered gelatine. The process is then as follows:—

After having exposed to light the bichromated gelatine under the black-white screen and having washed out the excess of the bichromate as above prescribed, the plate is dyed in a solution containing a red and a green dye-stuff and made by mixing 10 parts of a one per cent. solution of crystal Ponceau and 20 parts of a one per cent. solution of naphthol-green. The plate being immersed in this solution during about 2 to 3 hours, the lines altered by the action of light assume a red colour, whereas the lines of unaltered gelatine have a green colour; the excess of the dyes is now washed out.

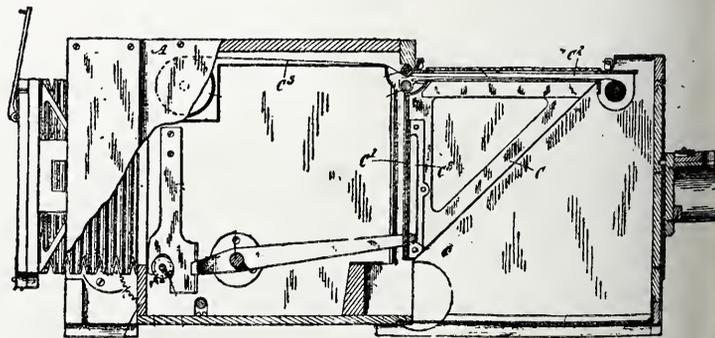
The plate is then brought into a solution of potassium bichromate, whereby the unaltered green lines are chromated; after drying, the plate is exposed to light for a second time under the black-white screen turned through a suitable angle. Now the plate thus prepared is immersed in a bath consisting of 90 parts by volume of water and 10 parts of alcohol, and is allowed to remain therein for about 10 to 15 minutes, the excess of bichromate being removed thereby and the green dye-stuff also being washed out from the small quadrangular elements not altered by the action of light.

Now the plate is dyed in a blue solution containing one per cent. of brilliant azurine. When the respective quadrangular elements have fixed sufficient quantities of the green dye-stuff the plate is washed with water, dried, and then ready for use; thus there is obtained a three-colour screen, showing red, green, and blue elements. Carl Späth, 41, Rheinstrasse, Steglitz, Berlin.

FULL-SIZE FOCUSING CAMERA.—No. 23,415, 1908 (November 3, 1908).

The invention is of a type of camera in which the light-sensitive surface and the focussing screen are carried in a triangular frame and at right angles to one another so that when the focussing screen is in a position transverse to the optical axis of the lens the light-sensitive surface will be parallel thereto and vice versa. The triangular frame is so arranged that it can be swung to bring either a light-sensitive surface or the focussing screen into the required position.

According to this invention there is employed in a camera wherein the focussing screen when in use is transverse to the optical axis of the photographic lens, a device which, while the operator continues to view the picture directly on the screen and



from the side thereof remote from the lens, can by one movement thereof instantaneously and automatically

(a) Swing a shutter and sensitised surface into the line of that optical axis, and swing the focussing screen out of the way.

(b) Operate the shutter.

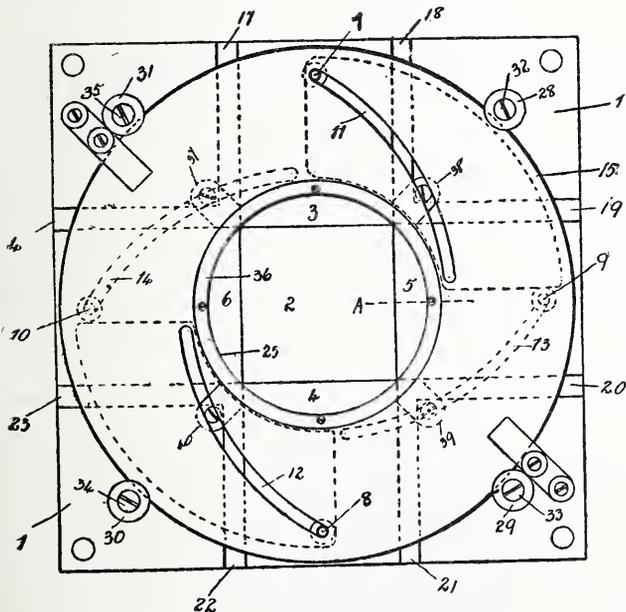
One construction of camera comprises in combination a focussing screen and a carrier for the light-sensitive surface arranged so that

the object is focussed on to the screen, the latter being automatically removed and the carrier brought into the focus of the lens immediately before exposure is made. This interchanging of positions of the focussing screen and the carrier is practically instantaneous so that the object is visible on the screen by the observer up to the moment at which exposure is made.

A shutter is provided which is automatically released after the carrier has arrived in its position in the focus of the lens. The figure shows the camera in the position ready for exposure, the image being viewed (through the bend on the left) in the vertical focussing screen fixed at C1 to the right-angled frame C. On actuating the release the frame C is turned back so that the plate and film at C² is brought into the vertical plane previously occupied by C¹, this latter returning into the horizontal position C³. The focal plane shutter comes into action and exposes the plate. John Appleton, 132, Gwendolen Road, Leicester, and Taylor, Taylor, and Hobson, Limited, Stoughton Street Works, Leicester.

DIAPHRAGM SHUTTER.—No. 27,433, 1908 (December 17, 1908). The invention consists of a diaphragmatic shutter with a rectangular aperture in which the leaves which open or close the aperture work in pairs and each pair independently of the other pair. The object of the invention is to obtain rapidity of the opening and shutting of the leaves of a square aperture shutter. The independent movement of the leaves can be obtained by pins which engage in spiral slots cut in the operating discs, thereby changing the rotating motion of the discs into reciprocating motion of the leaves. The path of motion of each pair of leaves is thus restricted by suitable guides in such a manner that two paths intersect each other at right angles in the centre of the apparatus. The guides also are so constructed as to determine the height of the leaves, one pair in front of the other in order that their surfaces may be covered by any desirable material.

The base may be made of a square plate of metal having a



rectangular hole the same size as, or larger than, the full opening of the shutter. Upon this base may be mounted the guides for the leaves and also the bearing for the operating discs, this latter bearing consisting of a metal ring having two circular steps turned on its outer circumference, the lower step being slightly larger in diameter than the top one, and carrying the lower operating disc, while the top circular step carries the top operating disc, the two discs being separated by either a single washer working on the lower circular step and between the discs, or by a number of washers mounted upon bearing pins arranged around the periphery of the operating discs. The operating discs must move independently of each other, but this movement may be obtained by any desired means. Siemens Brothers and Co., Limited, Caxton House, Tothill Street, Westminster, London, and Harold William Frank Ireland, 79, Church Lane, Old Charlton, Kent.

CINEMATOGRAPH FILM RESIDUES.—No. 14,407, 1909 (June 19, 1909). This invention refers to a process for recovering the material of

the support of the cinematographic films. It consists in depriving used, unsold or other films as well as waste pieces, of their gelatine for the purpose of recovering:—1. The metallic silver of the pictures. 2. The material forming the support without occasioning any alteration of the said material. For this purpose preparations containing soluble ferments (pepsin, trypsin, papain, or the like) or living ferments (liquefying bacteria and the like) are used. When using soluble ferments, the preparations will be obtained either by the direct solution of the ferments or by macerating vegetable or animal parts, or by macerating several different parts some of which may contain strengthening diastases. The materials to be treated will be submitted to the action of the liquids obtained during the time necessary for hydrating, digesting, or liquefying the gelatine; this time will vary according to the products employed, the concentration of the liquids and the temperature.

For the sake of example, the materials to be treated, films, clippings, perforated edges and the like, are plunged into a diluted solution of commercial trypsin, heated to a temperature of about 105 deg. F.; in this case the solution will be effected very rapidly. The solution terminated, the material of the support (in the form of bands, or waste pieces of all kinds) will be washed for the purpose of removing all kinds of impurities and the metallic silver (or in the form of a salt) will be carefully collected. Henry Danzer, 5, rue Richepanse, Paris.

The following complete specifications, etc., are open to public inspection, before acceptance, under the Patents Act, 1901:—

COLOUR PHOTOGRAPHY.—No. 25,998. Colour Photography. Ruth.
STEREOSCOPY.—No. 26,135. Stereoscopic apparatus for use with photographs. Toupillier.

New Trade Names:

IMOGEN.—No. 317,282. Chemical substances used in manufactures, photography, or philosophical research, and anti-corrosives. The Berlin Aniline Co., Ltd., 26, Princess Street, Manchester, chemists and druggists. October 15, 1909.

Analecta.

Extracts from our weekly and monthly contemporaries.

Simple Brush Treatment for Modification of Bromide Prints.

Mr. Robert Thomson, in "The Amateur Photographer and Photographic News" for November 30, gives the following suggestions for modifying and controlling prints on bromide paper. "A print or enlargement is made in the usual way, and developed up to the required density. The developer is then rinsed thoroughly out of the paper (which is not fixed), and it is ready for modification. Drain the water well off the print, expose the whole of the picture to the full glare of a gaslight burner or any actinic light—say, for the space of fifteen seconds. The exact time, within reasonable limits, need not matter, so long as sufficient exposure has been given to darken it on the application of the developer. This operation should, of course, take place in orange light.

"Take a camel-hair brush, dip it into your developer, and apply it carefully to whatever part you wish subdued, and as each part attains the density required, wash the developer off under the running tap and again apply your charged brush to any other part you wish to darken still further. Lights can thus be stopped out or shadows strengthened. Should the developer be inclined to spread at the edges, care should be taken to hold the picture in such a manner that it will recede from the part you wish left as it is. Glycerine mixed with the developer will also prevent spreading.

"Should a definite line be required, the part of the print can be surface-dried with blotting paper, and the glycerine developer applied in whatever direction required. Cloud effects can be indicated in an otherwise blank sky, and as each worker gets used to the method and improves his brush action with practice, improvements will suggest themselves to suit the individual. After modification is completed, the print is fixed and dried in the usual manner."

New Books.

"Camera Work." No. 28. New York: Alfred Stieglitz.

"With this number 'Camera Work' closes its seventh year. Whether the magazine has remained true to its original ideals and standards must be decided by its readers." These sentences are part of an editorial note at the end of the book. For ourselves, we have no hesitation in saying that "Camera Work" has shown no sign of falling away from its original ideals, and its latest number is, in some ways, its most interesting. It continues those incursions into the domain of painting and poetry which are not the less welcome from the fact that they are extraneous and unimplied in the title. The journal's aims are very high, and its efforts ambitious. What other photographic journal can boast of original parables and sonnets such as we have here from Eugenia Wallace and Leonard van Nappen respectively? True, the first is a little elusive, and the second wickedly spiteful to the great dead, who, after all, have made us what we are; but these "fill-ups" sound a cultured note, at all events. The excellent literature, both sprightly and earnest, contributed by Chas H. Caffin, is at all times the mainstay of the text of "Camera Work." This time his lengthy article upon the Dresden Exhibition is not only entertaining, but absolutely true in its dispassionate review of the present position of photography. His next phrase, the "flip-flops of personal expression" (applied to un-straight methods) ought to become a classic. He recognises, as most people have by now, that the German "professionals" have taken the foremost rank upon the strength of their striving for the best artistic results through technical honesty and conscientious craftsmanship, exhibiting "the characteristically German traits of superior comprehension and thoroughness."

Benjamin De Casseres contributes a vituperation upon the Art "puffer"—by which he indicates the American Art critic—and describes as an eviscerated and castrated descendant (of a less objectionable type now passed away), "Sir Puff, who kills by his silence and immortalises the Vogue and fattens the dugs of the cow that he milks." Fortunately the land which produces this monster also produces "Camera Work," with its photogravures, its parables, and its sonnets. The illustrations in the present part number six first-rate reproductions by J. Craig Annan of D. O. Hill's works, with which goes a biographical note by Mrs. William Sharp. These pictures bear out exactly the contentions of Mr. Caffin, for they are charming *because* they are honestly photographic, not *in spite* of the fact. They show no flip-flops of personal expression. They are realistic in their roundness and fulness. The other plates by modern workers miss something of this convincing naïveté, though they pass muster easily before the standard that modern work has set. George Davison's "Houses Near Aix-les-Bains" has beautiful quality, and Paul B. Haviland's "Miss G. G." is exactly what modern photography has developed as an ideal—an arbitrary lowering and flattening of flesh tones with demonstrative high-lights upon parts of the costume. Such work, however, is, to that of D. O. Hill, what the poetry of Burns is to a latter-day minor poet's "pre-ciosities."

"The 'Wellcome' Exposure Record and Diary, 1910." London: Burroughs, Wellcome, and Co.

The issue for next year of this most convenient photographic pocket-book contains, as before, a vast amount of practical photographic information, which—like Messrs. Burroughs, Wellcome's pure chemicals—is in "tabloid" form. For the past year or two the "Wellcome" diary has shown itself almost incapable of further improvement, but each year the producers manage to supply the photographer with some additional matter which is of direct practical usefulness. This year a supplementary card is included which gives the various ("Rytol") developers necessary when obtaining warm tones on practically every one of the standard lantern-plates. In each case the description of tone obtained is indicated, together with the increase of the exposure over that required for black tones. A most useful card for lantern-slide makers, and issued ready for hanging in the dark-room. In other respects the features of the diary, particularly the exposure calculator, call for a repetition of the commendations we have extended to it in previous years. The

table of comparative plate speeds has been revised up to date, and, as before, is arranged for the use of those wishing to give full exposure, as well as for those who, when having to give a rapid exposure, wish to cut down the time as far as possible. The formulæ for developing, toning, and other solutions prepared with the convenient "tabloid" chemicals are again most clearly and specifically set out, and the mass of other photographic information which the photographer finds it useful to have in his pocket is to be found in the slim volume. The diary is issued in three separate editions, for the northern and southern hemispheres and for the United States, that for European countries being bound in light green, for southern latitudes and the tropics in dark green, and for the United States in red. The diary is now on sale throughout this country, price 1s.

"TRAVEL AND EXPLORATION" (Witherby and Co., 1s.).—Exploration, pure and simple, does not take quite so prominent a place as usual in the December number of "Travel and Exploration" (edited by Mr. Eustace Reynolds-Ball). Room had to be found for reviews of unusually important travel books, such as Sir Ernest Shackleton's "Heart of the Antarctic," Lady Stanley's life of Sir H. M. Stanley, Claude White's "Sikkim," etc. However, we may claim that quality amply compensates for quantity; and Mrs. Bullock Workman's well-written description of her record ascents in the Himalayas is well worthy of the place of honour. Another article, mainly of sporting interest, is one by Captain Dudley Haskard, who gives an account of his experiences of lion-shooting in Somaliland. Mr. P. R. Salmon's graphic description of a tour off the beaten track in Syria, is chiefly noteworthy on account of the singularly good illustrations from his photographs. Dr. Scott Keltie's well-known name prepares us for a very entertaining and instructive article, entitled "Travellers' Tales." Some very diverting experiences, garnered from the professional travels of the well-known guide-book writer, Mr. A. R. Hope Moncrieff, are given in "A Traveller in Travel."

New Materials, &c.

LILYWHITE GREETING POSTCARDS.—The Halifax Photographic Company send us a circular of these sensitive postcards for the Christmas season, issued with the P.O.P. gaslight, bromide, and self-toning emulsions.

"NOCTONA" CHRISTMAS POSTCARDS.—In issuing postcards bearing their new "Noctona" emulsion, Messrs. Griffin, in place of the customary inscription or design on the front of the card, have adopted the somewhat novel and simple plan of issuing a design-mask, which is placed between the negative and the postcard when printing, and, without any registration or any other precaution, imprints upon the



card an ornamental Christmas greeting. The effect obtained is indicated in the illustration. Complete with this mask a packet of 18 "Noctona" postcards costs 1s., the cards being issued in all three grades—pearl-matt, satin, and glossy.

JOHNSON'S PHOTO TINTS.—A most attractive and uncommon window card has just been issued by Messrs. Johnson and Sons,

Manufacturing Chemists, Ltd., 23, Cross Street, Finsbury, London, C., as a means of drawing the attention of a dealer's customers to the very convenient box of nine "photo-tints" supplied for the mounting of postcards, gelatine prints, and lantern slides. The subject of the window bill—a little Dutch boy standing by a canal—picturesque in character, and, delicately coloured as it is with the Johnson tints, forms quite a distinctive piece of advertising literature, which can hardly fail in its object of riveting notice on the maker's products.

CATALOGUES AND TRADE NOTICES.

PLATE-COATING, ETC., MACHINERY.—The well-known firm of K. Oebig, Radebeul, Dresden, sends us its English list of machinery for plate and paper coating, printing plant, film-coating machines, and other installations for the manufacture of photographic materials. Messrs. Koebig have a long experience as constructors, and their list gives a full specification of the various types of plant for the most modern factory equipment.

SECOND-HAND APPARATUS.—Messrs. Sands, Hunter, and Co., who for thirty-six years have made the sale and exchange of high-class photographic apparatus the staple of their business, send us their current 64-page list, conveniently arranged as to (1) class of camera, and (2) size of apparatus. The list thus allows of one's requirements being looked up most readily, and our readers, both at home and abroad, may depend on receiving apparatus in thorough working order. The list is sent free on application to 37, Bedford Street, Strand, W.C.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, DECEMBER 3.

Northborough and District Photographic Society. "Modern Photographic Apparatus and Exhibition of T. P. Prize Slides." R. Hesketh.
 Blair's Camera Club (Glasgow). "What Can be Done with a Hand Camera." C. P. Goerz, Ltd.
 Society of Thanet Photographic Society. "Large Prints from Small Negatives." W. F. Slater.
 Hull Camera Club. Lantern Slide Printing Competition.
 Merton Photographic Club. "Some Delightful Surrey Walks." The Photographic Record and Survey of Surrey.
 Borough Polytechnic Photographic Society. "Lenses." W. Page.
 Plymouth Photographic Society. "Sports and Pastimes with the Goerz-Anschutz Folding Camera."

SATURDAY, DECEMBER 4.

Edinburgh Photographic Society. "A Voyage Round the Coast of Iceland." F. M. Chrystal.

MONDAY, DECEMBER 6.

Woodford Photographic Society. "Autotype Carbon." Demonstration.
 Cleveland Camera Club. "Wellington Plates." Hy. Wade.
 Southampton Camera Club. "Radiography." Dr. Norman E. Aldridge.
 Bexley Photographic Society. Monthly Lantern Night.
 Brompton and Forest Hill Photographic Society. "Bromoil." A. H. Garner.
 Northborough and District Photographic Society. "Kirkstall Abbey." Charles B. Howdill.
 South London Photographic Society. Lecture and Excursion Lantern Slide Competitions.
 Glasgow and West of Scotland Photographic Association. "Large Prints from Small Negatives." W. F. Slater.
 Central Photographic Society (London). "Telephotography." C. P. Goerz, Ltd.
 Manchester Photographic Society. "Stereoscopic Photography." C. P. Goerz, Ltd.

TUESDAY, DECEMBER 7.

Royal Photographic Society. "Screen-plate Colour Work" H. Essenhigh Corke. Preceded by a Demonstration of the Pilot Arc Lamp.
 Leeds Photographic Society. "The Making of a Lantern Slide." Godfrey Bingley.
 Woodsworth Photographic Society. Council Meeting.
 Hutton-under-Lyne Photographic Society. "Modern Photographic Apparatus and Exhibition of T. P. Prize Slides." R. Hesketh.
 Latham Photographic Society. "Dutch Slides." A. E. Staley & Co.
 Walsley Photographic Society. "Incidental Helps in Darkroom and Field." H. W. Fitch.
 Glasgow Southern Photographic Association. "Flashlight Photography." F. C. Hart.
 Northampton Camera Club. "Orthochromatism." J. Willmer Cole.
 Walsley Camera Club. "Ensyna." F. J. Stedman.
 Walsley and District Photographic Society. "Large Prints from Small Negatives." W. F. Slater.

WEDNESDAY, DECEMBER 8.

Woodford Camera Club. "Printing in Clouds on Lantern Slides and Transparencies." H. P. C. Harpur.
 Edinburgh Photographic Society. "British Architecture; Later English Gothic." R. Berry. Lantern Section, Members' Slides.
 Walsley Philosophical Institute (Photographic Section). "Large Prints from Small Negatives." W. F. Slater.

Borough Polytechnic Photographic Society. "The Platinotype Process." The Platinotype Co.
 Woodford Photographic Society. "Lantern Slide Making." W. L. F. Wastell.
 Cowes Camera Club. "What I saw in South Africa." W. Jolliffe.
 Sale Photographic Society. Print Criticisms.
 Stockport Photographic Society. "Modern Photographic Apparatus and Exhibition of T. P. Prize Slides." R. Hesketh.
 Horwich Amateur Photographic Society. "Autotype Carbon." Demonstration.
 Cheltenham Amateur Photographic Society. "Autotype Carbon." Demonstration.
 Consett and District Photographic Society. "Autotype Carbon." Demonstration.

THURSDAY, DECEMBER 9.

L.C.C. School, Bolt Court, E.C. "Early Experiences of Process Work." E. C. Middleton.
 Oldham Photographic Society. "Modern Photographic Apparatus and Exhibition of T. P. Prize Slides." R. Hesketh.
 Liverpool Amateur Photographic Association. "In and Out of Ireland." E. Rimbault Dibdin.
 Edinburgh Photographic Society. "Large Prints from Small Negatives." W. F. Slater.
 Watford Camera Club. "Night Photography." A. H. Blake.
 Hull Photographic Society. "The Composition of Pictures." Geo. Marples.
 Longton and District Photographic Society. "Bruges and Round About." E. Marks.
 Heaton Camera Club. "Ensyna." F. J. Stedman.
 Wimbledon and District Photographic Society. "Ensyna." F. Marshall.
 Handsworth Photographic Society. "Home Portraiture." Thomas A. Sands.
 London and Provincial Photographic Association. "Ancient Abbeys and Churches of South Essex." C. Forbes.
 Dover Institute Photographic Society. "Autotype Carbon." Demonstration.
 Aston Photographic Society. "Autotype Carbon." Demonstration.

ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held Tuesday, November 30, Mr. John Spiller in the chair. A lecture was given by Mr. S. E. Tench on "Glimpses of Scenery in Ceylon and Burmah," the lantern slide illustrations of which were of a remarkably fine character, forming a valuable addition to the lecturer's remarks.

Commercial & Legal Intelligence.

PENNY PHOTOGRAPHY AND HAIRDRESSING.—In the Clerkenwell County Court last week, before Judge Bray, an action was brought by James McCombie, tailor, 470 and 472, Holloway Road, Islington, against A. Lippavini, photographer, of 42, Tottenham Court Road, W.C., for £70, as damages for an alleged nuisance and breach of agreement.

Mr. Eldridge, counsel for plaintiff, said his client had a lease of the premises, 470 and 472, Holloway Road. The premises were two houses which adjoined each other. The ground floors were used as shops, and the two upper floors, approached by a common entrance and common staircase, were let out. The first floor on one side was let to defendant, and that on the other side was let to a hairdresser, named Osterman. In the covenant was a clause that Osterman should have quiet enjoyment of his occupancy. It was on October 2 last that the first floor on the other side was let to defendant, who entered into a covenant that he would not do anything which would become a nuisance or annoyance to the landlord or his other tenants. Defendant carried on the business of a photographer, and in November Mr. Osterman complained to plaintiff of the way the photography business was being carried on. Plaintiff cautioned defendant, but the nuisance still continued, as the result of the way in which defendant carried on his business. On his handbills defendant announced to the public, "Your photo. taken for a penny. single or group."

The result of taking penny photographs, continued counsel, was that numbers of people, children and young men and women, congregated round the place, and blocked up the staircase. They would sit on the stairs, eating their food, or they would be playing about. The result was that Mr. Osterman's customers had a difficulty in getting to his saloon. Sometimes the boys and girls would open the door of his saloon and call out, "Come and have a shave" or "Get your hair cut." The result of the nuisance was that Mr. Osterman's business practically disappeared, and he sued plaintiff for £115 damages.

Plaintiff gave evidence in support of his case. In cross-examination, he said that before defendant took his premises they were let to a photographer. He had no complaint whatever about that tenant.

Evidence was given by plaintiff's manager at 470, Holloway Road.

He said the photographer who preceded defendant carried on a rather high-class business. Regarding defendant's business, witness used to see a number of people coming there. They were poor-class people. Sometimes he had to turn the gas off at night, because defendant's customers would gather in front of plaintiff's window and block it up in order to look at their photographs.

Mr. Valetta (counsel for defendant): Did you think that people would drive up in motor-cars to have penny photographs taken?—No, but I did not think they would come in egg boxes on wheels, as some did.

Mr. Osterman, in evidence, said the defendant's customers ran up and down stairs shouting and laughing. That caused witness great annoyance. Sometimes the boys and girls coming to defendant's place would come up the stairs in batches of nearly a dozen. They were laughing and shouting, and would sometimes call out, "Get your hair cut." His customers complained. Once he saw some of defendant's customers eating fried fish and potatoes on the stairs.

Replying to counsel, witness said it was because of the difficulty they found in getting to his shop, through people being on the stairs, that his customers stayed away.

Mr. Valetta: You knew that this staircase was only three feet wide when you took these premises?—Yes.

Does not your complaint really come to this: that Mr. Lipparini became a very successful cheap photographer?—He had a great number of customers.

Supposing they had come to your place for a shave before being photographed—would you then object?—They could not afford to pay 2d. for shaving and 4d. for haircutting before going to be photographed. Then there were a lot of girls who went to be photographed. You don't shave girls.

The Judge: Did Mr. Osterman open his shop on Sundays?

Mr. Eldridge: No. But Sunday was a very busy day for defendant, and the consequence of so many people coming on Sundays was that they had to call in the week for their photographs.

Defendant, in evidence, said the business he carried on was that of penny photographs, sixpenny cabinets, and trade enlargements. Before he took the premises a representative from plaintiff called upon him at his place in Tottenham Court Road, so he could have seen the class of business carried on.

Mr. Valetta: What sort of people are your customers?—They are a poor class of people, but they are all right.

When Mr. Osterman complained, added defendant, he engaged a porter and made his light stronger. Sunday was his busiest day. People called for their photographs during the week.

Replying to Mr. Eldridge, defendant said that one Sunday he took 560 midgets and two cabinets, on another Sunday 576 midgets, and on another Sunday 654. In one week, including Sunday, the total was 1,025. The total of 654 midgets would not represent that number of customers, because many would have six, eight, or a dozen photographs. The customers would come downstairs quietly unless the barber insulted them.

Do you say there was no noise?—I don't call it noise.

Defendant's manageress said that Mr. Osterman was often rough towards the customers.

Mr. Eldridge: Why should he be rough towards them?—Because the customers would stop at the top of the stairs to look at their photos. When he was rough, the customers would give him a nasty answer.

To get a correct number of people who called, said another witness, the total number of photographs should be divided by three.

Joseph Plant, defendant's porter, said he had trouble with the barber owing to the way he went on at people as they were leaving the studio.

In cross-examination by Mr. Eldridge, witness said that once he had to "accommodate" one or two of the boys who came there.

What did you accommodate them with—a stick?—No, with my hand.

Mr. Valetta: During the five months you were there you had only to roughly handle two youths?—That is so.

Two customers, in evidence, said the barber abused them on the landing.

At the close his Honour said he would reserve judgment.

"DUM" PHOTOGRAPHS.—At the Leicester Police Court last week it was mentioned that a "dum" photograph is one which does not

exist save only in the vocabulary of its creator. The word was used in the private note-book of a photographer named William James, charged with stealing, at South Croxton, on October 11, 1s. 9d., 1s. 6d., and 7d., belonging respectively to John William Hales, Fred Sreaton, and Harry Wollaston.

Detective-Inspector Taylor said on October 11 prisoner went to South Croxton with a camera, and canvassed several houses. He showed samples of photographs and told people he could supply them at 1s. 9d. per dozen. Mr. Hales consented to have his photograph taken, with his house and two dogs, and he paid 1s. 9d. to prisoner, who said he would deliver the photographs personally the next week. Five weeks went by, and Mr. Hales had heard no more of the matter. He then wrote to the address given by prisoner, and the letter was returned through the Dead Letter Office. The next morning he received four photographs, but not such as he ordered.

The same day prisoner went to Mrs. Sreaton, and photographed her child, for which he received 1s. 6d. Five or six weeks afterwards she received two inferior photographs. A similar procedure was followed in the case of Mr. Wollaston, who ordered half a dozen photographs of himself, his mother, and his shop, and received two of the village street.

Mr. Hewitt: A sort of comprehensive photograph.

The recipients, added the witness, were all dissatisfied with the photographs delivered, which were not the same subjects as ordered. Mr. Hales complained to Superintendent Bowley, and a warrant for prisoner's arrest was issued. In company with Sergeant Freer Detective-Inspector Taylor went to the house of prisoner's father, in Wolverton Road, and told prisoner of the complaints that had been received. He said he had completed the orders and sent them off. The two police officers went through about fifteen hundred negatives but failed to find any resembling those supposed to have been taken at South Croxton. On the counterfoil of the receipt given to Mr. Hales, which was found in the house, was the word "dum." When questioned about this, prisoner said it referred to the number ordered but he afterwards admitted that it meant the photographs had not been taken.

Complaints had been received from all over the county and from other counties, Detective-Inspector Taylor added, respecting similar frauds by prisoner.

On this evidence prisoner was remanded, to enable the police to complete their inquiries, and to get the necessary witnesses.

On Saturday last, November 27, the case again came up, and prisoner was sentenced to six weeks' imprisonment in the second division.

INVENTOR'S BANKRUPTCY.—At Southampton Bankruptcy Court, on November 24, George Simper, 10, West Street, Southampton, the plate worker, whose gross liabilities were put at £601, with assets £170, was publicly examined. He ascribed his failure partly to losses incurred by experiments in connection with a patent rotary washing photographer's machine. He explained that there was a sale for the machine. The examination was closed.

ILFORD, LIMITED.—The report for the year ended October states that after making allowance for depreciation and provision for doubtful debts, the net profit is £33,618 (as compared with £28,810 for the year ending October 31, 1908), which, with the surplus brought forward, gives £37,267. The directors recommend that £12,000 be set aside for writing down goodwill, investments, plant, and for contingencies, and that a dividend of 6 per cent. be paid for the year, leaving £2,467 to be carried forward.

NEW COMPANIES.

THE THAMES COLOUR PLATE, LTD. (registered office, Broad Street, Avenue, E.C.)—This company was registered on November 22, with a capital of £25,000, in £1 shares. Its objects are to acquire a take over as a going concern the business of manufacturers of a dealers in Thames Colour Plates and panchromatic plates, and other photographic plates, films, and accessories, now carried on by O. Dawson and C. L. Finlay, 254A, High Holborn, and 49, Pentonville Road, under the style of The Thames Colour Plate Company; and to enter into an agreement with same. The signatories are O. Dawson and C. L. Finlay, both of 254A, High Holborn, W.C.; J. B. Brooks, 140, Leadenhall Street, E.C.; T. J. Tee, Turnpike Wood Green, Essex; H. W. Gallagher, Silverleigh Road, Thornhill

Heath; H. L. Lomas, 102, Rosebery Square, Rosebery Avenue, E.C.; and H. S. Tee, Ashleigh, Station Road, Loughton, Essex. The first directors are F. H. Glover, F.A.A., Broad Street Avenue, E.C.; Admiral Sir Frederick G. D. Bedford, G.C.B., Swiss Cottage, Weybridge; and O. S. Dawson and C. L. Finlay, both of 254A, High Holborn, W.C.

News and Notes.

AERIAL PHOTOGRAPHY.—According to the daily papers, Captain Sacamney, of the French army, has succeeded in devising a practical system of aerial instantaneous photography for employment in warfare. The plan adopted was to create a double aerial rail by sending up two kites harnessed to each other. When they became poised at an angle of 60 degrees with the horizon he ran up a photographic apparatus with the aid of a pulley, just as one would haul up a flag. In this way some excellent photographs were obtained at an altitude of 200 metres, and it was found possible to determine the positions and works of the enemy at a distance of over four kilometres.

"COUNTRY AND TOWN," one of the latest additions to the list of monthly illustrated magazines, has instituted a photographic competition in which an award—in the form of a silver cup—is offered "for the best set of three photographs of a subject treated in an original manner." These photographs, it is stated, may be of three different (architectural) subjects or of the same subject differently treated, but must have been taken in the United Kingdom. Full conditions of entry, the latest date for which is December 13, will be found, together with the necessary coupon, in every copy of "Country and Town," the offices of which are at 13 and 14, Tothill Street, Westminster, London, S.W. The result of the competition will be announced in the January issue of the same magazine.

WILD SPORT ON THE CINEMATOGRAPH.—The Duke and Duchess of Connaught, accompanied by Princess Patricia, were present on Tuesday last at a private view, given in the Alhambra Theatre, of Mr. Cherry Kearton's cinematograph pictures taken in British East Africa during Mr. Roosevelt's tour. Some excellent still and moving pictures of wild beasts and birds were shown upon the screen. They had been obtained after journeys on foot for hundreds of miles across desert and plain, and in some cases after days of waiting and watching. A lion had been photographed by flashlight near his drinking pool, and there were animated pictures of a young Serval cat skipping about in the jungle, young dikdik, and horned chameleon. Hippopotami and crocodiles were seen at home on the Theka River, and the pictures of bird life included one, taken 8,500ft. above the level, of Jackson's dancing bird. There were several pictures of Mr. Roosevelt's hunting expedition.

THE NEW CAMERA CLUB.—At a meeting held at the Gaiety Restaurant, London, under the chairmanship of the Earl of Crawford, the following resolution was unanimously carried: "That it is desirable that a Camera Club for London should be formed." In proposing this resolution the chairman referred to the success of the old Camera Club. In 1886 it was started in Bedford Street, and continued to flourish there for a number of years. It was only when on removal to other premises in Charing Cross Road an attempt was made by means of a kitchen and dining-room to provide bodily as well as mental pabulum that its financial resources proved unequal to the strain and it had to be wound up in 1904. Since then not only the members of the old club but the increasing number of enthusiastic photographers had greatly felt the need of opportunities for quiet talk, such as photographic societies could not offer. London was the first large town to start a camera club, and now, although very few towns were without one, we had none, and it was thought that the time had come to resuscitate it. (Hear, hear.) Mr. A. Evershed spoke in support, and desired to remove the idea that the proposed new club was to be a "house of call" for a certain body; the organisers had not the slightest wish to confine the membership, and it would be open to all interested in photography. Mr. R. Craigie, who will act as secretary, then outlined the scheme, which

provides for the acquisition of premises in John Street, Adelphi, at a moderate rental. The estimated amount of capital required to fit up and furnish the club was £850, and it was proposed to formulate a small company amongst the members, with a capital of £2,000. Each member would be required to take up at least one ordinary £1 share, and the subscriptions for town, country, and foreign members respectively would be £3 3s., £2 2s., and £1 1s. It was proposed to revive the lectures, which were so popular a feature of the old club. If 375 members could be found the receipts were estimated to cover the expenditure. He had great pleasure in announcing that Lord Crawford had consented to be their first president. After Professor Armstrong, Mr. Ward, Mr. Martin Duncan, and Mr. Lambert had spoken in support, an appeal was made to those present, with the result that it was announced that £670 had been promised, representing 57 members.

PHOTOGRAPHER'S TERRIBLE MISTAKE.—At Portsmouth, on Monday last, the coroner's jury returned a verdict of death from misadventure at an inquest on Mr. Edwin Webb, a local solicitor, who was found dead in the cellar of his house, where he had gone to do some photographic work. Death was stated to be due to a dose of cyanide of potassium, self-administered. The drug was evidently one of the chemicals used for photography, and on the back of a piece of photographic paper found near the body was a note in Mr. Webb's handwriting, addressed to his wife, which read as follows:—"In semi-darkness have made awful mistake. Must have poured cyanide into ale. Only few seconds to live. Cannot call. God help you, my pet! Brain reels. Tell. . . ." Here the writing ended abruptly. The evidence showed that Mr. Webb had a bottle of beer with him, and the medical opinion was that, after taking the poison, he would lose the power of locomotion and be unable to call out, though he would live long enough to be able to write such a note. It was shown that Mr. Webb was of a cheerful temperament, and had no financial or business worry.

Correspondence.

- *• *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*
- *• *We do not undertake responsibility for the opinions expressed by our correspondents.*

STEREOSCOPIC PORTRAITURE.

To the Editors.

Gentlemen,—At the conclusion of a very interesting letter on the above subject, in your issue of to-day's date, Mr. G. Dyas says:—"I don't see that large work is necessary, as a 5in. picture, 9in. from the eyes, might appear as a 300ft. arena at 100 yards' perspective distance, providing the work is accurately carried out. . . ." etc.

This is, of course, correct, but it may be pointed out that the special advantage of large stereographs is that they give increased scale to the objects represented, and bring them nearer to the observer. With the Pigeon stereoscope, a print 12in. square, for example, can be inspected at practically the same distance from the observer's eyes as the 5in. square old style stereograph. If the subject and the amount included are identical in both cases, it is obvious that the 12in. picture will show the same objects four times as large in diameter, and at apparently only one-quarter the distance of those seen in the 5in. stereogram, with a corresponding gain of detail. The perspective, too, with the longer focus lenses used in taking the larger picture will, for many subjects, and notably for portraiture, be much more pleasing.

Small stereographs can, however, equally well be examined with this stereoscope as large ones, if so desired, provided the left-hand picture is reversed—in fact, there is no reasonable limit to the size or shape of the prints in either direction, beyond those fixed by ordinary convenience.

In addition to these advantages, the Pigeon stereoscope is, without

the slightest adjustment, suited to the eyes of practically every observer.—Yours faithfully,

88, Brook Street, Kennington, S.E.,
November 26, 1909.

A. LOCKETT.

THE TUBE RAILWAY AS A CINEMATOGRAPH.

To the Editors.

Gentlemen,—The paragraph you published in your issue of November 12 quoting from the "Scientific American" a scheme for adorning the walls of the tubes with designs which, when viewed from the train, would appear as moving pictures, illustrates once more the singular coincidence which has so frequently occurred in the history of inventions of two inventors in different parts of the world simultaneously conceiving the same idea. In August last, when I was away on holiday, I had sent on to me from my office a letter, dated August 18, from a business friend, Mr. Louis Delgeur, a well-known photo-engraver in Rotterdam, and I quote from it the following paragraph:—

"I have been thinking of a new kind of advertising, which I would like to submit to your opinion. Here it is. The side walls of the Underground are white, and are illuminated by the light from the carriages. The last 200 yards before each station the train goes somewhat slower. Would it be possible to have painted on the walls a series of silhouette pictures at full length, each in figure a slightly different position, somewhat like a bioscope film? By doing so a

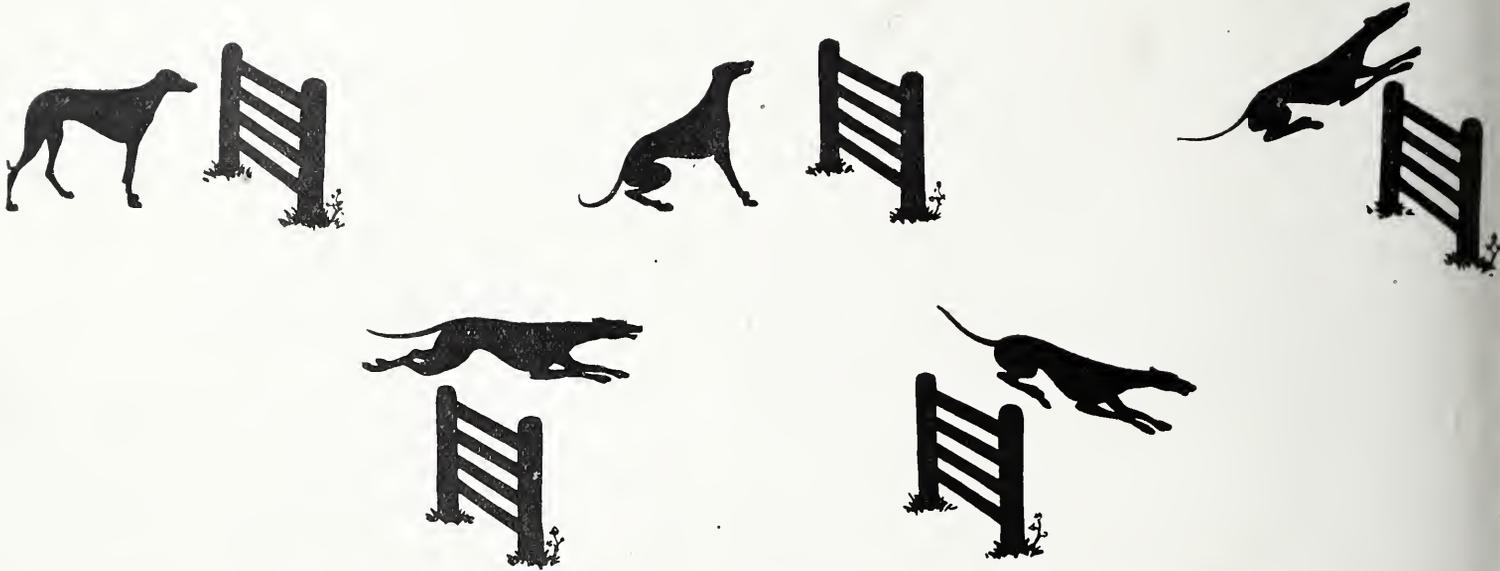
His idea is very complicated. I believe that the tube trains must have lights not only at the inside, but at the outside (the cost of these would be small for a concern which has millions of kilowatts). The pictures must be painted in black and white, with great intervals, not as shown on the print of my unknown brother inventor, and you will see that the pictures become living."

I think it will be admitted that it is a curious coincidence, and the exact similarity of the ideas is remarkable. I send for the perusal of the editor the original letters, and also Mr. Delgeur's drawing suggesting the style of the pictures, which probably it would be interesting to reproduce.

WILLIAM GAMBLE.

Answers to Correspondents.

- ** All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- ** Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- ** Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.



In the band of the above pictures which Mr. Gamble sends us, the space between each phase of the action is greater than here shown: it is about 1½ times the width of each drawing.—EDS. "B.J."

kind of living advertisement would be the result. Thus, it would be just the reverse of the bioscope, where the public rest in their places and the pictures change. You will comprehend my idea from the drawings I send you herewith."

The rest of the letter invited my opinion on the practicability of the idea, and my assistance in getting the idea introduced in the proper quarter. My reply was that I thought the idea a very ingenious one, and if it would work as he anticipated there would be money in it. But my impression was that to operate it successfully it was necessary to view such pictures through a narrow slit, or a series of such slits as in the case of the Praxinoscope, from which the idea must have originated. I could not, however, think of any way in which the scheme could be practically tested.

Since then I have not spoken about the matter to anyone, and, indeed, pressure of work caused the matter to pass entirely out of my mind until I saw the quotation from the "Scientific American." I then wrote to Mr. Delgeur asking if the publication of the idea was due to him, and he replies:—

"Thanks for your interesting letter. I am not the man referred to by the "Scientific American." Only to you I have written about it, and to nobody else. It is very curious that two persons, one in America and one in Holland, have at the same time hit upon the same idea. Now I feel curious to know which of us has the priority.

- ** For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

- G. A. Dean, 14, High Street, Rugby, Warwickshire. Two Photographs of John Baird, Esq., C.M.G.
- H. B. Collis, Westgate Studio, Canterbury. Photograph: 12 by 10 Exterior View of Canterbury Cathedral.
- J. H. Anderson and Son, 5, High Street, Welshpool. Two Photographs of Lord Powis's Shooting Party and Ladies (Twenty Figures), including T.R.H. the Prince and Princess of Wales. Taken at Lymore, Montgomery, on November 25, 1909.

LACQUER.—Will you kindly oblige me by giving me a good brass lacquer for covering brass to keep it from tarnishing, the same that the makers of brass work use? I have had two given to me, but they do not do at all.—J. G.

There are many receipts for lacquer, most of which are good in the hands of those who use them. So probably are those you have been given. Do you know the brass should be heated before the lacquer is applied? If it is laid on cold it will not answer. There is, however, a "cold lacquer," sold by most large dealers in

varnishes and polishes that can be applied to the metal without its being heated, and it is the best for novices in the work to employ. It may be had from the Crane Chemical Co., Newhall Hill, Birmingham.

ARTIFICIAL LIGHT.—Being desirous of introducing artificial light into our studio for portraiture, etc., we are communicating with you in the hopes that you may advise us as to the best method of procedure. This being a country place, where there is no system of lighting other than by oil lamps, we are unable to employ the usual methods of gas or electric light. We have thought of two methods, viz., acetylene gas, and the more modern petrolite lamps. Not having a spacious yard in which acetylene generators could be used, we imagine that the smell of carbide on confined premises would probably be objectionable, and also that the using of a large quantity of carbide, necessary to give sufficient candle-power for efficient portrait lighting, would probably be a matter of considerable expense. We have by us a catalogue of petrolite lamps, which, though powerful in themselves, might not be capable of arrangement, as acetylene burners would be.—P. C. AND SON.

We are sorry that we have no experience of petrol lamps. We think you could get a suitable outfit from Messrs. R. J. Moss and Sons, 98 and 99, Snow Hill, Birmingham. The firm's catalogue lists and describes portrait equipments.

PHOTOGRAPHS OF BOXERS.—Will you kindly advise me where to obtain postcards (wholesale) of famous boxers, past and present?—E. SEYMOUR.

Try W. H. Rau, 1,324, Chestnut Street, Philadelphia, U.S.A., for photographs. We do not know of postcards on the market.

NOXURIOUS EFFECTS OF AMIDOL.—I have recently taken to the use of "Amidol" developer for bromides, and the ferricyanide and sulphide method of toning them. I now find that my hands are swelling and becoming very painful, and inflamed places on the fingers somewhat similar to chilblains. As probably this matter has been written about in the "Journal" at some time, possibly you can tell me of some remedy or preventative.—HAYNES WELCH.

The trouble no doubt is due to the amidol. Many persons who use it suffer in the same way. The only preventative is to give up its use and employ another developer, or to prevent the amidol coming into contact with the skin, say, by wearing india-rubber gloves or finger-stalls.

FLASHLIGHT AT SEA.—I wish to take a photograph of hauling a catch of herrings inboard. This must be done at night, and eight to ten miles out at sea, and will, therefore, have to be taken by flashlight. Will you kindly tell me in your next issue how to go about it? I will categorise and number by queries as follows:—

1. What is the best flash powder to get?
2. Can I fire it by a spark from a pocket battery or motor-car accumulator?
3. What is the duration of a flash in fractions of a second?
4. What receptacle could the powder be fired in, and could it be mixed and placed therein before leaving shore, or should we have to mix it when we reached the fishing ground?

In order that you may understand the circumstances I will give you details. The herring "drifters" are boats of about 25 feet in length and 7 feet beam. I propose being in one of them with the camera and photographing a second one when the herrings are being hauled inboard. I should be about 20 to 30 feet away, and should need a flash that would give a good lighting to the boat taken at that distance. It is important that I should be able to fire the flash the moment I am in focus, as the boats are constantly changing position, and I should be out of focus while touch-paper, etc., was burning. I am using a $\frac{1}{2}$ -plate Watson "Argus," and shall set the blind and mirror to "time"; focus in the mirror, and when I have focussed, expose the plate and fire the flash. That is why I am anxious to know about firing electrically. Is there any danger of blowing the side of the boat out, because an accident of that sort, ten miles out at sea, would be unpleasant? I shall be greatly obliged if you will give me any information that occurs to you on the matter.—HERRINGS.

We cannot recollect a more difficult subject for a flashlight photograph having been brought to our notice. We fear that the quantity of powder required will be very great; we should say, two or three ounces per exposure may very likely be insufficient. And the size of the flash in these conditions may be such as to endanger

the sails of the boat you are on. The "Agia," "Scales," or the powders mentioned in the article on page 836 are all reliable. Messrs. Chas. Zimmermann and Co. supply an electrical method of firing. The duration of the flash will not be very short with a heavy charge of powder, say, 1-10 of a second. It is most essential to keep the powder in an air-tight case until the moment of use. Seriously, we see so many difficulties in the way that we should think it would be well to stage-manage a haul by early morning light, from which result it would not be difficult to prepare a print giving the effect of a night-haul.

AMARDOR.—Could you kindly give us information as to where we can purchase some Amardor. It is a kind of felt for working up enlargements in black and white?—N. ENLARGERS.

We are sorry to say we do not know the makers of this material. If the makers or any reader will give us the information we shall be glad to forward it.

J. T.—See the firms mentioned under "Dry Mounting" in the 1910 "B. J." Almanac, p. 1,314.

LIGHT.—(1) We advise you to make a lamp for powder (e.g. Agia) on the lines described in the article on page 836 of the "B.J." for October 29. (2) Apparently you must use incandescent gas, which will serve well for single portraits. The Tress Company supply suitable installations. (3) We should say the introduction by means of a knife and pencil of landscape or indoor backgrounds into negatives taken against a plain ground.

PATENT.—1. So far as we know, it is not patented. (2) £1 for nine months' provisional protection.

BLACK SPOTS ON BROMIDE PRINTS.—Can you give us any explanation of the black specks appearing on this print? We have been troubled with them during the last few months, and cannot make out their nature and origin. Only this particular paper is affected by them, while two other kinds of bromide paper used concurrently with the enclosed show no signs of such metallic (?) deposits. The print we send is not nearly so bad as some others, but we presume that the defect is sufficient to form a reliable judgment of it.—BORUP BROS.

The spots look like dirt of some kind in the emulsion, and we can only suggest that you drop the use of this particular paper.

RAPIDITY OF LENSES.—In your "Answers to Correspondents" of November 26 you state that "the f 5 lens will not be quite as much more rapid than the f 6.8, in comparison with their respective aperture numbers, on account of the many glasses." I have a f 6.8 lens (A), and was intending to get a f 6 lens (B). Would this objection of reflecting surfaces apply to lens B, in comparison with lens A, the former having more components?—HERBERT CLIFFORD.

Possibly it will apply, as there are six surfaces in one lens, as against four in the other, but the difference is not likely to be appreciable in such a case. The biggest differences are to be noted when the surfaces are increased to eight or ten. Your lens A is well known as being extremely rapid for its aperture, and probably no others are quite equal to it in this respect. You will see some notes on this question of rapidity on another page in this issue.

EMMETT'S STONES.—We are sorry we do not know actual makers. We should advise you to try the makers of ebomite or vulcanite, whose names and addresses you can find in a trades' directory.

LENSES.—Could you inform me if the rapidity of lenses would be retarded if kept in a damp room?—J. HITCHING.

The lens will be slower if the glass becomes visibly discoloured or if the surface suffers. Either process will probably take years unless the lens is exposed to quite unreasonable treatment.

WASHING PRINTS.—What do you consider enough washing for prints after a thorough fixing? I give them 20 changes, one by one, fresh water each time. Is this enough?—R. W. BROWN.

Allowing five minutes for each soak, and assuming prints are placed one by one at each change into clean water, we should say the washing is ample.

SPOTTING MEDIUMS.—I use — for blocking out the background of negatives of machinery applied to the film side. It is very satisfactory except the price. Can you tell me if there is a substitute for it which would be cheaper? I should be quite con-

tent to use — on the film side for the actual image, and use the substitute on the glass side from the image to the extreme corners of the plate. If you know of any substitute I shall feel obliged. It must not chip off for many years.—E. E.

We can only refer you to the formulæ for similar preparations in the "Almanac" for 1910, just published, page 748.

TONING BROMIDES.—I should be glad if you could give me the formula for toning glossy bromides to get tone similar to the one enclosed, which I believe to be a toned bromide, and such as are done by the — Company and other similar firms.—TONER.

The usual commercial method is by the hypo-alum process, for which many papers are very suitable. Those of the makers you name are. The formula is given on page 767 of the "Almanac" now published.

POSITIVES ON COPPER.—Will you kindly inform me as to what book (if any) I should be able to get information on how to produce positives on copper direct, as I have had several inquiries for same, and am at sea how to produce them?—CONSTANT READER.

We do not understand what you mean by "positives on copper direct." Do you mean photogravure plates for printing from, or merely positive pictures on the metal, or photo enamels? If you send us an example of what is required, or write fuller particulars, we may possibly help you.

LENS.—Our advice is that you meet your neighbour's competition by competition. The best way of doing that is to produce better and more artistic pictures than he is doing. The public in your district will no doubt appreciate the better work. Unless the man has a private installation the townspeople will know that he has not the electric light, which, of course, discounts his advertisement.

H. LONGNEY.—We find on reference to the catalogues of the four makers of the lenses that three out of the four in your list do not tally with the numbers and series you give, and what they are made to cover by the makers. The exception is that of the portrait aplanat—that is rightly described, and its price is £4 4s. Your best way will be to get the lists of the other makers and see if you can from them identify the lenses you name.

DISPUTED COMMISSION ACCOUNT.—I was canvassing operator on a salary and commission to — and —, and for a time all went well, but owing to them not finishing the work, of course the orders did not come in, and, as a matter of course, no commission. Result, I gave notice and left and accepted another situation, but — and — offered me extra and better terms and made promises, etc., that I gave up my job and went back to them; but after the second week they drifted back to their old ways, and for a second time I left, and even then they wrote me to come back, but, as I refused, they would not pay me any commission that was due, and they refused to give me any statement of business done. They never gave me any statement of business done; they simply gave me a few shillings each week, saying: "That's all the com. this week," and never showed me the books. They used to bring small bits of paper or card with "Com. paid on so and so, week ending, etc.," for me to sign. So I never knew how much work was really done. I know there is a lot of work ordered that I have not been paid on. I was taking out a summons, but was told they are not a registered company. They are a new lot, who paid up the debts and saved the old — and — going through the Court. I don't know how many there are in the company, but there is only one man and one girl who work the business, and he is called managing director. Should I sue him? At the county court they do not know the meaning of — and —, Ltd.—they say it is not "Ltd." Would you give me your valuable advice?—H. MASON.

You were remiss in not having a statement of the business that was got through you when signing a receipt for the commission. However, you can sue in the county court for anything that you know is due, and possibly obtain, through it, a sight of the books. The firm was turned into a limited liability company about a year ago, and was registered as such.

STUDIO QUERY.—I should be much obliged if you would let me know if the proposed alteration to studio (as per enclosed sketch) would be satisfactory? Studio is 28ft. long, with north-east light. Do

you advise a three-quarter span roof for one so narrow, also what length should top and side lights be?—MORE LIGHT WANTED.

The alteration indicated in the sketch will certainly give you much more light, and the design seems good, but the glass need not be continued quite up to the ridge. Eighteen inches or two feet from it will be sufficient. Six feet opaque at either end top and side will be good; then the sitter can be placed at either end as occasion may require.

STUDIO LIGHT.—(1) Will you please advise as to whether my light is sufficient and correct in my studio which I have roughly drawn overleaf? Position is north light. It is lean-to, 18ft. long and 8ft. wide. (2) Will you also kindly say where I can buy the metal-bodied rubber stamps to title negatives?—GOLD LEAF.

(1) The studio is very small if it is required for professional portraiture. The sketch, however, shows that the arrangement of the light is fairly good. But if the glass can be extended at the side about 3ft. it would be an improvement. (2) Messrs. Richford, Snow Hill, London, E.C.

WORKSHOPS AND FACTORY ACTS.—Can you kindly inform me if I come under the Workshop and Factory Act? My business is portrait and landscape photography, postcard publishing, and photographic dealer. The business is conducted by my sister and myself without any outside help. Factory inspectors called, and on my explanation that the business was conducted by my sister and myself, and that she took the same interest in its conduct and well-being as myself, coming in and out when and as she pleased, and receiving remuneration which was satisfactory to her, I considered they had nothing to do with me. With this explanation they were satisfied, but lately a new inspector has come to the district—a man who feels the importance of his position keenly—and he says unless I expose a copy of the Act on my walls and render certain other returns he will take me before the court. I feel that this is "bounce" on his part, and although he has the law on his side, the law, when administered by a civil servant whose mind can only run in a very narrow groove, is really a misapplication of justice, and his action is contrary to the spirit of the act in which all right-minded people recognise a protection for the dissatisfied or overworked. My business and my treatment of my family generally is open to the light of day, and I am too well known here to fear the result of any outside criticism either in my social or business relations with the public generally.—A. M.

The Act certainly applies to photographers, but it, when framed, was not intended to apply to such a case as yours. Still it is the law. If you are summoned, and the facts be as stated, the penalty, if any, will be quite a nominal one. However, it may save you trouble if you comply with the inspector's requirements, which, after all, are but trifling.

WILSON.—If you find that the passing trains cause such a vibration that you cannot get sharp negatives in the studio you have no remedy. You came to the railway, and should have considered the effect that the passing trains would have. If the railway came to you after you had been established for a long time the case might possibly be different.

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PRICE TWOPENCE.

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SUMMARY.

The Southport Photographic Society deserves every congratulation on its really great exhibition, which we review on page 953.

Mr. G. T. Harris, in a letter on page 961, refers to a formula in the "B.J. Almanac" as "the best and most convenient ever published for a pyro-soda developer.

A number of practical points in making screen-plate colour transparencies were brought out by Mr. Essenhigh Corke in a paper before the R.P.S. on Tuesday evening last. (P. 959.)

A lecturer on press photography at the Bolt Court School last week thought that a capable man ought eventually to command £1,000 a year. (P. 952.)

Mr. L. C. Leon, in a short article on page 949, gives the different multiplying factors for use when exposing orthochromatic plates through a series of light-filters prepared with the Hoechst K dye. (P. 949.)

A patent has been taken out for a solid preparation of vanadium suitable for the making of a green toning-bath for bromide and aslight prints. (P. 946.)

Those who may not yet have discerned any profit for themselves in the General Election may possibly do so from the article on page 947.

A lens attachment for producing one continuous panoramic negative from a series of exposures figures amongst "Patents of the Week." (P. 955.)

A German process for photo-engraving direct on metal in the camera, which strongly resembles Paynetype, is said to have been worked out. (P. 953.)

Dr. Hauberrisser has recently given formulæ for tank development with edinol. (P. 948.)

We deprecate two recent suggestions, one for using acid for setting black tones on self-toning paper and another for employing so an acid bath for sepia tones on development papers. (P. 946.)

A rocking table for the dark-room worked by weight of water has been recently described. (P. 950.)

German medical authorities are now making observations and records of the heart-beat by means of X-rays. (P. 945.)

Some recent formulæ for making a plain sensitised paper of sufficient rapidity for enlarging purposes are given on page 950.

A number of the considerations which need to be borne in mind in stereoscopic portraiture are mentioned in an article on page 947.

EX CATHEDRA.

Advertisements by Picture Post-Card.

The picture post-card has for some time been used by hotels and a few commercial houses as a means of gaining publicity through customers who write upon them to their friends. But it has remained for a Yankee real estate dealer to use a regular post-card to exploit his business. According to "System," which mentions the incident, he secured the colour-plates of a number of post-cards showing attractive views along the Hudson, where his property was located. He printed several thousand copies, hired girls to write in ink apparently informal and personal letters on the backs, dilating upon the beauties of the place and signed with an uncompromising initial and mailed them to a select list of names. The postcard had every appearance of a genuine souvenir card from a friend on a vacation, and was presumably read with more than passing interest by each of the puzzled recipients.

* * *

Prints in Indigo.

In the course of a recent paper before the German Chemical Society, a Munich chemist named Kalb has described a process in which the sensitiveness of a new compound of indigo is employed to make prints for ordinary photographic negatives. The author first prepares de-hydro-indigo bisulphite from de-hydro-indigo and bisulphite solution, and from this compound (which is a well crystallised salt of canary yellow colour and intensely sweet taste), obtains the tetra-brom derivative by addition of bromine followed by neutralisation with sodium bicarbonate. These result needle-shaped crystals of the tetra-brom sodium salt, which after purification dissolve readily in water. The solution of this very sensitive substance is applied to fabrics as a bath or to paper with a brush, and, after drying, exposure made to sunlight behind a negative. The dye is thus formed in the light-affected parts, and an image thus obtained in tetra-brom-indigo. The chlorine compound may also be used in the same way for the fixation of the prints, and a bath of plain water is used to remove the soluble sensitizer, which consists of the bisulphite compound of the dye.

* * *

Viewing the Heart-beat by X-Rays.

There is practically no limit to the usefulness of photography in its application to modern science. Not only has it been associated in some way or other with several of the most important discoveries of recent years, but it has been the sole means of making a few of these possible. Mention need only be made of the photographs made by means of the Röntgen rays and the epoch-making effect this has had in the science of medicine and surgery. What was pronounced the impossible has now

become so common as to be passed without any more notice being paid to it than if it were one of the most commonplace affairs of life. Not only has the camera done much to alleviate human suffering, it has also added very considerably to the scope of our knowledge of the human body and the different organs, and the service it has thus rendered to the human race cannot easily be estimated. To-day every medical institute and every up-to-date hospital has a thoroughly equipped photographic department, and the importance of this establishment yearly increases as new inventions continue to add to the facilities for obtaining truthful records and of obtaining reliable records. The latest addition made to nearly all the most important physical laboratories on the Continent is an ingenious contrivance for making photographic records of the beating of the human heart, virtually throwing light on that most sacred of all organs. This can be done without so much as troubling the patient to take off his clothes. He is merely ushered into a room into which no light of any kind is permitted to enter, asked to sit down on an ordinary chair facing a huge glass bulb. Presently the globe begins to hiss and splutter, electric sparks crackle in it, giving off a peculiar pale greenish light. A plate coated with barium-platinum is held at some distance from the patient near to the region of the heart. On it a well-defined image of the heart is distinctly visible, the various parts being seen so distinctly that the movements of the muscles as the blood rushes through and the valves open and close may be studied in all its minuteness, without the patient feeling the slightest shock or being in any way conscious of what is taking place.

* * *

Photographic Records of the Heart-beat.

Unfortunately photography has not yet made sufficient progress in all branches to keep astride with science. Chemists have not yet been able to prepare a sufficiently sensitive emulsion to record the movements of the heart, thus seen on the prepared plate or screen, and as repeated attempts to make cinematograph film records have only proved so many failures, science has been compelled to resort to other means. What is termed an electrocardiogram is made instead, after the following manner: On either side of the patient of whose heart the chart is to be made, two large jars containing pure water are placed. Into each of these is led the end of an electrically charged copper wire. Attached to this in the centre of the copper wire, midway between the two vessels, is an extremely thin platinum needle. As this needle rests within a highly charged magnetic field the reader can readily understand that it must begin to move immediately contact is made with the copper wire to which it is attached. All that is necessary to accomplish this is for the patient to place his bared arms into the water vessels. Immediately he does so the contact circuit of electricity is complete; the human body being a conductor of electricity causes the needle to begin to move. Experience has proved that the action of the needle follows exactly the action of the muscles of the heart in the performance of their functions. The needle moves from left to right at varied speeds and different intervals, according to the rapidity and the strength of the heart-beat; irregularities in the action or movement of the needle indicate irregularities of the heart's action. A weak heart beat produces a short stroke, a strong beat the reverse, while variations are recorded between. Photographic records of these movements are made by placing a sensitised film under the needle, moved by clockwork from left to right at a registered speed. Immediately over the needle an electric lamp is attached in such a manner that the shadow thrown by the moving needle on the revolving

film gives a clear image on development. The result is a black zig-zag line, for all the world resembling the "her-ringboning" stitching of our grandmothers. By means of these charts doctors have already been able to study more scientifically the heart and its action, and to treat with greater exactness affections of the heart which have never been very clearly understood.

* * *

Sulphur Toning of Development Papers.

A subject cognate to the above is touched upon in an American journal, where it is suggested to tone gaslight prints by transferring them direct from a strong hypo bath into weak sulphuric acid. Of course, the result of this is to deposit sulphur in the print, and must lead to yellowing of the high lights. True, the hypo bath contains a little sulphite $\frac{1}{4}$ oz. in 20 oz.; but this is a trifling proportion to the hypo, of which there are 8 oz. to the pint. While we can understand that this procedure leads to active toning, we cannot think that anyone will find it of any practical use. And, in fact, it would almost seem that the writer, Mr. D. H. Cross, does not rely on the method, for he proceeds to give a formula for obtaining sepia tones by direct development which we reproduce, as it looks worthy of a trial:

Eikonogen	20 grs.
Hypo cryst.	20 grs.
Hydroquinone	70 grs.
Soda sulphite anhydrous	240 grs.
Soda carbonate anhydrous	240 grs.
Ammonium bromide	30 drops.
Water	20 ozs.

* * *

Black Tones on Self-toning Papers.

The suggestion is made by a writer in a German contemporary to use a 5 per cent. bath of hydrochloric acid as a means of securing a cold black tone in the subsequent hypo fixing bath, customarily used for self-toning papers. The paper is strongly over-printed, given first a short immersion in distilled water, then placed for ten minutes in the 5 per cent. hydrochloric acid and, after a thorough washing, fixed for ten minutes in 10 per cent. hypo. It is difficult to see why this process should facilitate the production of a black tone actually due to gold, whereas there is every reason to think that traces of acid left in the paper are actually the cause of a species of sulphur toning taking place which would give a result of the kind described. The author declares that prints made by this process have so far withstood a year's keeping but despite that fact we would express the opinion that the safe and proper course of treating self-toning papers where permanency is a consideration, is to preserve—no acidity—but alkalinity of the paper throughout its treatment. A small quantity of carbonate of soda secures this condition in the fixing bath, or bicarbonate of soda may be used to prevent actual development of acidity from the paper. Other things being equal, we should give preference to a self-toning paper which would best give its results in these alkaline solutions.

* * *

A Solid Vanadium Green Toner.

According to the particulars which the "Chemiker Zeitung" gives of a recent German patent (No. 215,071, of January 16, 1909), granted to the Chemisch Fabrik auf Aktien (vorm E. Schering), a dry vanadium compound suitable for marketing in tablet or cartridge form is prepared by adding anhydrous oxalic acid to syrup of vanadium chloride. A solid mass is formed which keeps well and dissolves in water readily. This compound in conjunction with ferric oxalate, oxalic acid, and potassium

ferricyanide, forms a solution which gives fine green tones on gaslight and bromide papers. It is stated that 1.35 gm. of oxalic acid is used for 500 gms. of the liquid vanadium chloride, though the strength or specific gravity of this latter solution is not mentioned. On addition of the oxalic acid the mixture becomes a dry mass with evolution of hydrochloric acid gas. A suitable toning mixture is prepared by dissolving in 1,000 ccs. of water, 3.8 gms. of the dry vanadium compound, 1.5 gms. oxalic acid (anhydrous), 1 gm. ferric oxalate, and 1 gm. potass. ferricyanide.

STEREOSCOPIC PORTRAITURE AND THE DIXIO STEREOSCOPE.

MESSRS. A. LOCKETT AND GILBERT DYAS have recently drawn attention to the advantages of stereoscopic portraiture in our pages, but while we thoroughly agree with them in wishing that more work of this description were produced, yet we cannot at all agree with some of the assumptions that they individually make. One point raised has been the question of large *versus* small pictures. This involves another matter, which has apparently been overlooked both by Mr. Lockett and the French writer from whom he quotes. If large pictures are used and we employ either the Dixio or the Wheatstone stereoscope for viewing purposes, then we are limited in our choice of lenses because our viewing distance is limited. In the case of the Dixio stereoscope, the viewing distance is limited by the height of the centre partition, which is generally about ten inches. The photographs must, therefore, be taken with lenses of about ten inches focal length, otherwise we may obtain distorted and false relief. Probably the lens most suited to the Dixio stereoscope is one of about nine inches focal length, and this is not long enough for pictures much over half-plate in size. If 12 or 14-inch lenses are to be used, the centre partition of the stereoscope should be lengthened, and then only those whose vision is adaptable to that distance will be able to use the apparatus, unless they employ spectacles. Similar conditions apply to the Wheatstone stereoscope, but as in this the viewing distance is adjustable it is more readily adaptable to varying conditions.

In regard to this use of large pictures, a caution is necessary with respect to lens separation. With the ordinary stereoscope we cannot adopt a very wide separation for a near object, because it becomes impossible to mount the pictures. With a moderately wide separation we can mount if we trim the pictures down sufficiently, but then we may get other troubles in the form of either an apparent reduction in size of the object, or confusion and ghost effects. When an extra wide separation is possible it is often inadvisable, and for precisely similar reasons it is often inadvisable even when the Dixio stereoscope is used and mounting difficulties disappear. We must here object to the suggestion that in portrait stereographs a plain background should be avoided. It is even suggested that if there is no pattern on the background to give an effect of parallax between sitter and background there will be no relief visible. This is quite a mistake. The form and modelling of the sitter are fully apparent in the result without any help from the background, and this is all that is wanted in the stereoscopic portrait pure and simple. In some of the best work that we have seen in this line the background is absolutely plain, while no accessories are visible at all. If accessories and visible backgrounds are used they become far more prominent than in an ordinary single photograph, and the sitter is reduced to a mere item in a "view." The introduction of these extras does not render the relief truer, but tends to make it more obvious and more intrusive than it is in

nature. By far the truest effect of portraiture is ensured when we eschew all accessories of any kind and concentrate attention on the sitter alone. The Dixio stereoscope is a very valuable introduction, and surprise has been felt that it has not become more popular. This may, we think, be explained very easily. Many have failed to get a good effect with it simply because they have used it wrongly. The instrument must be held so that the mirror is on the *left* side of the centre partition. It does not matter which picture is on the right or left: a change simply reverses the rights and lefts of the subject, but does not affect the stereoscopic relief. If, however, the mirror is on the right of the partition, nothing but pseudoscopic effect is obtainable, and no shifting of the pictures will cure it. This point has not been so clearly explained by the inventor of the instrument as it might have been, and, as a consequence, probably nine people out of every ten who have tried the apparatus have held it the wrong way up, with very disappointing results. If they had only tried it the other way round they would have been perfectly satisfied at the start.

The reason why pseudoscopy results when the mirror is on the right-hand side is not quite clear at a glance, but there are several other features of this instrument that deserve mention. For example, if the left-hand picture is kept still while the right-hand one is moved in or out horizontally, the image most obviously contracts or expands. If the right-hand picture is kept still while the left is moved, exactly reverse effects take place. Moving the right-hand picture outwards or the left inwards is equivalent to increasing the mounting separation of an ordinary stereoscopic pair, while a reverse movement is equivalent to a reduction of the separation. The former change increases the apparent scale and often introduces distortion, while the latter change corrects distortion and produces the small scale model effect. Such an adjustment is, of course, not very conveniently made, and instead of relying on it to compensate for a wide lens separation, it is best to use a normal lens separation and then keep the two pictures equidistant from the stereoscope partition. By doing this we can avoid both distortion and reduction of scale.

PHOTOGRAPHERS AND THE ELECTION.

THE present political contest, which has perhaps been precipitated upon the country more suddenly than is often the case, has nevertheless found many photographers prepared to take advantage of it, although, like its predecessor of 1905, it comes inconveniently at a time of year when business in other directions is more plentiful than usual. However, the kind of trade which flows from a Parliamentary election is one which photographers who have been at pains to cultivate it can usually work without in any way dislocating their customary arrangements. Probably the present programme of both parties will be more fully aided by pictorial matter than has ever been the case before. In the form both of post-cards and posters, the portraits of candidates will be very largely distributed, and there are already signs that advantage is taken of the better class processes, colotype, or two-colour, or even three-colour printing, to produce the result which will be kept by those to whom it is offered. In fact, a Parliamentary candidate may have reason to fear that the very lavishness of the literature of his party which is scattered through a constituency may innocently bring him within the scope of the Corrupt Practices Act.

Of this business, and particularly that portion of it which takes the form of small advertising stationery, the photographer ought to obtain a reasonable share. In many cases he is well equipped for producing at quite

short notice considerable editions of actual photographic post-cards, but even if he is not, there are plenty of trade firms who can do the work for him; whilst still greater rapidity is obtained by those who turn out a machine-printed edition either in half-tone or collotype. In many instances the photographer will have the best and latest portrait of the candidate, so that his copyright should ensure his being easily in the position of obtaining a proportion of the business. Reproductions of candidates' portraits in the local and London press will be a further, though small, source of profit, whilst there may be also some sale for enlarged portraits of rival candidates. It has been estimated that the amount of money spent through an election in reproduction fees alone amounts to about £2,500, and though one or two of the large firms may be relied upon to have copyright negatives of many of the candidates, yet the opportunity offers for the photographer in the leading town of a constituency to turn portraits of his own taking to good advantage.

As regards the issue of post-cards, a caution may be uttered. These are saleable only during the heat of an election struggle, and will certainly amount to so much

waste-paper the minute the poll has been declared, so that as regards production—whatever the photographer's personal predilection may be as regards politics—a conservative policy in this case is more likely to be the wise one. One further note may be made, and one which is a re-echo of letters addressed to us by readers at the time of previous elections, and that is the grist which may come to the photographer's mill by contracting for illuminated displays in his town of events and scenes of the election, in addition to statements of the results as they are declared in different parts of the country. In many cases the photographer's outfit includes a good projection lantern, and as most local papers of enterprise now make a feature of bringing results pictorially before the townsfolk, there is the opportunity for the photographer to "take care of the job" from first to last, himself supplying the lantern slides of portraits, in addition to preparing the election results by the very simple method of writing the names and figures with a stylus on the plates, now sold by most of the large houses, coated with a soft coloured varnish so that the lettering is produced in bright white lines on a dark coloured ground.

EDINOL AS A TANK DEVELOPER.

[In the following article, which we translate from the current issue of the "Wiener Mitteilungen," the author claims to discover special virtues in edinol as a developer of under-exposed plates. Incidentally he comments upon the preservation of pyro and similar staining developers when used in a tank which protects the developer during use from exposure to the air.—EDS. "B.J."]

Or late development tanks in which the plates occupy a very large proportion of the space, and thus largely exclude air from the apparatus, have come into general use. This has led to certain peculiarities being noticed, an account of which would seem to be desirable. The experiments which follow have been made with a tank known as the "Foco,"¹ which holds six plates, and is provided with a water-tight lid, so that a very small proportion of air is present in the apparatus. In the course of numerous experiments I have found that the advantages of a tank of this type claimed by the makers are quite borne out in practice, and the results are frequently quite remarkable. A series of pyro cartridges are used with the tank. Whilst the pyro developer after a few moments' use in a dish forms a brownish mixture, the same developer runs out of the tank at the end of an hour's development almost as clear as water. In the case of comparative experiments with other developers the results were still more striking. Using edinol in the form of the concentrated single solution diluted with 10 to 12½ parts of water, all details were brought out in the well-known manner, and in comparison with the use of pyro as the developer, the exposure could be cut down to at least half. I therefore compared plates developed with edinol with those which had been treated in the tank. Plates exposed for an equal time and developed with edinol in a dish gave exactly the same negatives, so that the superiority of edinol compared with pyro is noticeable only when both are used in the open dish. This result can only be explained by the fact that the oxygen of the air rapidly weakens the pyro developer, and that the resulting products more or less restrain the developing solution. It was with the idea of using the edinol developer in the tank in order to bring out still more details in the negative than is possible when using edinol in a dish that further experiments were made.

It was found best not to employ the ordinary formula for the

edinol developer diluted with a corresponding quantity of water in the tank, since dichroic fog is readily produced. If, however, the proportion of sodium sulphite is reduced, the tank-developed negatives are of fine clear quality. The first successful results were obtained with the following developer:—

Edinol	1 gm.	9 grs.
Soda sulphite, cryst.....	2 gms.	18 grs.
Potass carbonate	10 gms.	90 grs.
Water	1,000 ccs.	20 ozs.

Comparative experiments with pyro developer in the tank and edinol 1 part concentrated solution diluted with 10 parts of water in the dish gave three quite similar negatives. As I have ascertained by comparative experiments that only the concentrated edinol solution, which contains caustic alkali, gives results which are about the same as the ordinary rapid developers, I attempted to prepare a special edinol developer made up with caustic alkali for use in the tank, and obtained good results with the following formula:—

Edinol	1 gm.	9 grs.
Soda sulphite, cryst.....	2 gms.	18 grs.
Caustic potash	5 gms.	45 grs.
Water	1,000 ccs.	20 ozs.

Three exposures were made under similar conditions, each given about one-quarter the requisite time; one was developed with pyro in the tank, the second with 1 : 10 edinol in a dish, and the third with the foregoing caustic potash formula in the tank. Whilst the first two exposures gave negatives strongly under-exposed, the third was vigorous, and could scarcely be described as under-exposed. Apart from the density of the negative, the detail in the shadows was distinctly better than in the others, and the formula would appear to be an excellent means of treating under-timed exposures in the tank. The complete exclusion of air is readily attained by removing the two stoppers of the tank, pouring the developer until the solution almost fills the tank to the outlet, and then again inserting the stoppers.

(¹) Apparently the tank is one upon the English market under another name, but the construction in which six or twelve plates are placed in very narrow grooves in a rack, which again fits tightly into the tank, applies to many of the development tanks which have been issued of late by British houses.—EDS. "B. J."

A similar and almost better result was obtained with the edinol developing salts MH , dissolving 50 gms. of A powder and 75 gms. of M in 3,000 ccs. of water. This mixture, which is made up by the Bayer Co., originally for the Kodak film-developing machine, on being used for a plate which had received from one-third to one-quarter the correct exposure, gave a perfect

negative in half an hour's development,² whilst, using pyro in the same way, a strongly under-exposed negative was obtained. A further advantage of the edinol preparation is that it can be used several times in succession. **GEORG HAUBERRISSEK.**

(²) The author says, in what is an obvious misprint, half a second.

A COMPARISON OF EXPOSURES ON ORTHOCHROMATIC PLATES SCREENED WITH YELLOW K.

It has often occurred to the writer how very misleading is the statement: "An (x) times screen" or "filter." It obviously means that the correct exposure for a plate behind that screen is to be multiplied by this factor to give the correct exposure with the screen; and many filters are placed on the market with a factor attached. In some cases these filters do increase the exposure by the factor, as stated, but in many others they are far from correct, as practically all the orthochromatic plates on the market are checked in a different manner by the same filter. It is with the intention of simplifying this trouble, so that those who have neither the time nor the inclination to experiment for themselves may be able to judge of the variations which arise in the use of commercial leading makes of orthochromatic plates.

During the last few months the dye known as "Rapid Filter Yellow," or "Filter Yellow K," has made great strides in the favour of both screen experts and photographers for the making of yellow filters, both on account of the slight increase in exposure necessitated by its use, and of the amount of correction obtained. Also because it is one of the very few dyes which, while holding back the violet and blue rays, absorbs the ultra-violet, thus enabling one to obtain with a weak screen and a very slightly increased exposure a colour-rendering equal to some of the older screens needing three and four times as long as the normal exposure to obtain the same correction. This in the case of an exposure running into hours (as in the case of some oil paintings) is a very great boon to the professional man.

In the table given below the screens used were made from white patent plate glass, coated with the stained gelatine, two glasses being coated and cemented together with Canada balsam.

The depth of the screens chosen are the same as recommended by the Farbwerke vorm Meister Lucius and Brüning, in their leaflet issued with the dye, and reprinted in October 1 (page 79) issue of the "B.J." "Colour Photography" Supplement, with the addition of the screen, 1-32 being half the strength of the screen they number 1-16, and the one called 2 being double the strength of their 1.

The exposures were made on a chart representing the principal colours in the spectrum, and five exposures were made, each double the other (as 2, 4, 8, 16, 32), with each plate behind each filter. All the plates were exposed in a constant light, and developed in a tank with the same strength of solution and temperature and for the same time.

Besides numbering the screens in the way that makers recommend, it is much better to mark them with the exact proportion of dye per 100 square centimetres of filter; thus the 1 screen contains .023 and the weakest one .00103 of dye for every 100 square centimetres of glass.

Thus a filter 4 cm. x 4 cm. contains in the (1) screen $.023 \times 100 \div 16 = .00368$ grains.

In the writer's opinion, this is the simplest and best way of marking the filters, as otherwise the strength or depth is only to be determined by experiment.

The amount of correction given by the 1-16 screen (.00206 per cent.) is very decided, particularly in the case of plates bathed with pinacyanol and pinachrome; and this screen is a most useful one when one desires to do away with haze, as in most distant views and for telephoto work, where, as in the latter case, the exposure is desired to be curtailed as much as possible.

One should in no case consider a plate as inferior to another simply on account of the fact that it requires a considerably higher factor compared to another with the same screen, as it may have other features, such as latitude and fine grain, etc., which outweigh its shortcomings in the former respect.

As regards colour-correction, the lower the factor is for a given plate the higher or more perfect this correction seems to be, we find that a plate requiring four times normal exposure behind, say, the $\frac{1}{8}$ screen is better corrected than one requiring eight times its normal exposure.

There is no doubt that the home-bathed plate is most satisfactory, and renders the reds and greens perfectly (if the right dye has been chosen), with a minimum increase of exposure, more so than any ordinary (by ordinary, I mean where the dye is mixed with the emulsion) orthochromatic plate on the market (plates bathed by the maker excepted); nevertheless, the rendering given by most of the commercial orthochromatic plates is very perfect, and, with a suitable screen, will satisfy the requirements of all but very special subjects.

With regard to the correction obtained with the different plates behind the different screens, the writer would prefer to make no comment; but the two deepest screens might well be dispensed with for all but very special work, as there is little difference between the correction of the $\frac{1}{2}$ screen and the 2—in fact, in some cases over-correction had set in.

MULTIPLYING FACTORS WITH FILTER-YELLOW K AND VARIOUS COMMERCIAL PLATES.

Without Filter.	1-32 or .00103 p.c.	1-16 or .00206 p.c.	1-8 or .00412 p.c.	1-4 or .00825 p.c.	1-2 or .0165 p.c.	1 or .023 p.c.	2 or .046 p.c.
3	5	8	10	15	20	25	30
4	8	12	16	18	20	25	30
4	6	8	10	12	15	20	25
4	8	12	18	24	30	36	44
4	6	8	10	15	20	25	30
4	10	15	20	30	40	50	60
6	8	12	16	20	24	28	32

In each case the most rapid orthochromatic plate made by the maker was chosen.

Wherever possible, it is better to use the screen $\frac{1}{2}$, as with this screen the rendering is very good, and with, say, the Wratten Verichrome plate it has only a factor of 4, thus increasing the exposure but four times.

L. C. LEON.

STOLEN GOERZ LENSES.—Messrs. C. P. Goerz advise us that the following lenses have been stolen from them. Any persons who may be offered them are begged to endeavour to detain the parties having them and to communicate with Messrs. Goerz:—Dagor 0/261990 in

sunk mount, Dagor 1/255513 in sunk mount, Dagor 1/262577 in sunk mount, Dagor 2/254604 in sunk mount, Dagor 168/249484 in sunk mount, Celor 1/256826 in sunk mount, Celor 4/242271 in ordinary mount.

SENSITISED PLAIN PAPER FOR ENLARGEMENTS.

[The following formulæ from "American Photography" relate to a type of paper less used nowadays for the making of enlargements, though still employed to some extent commercially, for producing of enlarged portraits.—Eds. "B.J."]

UPON various occasions the writer has received letters from many persons requesting information as to how a photograph can be made upon the centre of a sheet of paper, or upon small pieces of thick paper, such as an ordinary postcard, without going to the expense and labour of making up an emulsion in quantity for the production of a small number of prints that can be made by development.

The formula having been given to several individuals in a private way, and as it has proved to be both successful and beneficial to those who have practised it, a further benefit can be supplied to all those who wish to practise a simple process by making it more generally known by publication in this journal. Two methods of development can be employed, both of which are effective, and will give the operator the choice of colour best suited to his taste, while the material and chemicals can be obtained almost anywhere. As to the choice of paper, ordinary note-paper will answer the purpose very well; many of the drawing papers, as well as the ordinary postcard, Whatman's, and other varieties of drawing papers, can be used, and excellent results obtained; in fact, an excellent base can be obtained of a view or portrait by enlargement suited for after-painting or working up in sepia or black and white.

The process, in fact, is suited particularly for enlargement from small negatives.

Any number of sheets of paper can be salted, and after drying kept in a dry place under pressure, as, for instance, in an ordinary printing frame, until required for use. The salting solution is made up as follows, which can be made up and used in daylight, when if any air bubbles are found they should be dispersed by dipping a quill camel's-hair brush into the salting liquid and lightly rubbing over the spot where the bubble has formed.

SALTING SOLUTION.

Serum (made from milk)	6 ozs.
Iodide of potassium	1 dr.
Bromide of potassium	30 grs.

The iodide and bromide of potassium are best dissolved by grinding them in the serum in a small mortar, or crushed in an eight-ounce glass graduate with a glass rod (do not use wood or metal of any kind for this operation).

When the salts are dissolved mix with the rest of the serum, and filter through a tuft of absorbent cotton pressed lightly into the neck of a glass funnel, after it has been wet with water and wrung nearly dry. This will prevent clogging during filtration. The pieces of paper may be salted either by floating them upon the liquid for three minutes, and then suspended to dry, or they may be brushed over the middle of the paper in a circle or square and dried, always placing a lead-pencil mark upon the back, so as to know which is the side to be sensitised when the time arrives to make the picture.

SENSITISING THE PAPER.

Make up the following sensitising solution:—

Distilled water	10 ozs.
Nitrate of silver (c.p.)	300 grs.
Glacial acetic acid	$\frac{1}{2}$ oz.

Now take the piece of salted paper and float this upon the sensitiser in a clean glass or porcelain tray for three minutes, or, carefully brush over the surface some of the silver solution with a small tuft of absorbent cotton, that will be for the paper that has been salted in the centre; allow the paper to become only slightly dry, so that there is no liquid to run off the surface, then, having the enlarging apparatus ready, place the sensitive sheet of paper in place of the focussing card. After making the exposure, which may require from a few seconds to a minute or more, remove the paper and develop with the following solution:—

DEVELOPING SOLUTION.

Distilled water	6 ozs.
Citric acid	20 grs.
Pyrogalllic acid	12 grs.

The picture will develop in a very short time, when it must be washed in running water in a tray, then fixed in the following bath:—

FIXING SOLUTION.

Water	10 ozs.
Hyposulphite of soda	2 ozs.
Chloride of gold	1 gr.

Place the marked print into this, and allow it to remain for five minutes. It may then be removed and washed well in running water for half an hour, then dried, or pasted up and mounted.

Another developer consists of the following:—

IRON DEVELOPER.

Distilled water	10 ozs.
Glacial acetic acid	$\frac{1}{2}$ oz.
Photosulphate of iron	$\frac{1}{2}$ oz.
Alcohol (photographic)	$\frac{1}{2}$ oz.

This developer will bring out the image rapidly. The development must not be carried too far, or the paper will become grayed; after development wash well and fix as described.

Serum is readily prepared from milk by allowing about a quart of milk to stand until the cream has become well separated, then add one ounce by measure of acetic acid to the remaining skimmed milk, stir the acid well into the milk and allow it to stand for twenty-four hours; the curd will separate from the serum, which is the clear liquid that remains. This must be filtered so as to eliminate any trace of fat produced by the cream. A piece of rennet can also be used in place of the acetic acid, the serum in either case will answer the purpose.

Enlargements from small negatives by the above method are produced without gloss; there being no gelatinous base, the picture is mainly upon the surface of the paper, the natural surface of the paper being retained, so that it lends itself admirably for water-colour work or India ink. The resultant picture when worked up presents no appearance of a photographic base.

A. J. JARMAN.

SOME SUGGESTED MECHANICAL DEVICES.

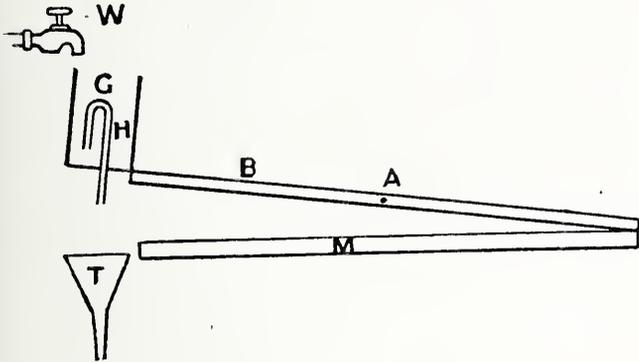
[In the current issue of "Photographische Rundschau" a contributor, Herr H. Steinach, describes one or two designs of apparatus which possess certain elements of novelty, and though we consider it outside of our province to devote space to the making of equipment which, with scarce an exception, can be more cheaply obtained ready made, it may be of service to describe one or two of the pieces of apparatus which the writer in our German contemporary has suggested.—Eds. "B.J."]

A Simple Rocking Table for the Dark-room.

AN arrangement by which the water supply of the dark-room may be readily applied to working a rocking table is as follows. Although the apparatus does not keep the dish in constant motion, it provides intermittent movement of the contents, and, therefore, is particularly suitable for tanks containing developer which is being used on the time system as well as fixing and toning baths

which require to be kept in movement every now and then. It consists of a table A, which is pivoted at a point A, and is provided at the left-hand end with a small vessel G, fitted with syphon H, which will draw off the water in the vessel G into a funnel T, which latter, of course, may be dispensed with if the syphon can be made to deliver directly down a sink. The table is weighted at the right-hand end so that when the vessel G is empty

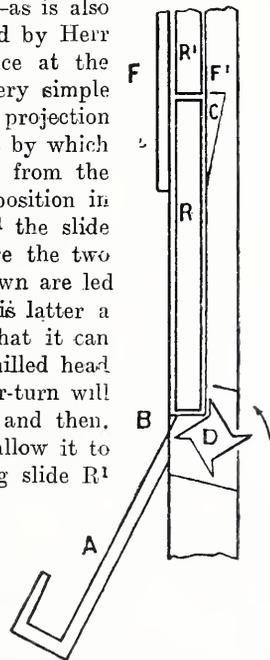
it takes the position shown in the drawing on a somewhat exaggerated scale. Thus, if the water supply W be turned on so that the vessel G—which should hold about 15 oz. of water—becomes full in about one minute, the weight of the water will bring down the left-hand end of the table, but as soon as the syphon works and empties the



vessel G the weighted table will re-assume the position shown in the drawing. The syphon tube should not be of too wide a bore: about 4 mm. (.16 inch) is a convenient internal diameter. If much wider, there is the difficulty of air being sucked in to the syphon tube, and as a result the syphon continuing to work after it should have stopped its action.

An Automatic Lantern-slide Carrier.

Although a number of plans by which a lecturer may himself operate the changing of the slide from the lecture platform have been suggested, none of them, in our experience, have proved to be really effective in use, and most of them—as is also the case with the present device suggested by Herr Steinach—actually call for some assistance at the lantern. The method now suggested is very simple in construction, and is adaptable to any projection lantern having an open stage. The device by which the slide is changed will be understood from the drawing. R is the lantern slide in the position in which it is being shown on the screen, R¹ the slide which is next to be shown. F and F¹ are the two guides between which the slides to be shown are led into the carrier. In the lower part of this latter a wheel D with four teeth is mounted so that it can be given a quarter-turn by means of a milled head on either side of the carrier. One quarter-turn will thus raise the slide R a short distance, and then, on the wheel being further turned, will allow it to fall into the receptacle A, the succeeding slide R¹ automatically dropping into position. The author of this device suggests that it may be actuated by a small electro-motor, put into action by the lecturer himself by means of a flexible connection to the platform.



Frames for Washing Enlargements.

For the use of the amateur worker, who, when making enlargements, is apt to overlook their proper treatment in the washing

water and is liable to leave them to soak together when they should be kept properly apart, the series of frames suggested by Herr Steinach are certainly useful, particularly as each may also be used as a frame on which to spread the enlargements out to dry. The

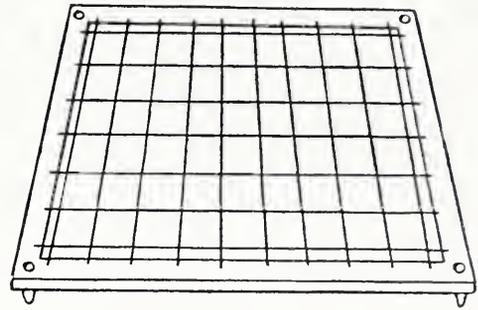


Fig. 1.

arrangement, it will be seen, is similar to a type of washer which Messrs. Marion have had upon the market for some years, whilst, on the other hand, the separate frames might well be made by suitably weighting the drying nets—consisting of a fabric held in a wooden frame—which Messrs. Houghtons have supplied under the

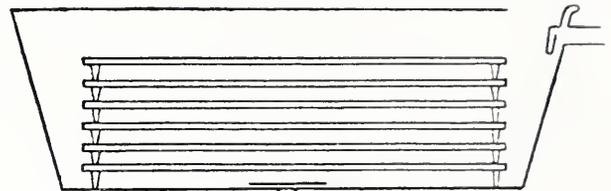


Fig. 2.

name of "Ensign." As the drawing indicates, each frame is provided on its under side with four small knobs or buttons, whilst on the upperside four recesses are made to take the buttons projecting from the frame above (see section drawing, Fig. 3). This allows of a series of half a dozen frames or so being quickly put together and placed in any convenient trough or tank where they can be washed with the assurance that the water is coming freely in

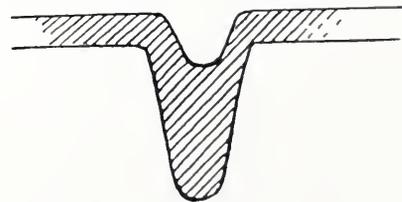


Fig. 3.

contact with each enlargement. Naturally wood, from the fact that it floats in the water, is not a suitable material for the frames. Herr Steinach recommends a metal frame, but for our own part we should think that the best of all would be a frame of heavy wood with some heavy metal rod inset into each to weight down the frame, but yet not to give any metal surface which might come in contact with the prints.

LOOK ON THIS PICTURE—AND ON THIS.—For some unexplained (but not inexplicable) reason a writer in the organ of a Midland photographic society is unable to express approval of some verses (he misquotes them, but never mind) which recently appeared in our pages under the title "Hyperfocal Distance." We regret this, because they were remarkably fine verses and moreover pointed a useful moral. Our friend is all for purism in literature, so we may be pardoned for drawing to his notice one or two phrases in an article which faces his in the periodical in question. And we may suggest that the lines in which Stevenson once dedicated a book to his "Critic on the Hearth" would be profitable reading to those who

apparently resent any sort of criticism. The writer on "the page opposite" gives of his quality as follows:—

"After I have developed my prints I used an acid bath, a few crystals of pot. metaspulphite dropped in the Hypo is good."

"If I have a margin in my prints I always clean them off with a little Farmer's Reducer."

"Now when your prints have been sulphided, wash for a few minutes and dry. Then try this: use a little vaseline—Lanoline is better, and rub thoroughly with the finger tips on a little cotton, then take clear cotton, or a soft piece of muslin and rub all off, and you will be surprised at the richness of tone."

PRESS PHOTOGRAPHY.

ON Thursday, December 2, Mr. Fred O. Penberthy lectured at Bolt Court School on "Press Photography." He said that the fact underlying the success of the Press photograph was that it replaced actual sight of the thing depicted much better, as a rule, than a description in words could do. This was the origin of all pictorial representation, and the photograph came closest to fulfilling this condition. The first condition requisite from a Press photographer was that he should be both journalist and photographer. The drawback with most of those at present engaged in the business was that they were either too much journalist and not enough photographer, or too much photographer and not enough journalist. What he felt sure was evolving was a sort of "super" journalist, who could give the essence of the news in a pictorial manner. He stated that after making a careful computation he came to the conclusion that at least £500,000 was spent every year by proprietors of newspapers and publishers in the purchase of photographs for publication. This was entirely due to the development of the half-tone process. He thought that England was five years ahead of any other country in its Press photography, not even excepting America. Editors here seemed to have a much greater respect for the value of the photograph as a news item, and showed more discretion in selecting a particular portion of any photograph of a telling character. The lecturer said that a photograph was, of course, very much superior if it showed some character in composition, and he illustrated what he considered to be the ideal news photograph by the picture depicting the evacuation of Port Arthur, in which two of the prisoners were placed in the foreground, and the mass of the prisoners were allowed to get so far away that the whole twenty thousand appeared as a long dark mass on the side of the hill in the background. In that photograph the whole story was most impressively and convincingly depicted.

Undoubtedly the most successful photographs were those with human interest, as people are much more interested in looking at other people than at things and places only. An examination of any of the illustrated papers would confirm this remark.

Many people were under the mistaken impression that Press photography was an easy and delightful recreation; and when he had recently advertised, he had received no less than 350 applications, out of which, after interviewing twenty, he had not been able to engage one. Some of the applicants were most amusing. One man thought he would be most suitable, as he was fond of an open-air life; he knew nothing about photography or journalism, but he was fond of being out of doors. Yet, Mr. Penberthy said, Press photography was extremely difficult work, and he described the very uncomfortable straits to which news photographers were occasionally put, giving, as an example, the case of a man who photographed the "Elevation of the Host" outside Westminster Cathedral, and had to be conveyed up a coal shaft to the top of the roof, and when there could only take his photograph by allowing a man to hold on to his heels, while he projected himself over the edge of the roof. This photograph, a particularly successful one, had been carefully thought out days before. He also showed a photograph of some of the incidents in the Spanish war in America, in one case where the photograph had taken three hours to be composed. This was a picture of men in a blockhouse which (after this trouble had been taken) not only told the story, but was in itself of quite pictorial excellence.

The lecturer's remarks were illustrated by a large number of slides of most varied interest, concluding with the famous picture of the bomb explosion on the occasion of the marriage of King Alphonso of Spain. This was taken by an amateur, who had no idea of its value, and did not discover he had taken it until two days after he had done so, and then he only sent along a poor quarter-plate albumen print of the scene. He was exactly opposite the spot, and waiting to snap his shutter, when the explosion of the bomb caused him to do it quite unconsciously. A curious object in the foreground of the picture looks like the bouquet of flowers in which the bomb was concealed, falling through the air.

Speaking of the remuneration for Press photography, Mr. Penberthy thought that any Press photographer worth his salt should not be content to remain a mere messenger sent to do whatever he is told, but he should specialise and make his work individual, so that he could always command good prices for it. He thought a capable

man ought to be able to obtain eventually £1,000 a year. On the other hand, many men now in the business—and more were drifting into it—were not worth as much as 30s. a week.

ELECTRICAL DISCHARGES ON PHOTOGRAPHIC PLATES.

PROFESSOR A. W. PORTER, B.Sc., gave a demonstration at the Röntgen Society's meeting, on December 2, of the effects he has obtained on photographic plates when a discharge of electricity from an induction coil is made to pass over them. A copper plate at the back of the photographic plate forms one of the terminals, and the other terminal is a wire on the opposite—i.e., the sensitive—side of the plate, coming into contact with it near the centre. The originality of Professor Porter's experiments lies, in the first place, in the fact that he has made discharges pass when a partial vacuum has been created around the plate. No investigator, so far as is known, has followed this line of work. He finds that when the pressure is reduced from that of ordinary atmosphere to about 55 centimetres of mercury there is a general tendency, in the negative discharge, for the familiar fan-shaped figures to spread out rather more widely. At 45 centimetres' pressure this is still more noticeable, and at this stage there comes into view a new phenomenon, of which neither Professor Porter nor any of the speakers in the discussion could furnish any explanation. It is a detached, triangular, bright figure, which looks as though the separated effects of the line of discharge had re-aggregated. At about half atmospheric pressure this effect is still more noticeable, and there is also a rosette surrounding the wire terminal on the plate.

Professor Porter has also tried the experiment of changing the nature of the gas surrounding the plate. If, instead of air, nitrogen be taken at atmospheric pressure, quite different figures make their appearance, and there is a tendency towards the formation of the central rosette, which does not begin to form in air until a much lower point has been reached in the scale of pressures. Different appearances are also seen in oxygen, in which the discharge is more curvilinear than in other cases; in carbon dioxide, where moss-like shoots separate from the main lines of discharge; and in ammonia, in which the figure is much more jagged than with the other gases.

He has arrived at another type of effect by sending a blast of air across the plate, and by placing the plate between the poles of an electro-magnet and producing as strong a field as possible. Only one part of the discharge is affected by the magnetic field, and that is the main discharge which passes across to the edge of the plate. This is swept to one side, and the effect in that region is as though the plate had been in a cyclone. Professor Porter believes that this part of the discharge consists of heated air, which is made into a conductor, and the effect of the blast of air on the magnetic field is to sweep it out of its course.

Most interesting of all were some experiments in which the electrode on the sensitive side of the plate consists of a wire brought down to contact with a small triangle of copper or other metal. In the case of a positive discharge under such conditions—that is to say, a discharge in which the triangle was made the positive terminal—there was a tendency for the streamers to come from the corners of the plate, whereas in the case of a negative discharge the streamers come off at right angles. The fact that the negative discharge comes off at right angles, says Professor Porter, seems to indicate that it is governed much more by statical conditions than the discharge of the positive. Replying to a great many suggestions for certain of the phenomena, which were put forward in the course of the discussion, Professor Porter said that he had not tried the use of a plate slightly moistened, nor of a specially desiccated plate. With a reasonably dry plate—though not desiccated in the modern chemical sense—there was no difference in the lines of direction taken by the discharge. In fact, he could trace nothing which depended on the photographic plate. Whatever plate was used, slow process or the fastest and most sensitive, the same effect was produced. But if the air around the plate was varied a different effect was obtained at once. Mr. Campbell Swinton, in a communication sent to the meeting, said that he believed results obtained in this way on photographic plates were really due to the luminosity of the discharge acting photographically in the ordinary manner. The luminosity though faint to the eye, was full of ultra-violet rays, and no doubt very actinic.

Photo-Mechanical Notes.

A Method of Preparing Half-tone Etched Plates Direct on the Metal.

In the current issue of "Photographische Kunst" Professor W. Urban gives an account of a method which has been worked out by an inventor named Fritz Hausleiter, of Nuremberg, the process having for its object the making of half-tone and line blocks direct on the metal plate in the camera. The metal plate, which may be zinc, copper, or brass, is first of all treated in a special solution (Brünierungs-Flüssigkeit), the object of which is first to secure better adherence of the emulsion, and at the same time to isolate the latter from the metallic support. A special gelatine emulsion, containing both silver iodide—in addition to the usual bromide—and a small proportion of colloidal silver, is coated on the plates. According to Hausleiter, the colloidal silver is necessary in order to give a development of the latent image through to the back of the plate. Representing the latent image as *a* in the figure the effect of the development of this latter in presence of colloidal silver may be represented as *bb*. The inventor does not give any explanation of the action of colloidal silver, but, according to Herr Urban, there would appear to be a kind of physical intensification, the electrolyte of the developer precipitating the silver hydrosol of the emulsion film as a silver "gel," which attaches itself to the silver nucleus produced from the silver bromide.

The plates coated with emulsion will keep for a considerable time; their sensitiveness is something between a wet plate and that of a good collodio-bromide emulsion. The plates are laid direct in the dark-slides and exposed behind the ordinary half-tone screen, using one stop only and without giving any "flash" exposure. They are then subjected to the "first development." For this, is used a glycin formula containing plenty of bromide. Development, of course, is to be judged from the appearance of the plate as it lies in the dish, but is readily controlled, and is completed in a few minutes, after which the plate is rinsed in water. It is then ready for, what is termed by the inventor, the "second development," which con-



sists in treatment in a special reducing solution which is kept protected from the action of the air by a layer of heavy paraffin oil and allowed to act for a certain time by daylight or artificial light. In this bath the portions of the silver haloid which have been left unaffected by the "first developer" are completely reduced so that the whole image disappears; at the same time the gelatine part of the plate complementary to the image is very strongly tanned. The composition of this second solution, which constitutes the essential part of the process, is preserved as a secret by the inventor. The plates are next rinsed with warm water, which removes the untanned portion, that is, those darkened in the first developer, so that in these portions the bare metal is exposed, whilst the parts tanned by the second developer exhibit considerable relief. The silver, still present in this latter, is removed by means of Farmer's reducer, and the plate then put in a bath of methyl-violet to make the image visible. The plate is then treated with potassium bichromate solution, the action of which bath on the film and on the underlying layer of oxide gives to the coating the properties of an ordinary fish-glue film, so that it can be burnt in as usual in the enamellene process and etched with iron perchloride of strength 36 deg. Beaumé. In the case of zinc a solution of fish glue, bichromate and formaline is used before treating with Farmer's reducer.

Herr Urban remarks upon the general resemblance of this process to Paynetype, but insists upon its essential difference from the latter in the absence of a collodion substratum. We rather gather that the Hausleiter process has not yet been brought to a fully working condition, but considerable use of it both for line and half-tone work is prophesied in anticipation of this event.

The process, we would say, seems very similar to Paynetype in all respects, except the difficulty of working, for Paynetype is a much simpler process than the one described. Collodion substratum

is not essential to Paynetype, though a substratum is; this can be any substance possessing the requisite qualities of insolubility in developing solutions and solubility in some other solutions. Shellac, for example, would serve instead of collodion.

Paynetype Process.

Mr. Arthur Payne, the inventor of this process, has consented to give a lecture-demonstration of it at the Bolt Court School on Thursday, January 13, at 7.30 p.m. All those interested in recent advances in process work should not neglect this opportunity of hearing details and seeing demonstrated this remarkable invention.

PHOTO-MECHANICAL PATENTS.

The following patents have been applied for:—

ETCHING.—No. 27,276. Improvements in apparatus for etching printing plates. William Matteson and Tom Birch Gould, 6, Lord Street, Liverpool.

PROCESS WORK.—No. 27,387. New or improved tools suitable for use in the production of process engraving, process prints, and for other like purposes. Joseph Bell, 115, Cannon Street, London.

SCREEN-PLATES.—No. 27,665. Improvements in screen-plates for half-tone process printing. Henry William Hamblin Palmer, 52, Stephen's Road, Tunbridge Wells.

Exhibitions.

SOUTHPORT PHOTOGRAPHIC SOCIETY.

THE promoters of this exhibition may be heartily congratulated on the collection of photographs they have got together and which is now on view, by permission of the Southport Corporation, at the Atkinson Art Gallery. It is pleasing to record this further instance of municipal recognition of photography. Here it is a well-deserved compliment, in which Dr. E. W. Bradley (chairman of the Exhibition Committee), Mr. J. McLellan (hon. secretary), and the other officials are fully entitled to share. In all 630 pictures are hung. Autochromes and lantern slides represent a further fifty-eight entries. The leading feature of the exhibition is the Dresden collection. It more than fills one large room. Perhaps the one picture which for size and realistic effect stands out is "A Wind Sea," by F. J. Mortimer. The loan collection is very strong, and may be described as a Royal and Salon combined, so many of the best prints at each of those shows being here. Included are works of the Buffalo circle and a Hungarian section. The visitor, on ascending the entrance steps, finds himself amid flowers and shrubs and the exhibits of the open section. As the space at our disposal is limited, we will only say that this section is good, and that we propose to return to it later to expostulate.

It must be understood that where corporations extend hospitality to photography, as in this case, their principal object is to benefit their townsmen. They wish to encourage their own ratepayers. If the local society respond by a satisfactory number of exhibits, a corporation then feels that the end it had in view has been achieved and will look with favour on a future request for similar privileges. The members of the Southport Society, about 100 strong, have responded well. They show 140 pictures and 16 sets of lantern slides. While some of the pictures might have been dispensed with, one must remember that the principal object of a local show is to encourage the local men, and this cannot well be done by rejecting their work. As a whole the members have done well and show a refreshing outlook on nature which is full of promise for the future. Dr. and Mrs. Bradley jointly have thirty-five entries, including slides, and have secured a number of merited awards. These workers have the honour of a panel to themselves. It contains sixteen ozobrome prints of large size, while others are entered in the open class. They have essayed almost every branch of subject. In some they have been quite successful, but a verdict given generally would be that shadows are on the heavy and solid side, and the interiors, of which there are seven in the above-mentioned panel, are mostly similarly affected and lacking in atmosphere. The most successful as regards quality of shadows and atmosphere are Nos. 165, 166, and 172. No. 164 is a suave and dignified composition—indeed, the word dignified may be applied to all Dr. and Mrs.

Bradley's interior work. No. 158, "Cloisters, Salisbury," is ornate. This print is awarded a plaque. E. W. Johnson's, No. 86, "Sandhills," deserves a better place. The sand looks as sand does when seen in sunshine and shadow. The seated figure is in the right place. This little print is as good as any in the class. No. 89, "A Dutch Study" (medal), by J. R. Rawlinson, is technically good. It is pure, straightforward portraiture of a woman who appears to be a Dutch virago. No. 110, "Shades of Evening," by Joseph Meadows, raises the question whether the farmhouse and the two trees on the right would not make a better picture than does the whole. No. 94, "Head Study" (medal), by G. C. Appleyard, is a charming portrait of a girl, and almost suggests a dainty flower. No. 70, "Liverpool—Impression," by William Rees, shows, as well as does any print in the entire exhibition, a capture of real light. Space will not permit of mention of several other meritorious works. Nos. 57, 63, 128, 188, and a few others are below the standard. Nos. 81, 103, 112, 114, 133, and 143 lack treatment of the shadows.

Reverting to the open section, one must at once admit that photography has its fashions. The fashion which appears to be coming in is deadly dull. It is the purely decorative. Dr. Evershed has one, entitled, "Profile," No. 55. There is no facial modelling, the tones are very, very few, and the manhood of the sitter is extinguished for the sake of obtaining decorative line and mass. This is the faith of the pot-hook school. Decorative line and mass—the latter when there is any—are their Alpha and Omega. Nothing else matters. Should the spectator think that something resembling life, light, virility, sea, or land, is more desirable, it is evident he has not found salvation. He is not of the elect who find mundane things unworthy. Another exponent of this weedy gospel is J. C. Warburg, in No. 429, "Out into Evening Mist." This time it takes the shape of an isosceles triangle—a steamer going out of the picture on the left, smoke trailing out on the right, and the wake of the steamer completing the triangle, although very little can be seen of anything. This decorative line, solely for the sake of decoration, is a revival of the soulful times, now almost forgotten, when the elect deemed their life mission fulfilled when they felt themselves worthy to live with feathers out of the tail of a peacock and an old china teapot.

The exhibition was opened on Saturday last by the Mayor of Southport, and will close on January 1. It is emphatically one which should be seen. Mr. A. H. Blake was the judge. Space will not allow of an enumeration of the awards. To-morrow (Saturday) Mr. J. McIntosh will lecture at 8 p.m. on "The Thames from its Source to the Sea."

SOUTHAMPTON CAMERA CLUB.

THE ninth annual exhibition of the Southampton Camera Club was held at the Art Gallery last week, and was voted a great success by members and visitors. The exhibits proved to be a very level lot this year, and Mr. Furley Lewis, F.R.P.S., who judged them, felt compelled to award a very large number of "hon. mentions" in order to show due appreciation of the work he was called upon to consider. The pictures were well displayed; the lighting both by day and night was all that could be desired, and a curtained stand, illuminated within (nicknamed the "Lovers' Retreat"), showed off to perfection a fine collection of colour transparencies and lantern slides. Altogether the exhibition was one of the most enjoyable yet held at Southampton, and it is to be hoped that the committee will not slacken their efforts next year because of the meagre support accorded them by the public.

The space at our disposal will not allow us to give anything like a detailed criticism of the exhibits, but a few of the more outstanding pictures may be noticed. The members' classes, always the most interesting, because they show what advance or otherwise has been made in a particular district, are somewhat disappointing; for, with the exception of the work of three or four, things are just where they were a year ago. Guy Vachell took the premier award again this year with four portrait studies, all showing beautiful quality, but the subjects were—in three instances, at any rate—somewhat stiff and "posed." "Sir Francis Galton" was this worker's best picture, we thought, but the judge evidently preferred "A. P. Wells Sandford, Esq.," and "Dawn." C. D. Kay showed six oil prints, four of which received recognition from the judge, who considered

"Portrait, Miss G.," the best picture in the members' classes. Another, and very popular, award in the premier class went to A. Gibbings for a delicate forest picture, whilst in addition to those mentioned "hon. mentions" were given to work by H. Essex and A. D. R. Bacchus. Some good work was also shown by C. Daw, H. J. S. Quilter, R. E. Parson, F. Watson, O. P. Butler, and G. Long. In the class for those who had not previously won an exhibition award, R. G. Vaughton Dymock scored heavily, his best picture being "Mountains and Mist," an exceptionally pleasing Swiss landscape, whilst two other pictures that caught the judge's eye also hailed from that country. F. S. Albert and W. P. Purvis took awards for good sound work, as did Miss E. Alder a "hon. mention"; and it would be unfair to pass on without mentioning that other prominent exhibitors in a strong junior class were A. Lisle, J. Heath, W. R. Olney, G. Long, Mrs. Alan Francis, E. E. Butler, and Miss H. A. M. Vokes.

The work in the open classes was representative of the best pictorial work in the country. Walter Selfe's "Winter's Morning" and Mrs. Barton's "Boy with Apple" seemed to be the favourites with visitors, but the latter picture was passed over by the judge in favour of the same lady's "Walter Neville, Esq."

The display of colour work was exceptionally fine, including over fifty Autochromes kindly lent by Capt. Stomm; and a trade stall, where Mr. W. Martin had a fine show of "Everything Photographic," completed the attractions in the room.

The award list was as follows:—

OPEN CLASSES.

CLASS A.—Framed prints, any subject.—Awards: 127, "A Winter's Morning," Walter Selfe; 164, "Peonies," Miss M. A. Smart; 172, "Winter's Solitude," E. Alwyn Biscoe; 182, "Still Waters," Mrs. Ambrose Ralli; 201, "Walter Neville, Esq.," Mrs. G. A. Barton. Hon. Mentions: 126, "Playmates," Mrs. Ambrose Ralli; 139, "The Rivals," E. J. Grant; 141, "A Portrait," Miss Vandamm; 145, "A Portrait Study, Lady at Spinnet," A. Keith Dannatt; 146, "The Lord Protector," A. H. Dodman; 147, "The Visitor," Miss B. McFarlane; 149, "His New Socks," H. E. Galloway; 158, "Cloud Capped Towers," W. A. J. Hensler; 166, "An Impression," B. and W. Fisk Moore; 167, "The Old Jetty," Rich. Delf; 168, "Sunshine in Old Whithy," Rich. Delf; 169, "Light and Shade: Norwich Cathedral," Rich. Delf; 176, "Yellowing Woods in the Sun's Waning Light," Rich. Delf; 178, "The Vanity of Youth," Miss C. McFarlane; 183, "Dr. J. F. T.," H. E. Galloway; 191, "Over the Hills and Far Away," E. Alwyn Biscoe; 196, "Grasshopper Warbler," Wm. Farren; 199, "Garden Warbler," Wm. Farren; 201b, "The Cuckoo," Alf. Taylor.

CLASS B.—Framed prints, any subject. Open to those who have never received an exhibition award.—Awards: 214, "Telephoto 10 Dia. Chamonix," C. A. Swan; 222, "Expectation," T. D. Ralli; 238, "Meditation," Miss K. Paget. Hon. Mentions: 202, "Egyptian Columns, Venice," C. A. Swan; 210, "Court of Lions, Alhambra," C. A. Swan; 226, "The Mill," Dr. C. F. Metcalfe; 227, "A Silent Stream," Elliott Peel; 230, "Ancient and Modern," Dr. G. P. Jordan.

CLASS C.—Lantern slides, any subject.—Awards: "Rue Bougherie Caudebec," W. A. Clark; "Spring Landscape," T. H. Franklin. Hon. Mentions: "The Garden's Promise," T. H. Franklin; "The Bishop's Eye," W. A. Clark; "Morning Sunlight," H. Essex; "A Courtyard," W. A. J. Hensler; "A Vista, Rouen," W. A. Clarke; "Gossip," Dr. F. Thompson; "The Watched Pot," Dr. F. Thompson; "Young Wood Owls," Alf. Taylor; "Grasshopper Warbler, No. 1," W. Farren; "Grasshopper Warbler, No. 2," W. Farren; "The Rivals," E. J. Grant; "Harvest Time," T. H. Franklin; "The Realm of the Snow King," Graystone Bird; "Heron," G. A. Booth; "Great Tit," G. A. Booth.

CLASS D.—Colour work.—Award: 286, "A French Laundress," T. D. Ralli. Special Hon. Mentions: 258, "Conservatory Flowers," A. F. Robinson; 260, "Arum Lilies," A. F. Robinson; 287, "A Farm House," T. D. Ralli; 291, "Still Life," H. O. Klein. Hon. Mentions: 247, "The Larder," H. J. Comley; 256, "Frame of Autochromes," Colin N. Bennett; 288, "The Captain," H. O. Klein; 289, "Iris," H. O. Klein; 298, "Madresfield Court," G. E. Saxby Thomas; 294, "In a Chemical Laboratory," H. O. Klein; 302, "The Orang Stall," J. C. Warburg; 309, "The Gleaners," U. W. Jones; 310

"River Wye, Hereford," U. W. Jones; 312, "Peonies," G. E. Saxby Thomas.

MEMBERS' CLASSES.

Champion award for the best four pictures by a member in the club classes: Nos. 7, 13, 24, 41, G. C. Vachell.

CLASS E.—Framed prints, any subject. The "Amateur Photographer" silver medal for the best picture in the members' classes: "Portrait, Miss G.," C. D. Kay. Awards: 1, "A. P. Wells Sandford, Esq.," G. C. Vachell; 32, "Dawn" (debarred), G. C. Vachell; 59, "A. J. Kay, Esq.," C. D. Kay; 68, "The Church in the Vale" (debarred), C. D. Kay; 70, "A Corner of the Common," A. Gibbings. Hon. Mentions: 11, "The Village," H. Essex; 13, "Sir Francis Galton," G. C. Vachell; 23, "After Rain," C. D. Kay; 30, "An Autumn Morning," A. Gibbings; 37, "November," G. C. Vachell; 40, "Chrysanthemums," H. Essex; 51, "Major Dalrymple," G. C. Vachell; 62, "Funnel Web Spider," A. D. R. Bacchus.

CLASS F.—Framed prints, any subject. For those who have not previously received an exhibition award.—Awards: 80, "Low Tide," F. S. Albert; 84, "Mountains and Mist," R. G. Vaughton Dymock; 94, "A Specimen of Swiss Carving" (debarred), R. G. Vaughton Dymock; 108, "Holy Trinity Church, Hull," Dr. W. P. Purvis. Hon. Mentions: 98, "Relics of By-gone Days," Miss E. Alder; 93, "Twas in the Winter Cold," R. G. Vaughton Dymock; 99, "The Falls of the Kander," R. G. Vaughton Dymock.

CLASS G.—Lantern slides.—Awards: "An Alpine Valley," W. R. Kay; "A Corner of Clovelly," H. Essex. Hon. Mentions: "The Awakening of the Fleet," W. R. Kay; "Lucerne," W. R. Kay; "A Hampshire Farmhouse," H. Essex; "Greyfriars Bridge," R. E. Parson.

NORTH MIDDLESEX PHOTOGRAPHIC SOCIETY.

BUT a few weeks the junior of the Hackney Society, the North Middlesex comes of age this year also, last Wednesday witnessing its twenty-first exhibition. The high standard of its work, and the enthusiasm evinced by its industrious members, are but another proof that amateur photography is daily growing as a hobby and pastime, and that its results are everywhere attaining to a higher standard. The North Middlesex Society is particularly strong in the oil and bromoil processes, and the prints in this method make up one of the distinguishing features of this year's show. The other feature is a striking display of night photography—the outcome of a nocturnal ramble by a group of the members in and about Leicester Square. The palm in this work is held by the president, Mr. H. W. Fincham, whose fine treatment of the Shakespeare statue seen against the lights "In Theatre Land" (60) has lifted a mere experiment into an excellent pictorial achievement. The picture preserves the breadth and tones natural to the scene under the conditions of artificial lighting. Not a few of the other attempts suffer through over-exposure, in showing too much detail and too great a range of tones. We are pleased with the figure works of Chas. A. Morgan, which show much taste and power of treatment. Louis Dick is also masterly in his treatment of bromoil work. In "The Surrey Docks" (23) it alone saves a rather cumbrous composition. He atones for this in his other subjects, especially in the capital "Auld Stirlin' Brig" (93). S. E. Wall's "Essex Mill" (16) is a first-rate bromoil, and the fine "Impression of Edinboro" (85) will not be forgotten as a triumphant bromide picture. "The Queue" (144) is the kind of picture which we may expect to be the future strength of photographic art. "Loch Duich," by Chas. Beadle (155) and "On the Canal, Ghent" (166), by W. A. Fincham, are two works that we must not omit to recommend. The record work, for which this society is justly famous, is as interesting as ever.

The awards made by Messrs. A. H. Blake and Furley Lewis were as follows:—

PRINTS.—12, "A Haven of Rest," A. G. Lawson; 25, "Devotion," Chas. A. Morgan; 28, "Walberswick," James Allbon; 51, "The Orphanage," Louis Dick; 60, "In Theatre Land," H. W. Fincham; 95, "From the Quayside on a Winter's Morning," Douglas P. Fox; 122, "Interior—St. Mary's, Whitby," A. R. Rollings; 144, "The Queue," M. F. Black.

LANTERN TRANSPARENCIES.—263, "A Portal," E. Burton; 508, "In Finsbury Park," J. F. Nisbett.

COLOUR TRANSPARENCIES.—395, "Cramond Brig," J. F. Nisbett.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents have been received between November 22 to 27:—

RELIEF PHOTOGRAPHS.—No. 27,076. Process for the manufacture of relief photographs. Karl Lachner, 19, Southampton Buildings, London.

STEREOSCOPY.—No. 27,284. Optical combination for use in connection with stereoscopic apparatus. Jules Richard, 53, Chancery Lane, London.

PIN-HOLE CAMERAS.—No. 27,306. Improvements in and relating to pin-hole cameras. Wolfgang Otto, 46, Marmion Road, Southsea, Portsmouth.

CINEMATOGRAPHS.—No. 27,520. Improvements in cinematograph films. Oskar Messter, 100, Wellington Street, Glasgow.

BORDER PHOTOGRAPHS.—No. 27,587. Improvements in or relating to the production of border or like photography. George Jobson and William Smith, 111, Hatton Garden, London.

LANTERN PROJECTION.—No. 27,603. Improvements in reflecting screens for cinematographic and lantern projecting. Henry William Hamblin Palmer, 52, Stephen's Road, Tunbridge Wells, Kent.

CINEMATOGRAPHS.—No. 27,642. Improvements in cinematograph films. Oskar Messter, 100, Wellington Street, Glasgow.

STEREOSCOPY.—No. 27,666. Improvements in or relating to stereoscopes and books containing stereoscopic views. Harry Cox, 8, Brems Buildings, London.

REFLEX CAMERAS.—No. 27,667. Improvements in or relating to photographic cameras of the type known as reflecting or reflex cameras. Arthur Lewis Adams and Walter George Roberts, Birkbeck Bank Chambers, Southampton Buildings, London.

CINEMATOGRAPHS.—No. 27,675. Improvements in or relating to cinematographs. Thomas Percy Middleton, 7, Southampton Buildings, London.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

PANORAMIC PHOTOGRAPHS.—No. 10,669, 1909 (May 5, 1909). The ordinary camera is used, and a "blender" arranged to graduate the exposure at each end of the plate.

Each picture or exposure is made to overlap the next preceding one at its ends, and the overlapped portion of one exposure is such that it will compensate for the lack of exposure of the next one,

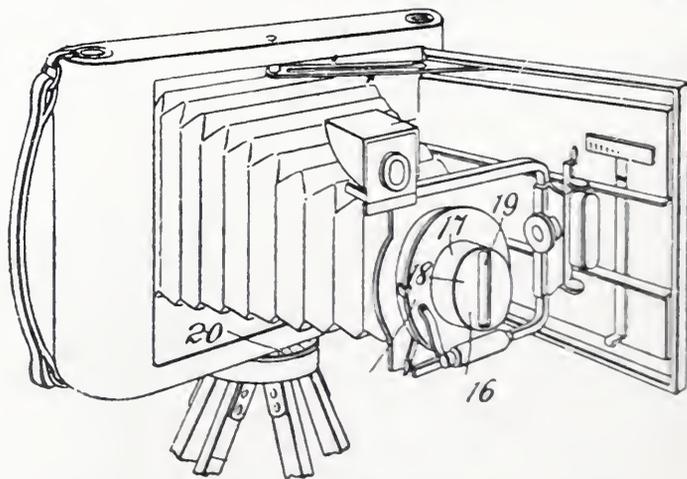


Fig. 1.

so that when two succeeding exposures have been given the successive pictures will make a continuous photograph. The pictures may be made without moving the camera and lens, or the camera may be moved to take a succession of views each different from

the other and in this case means is provided whereby the camera may be moved the proper distance so that the succeeding pictures will overlap the desired extent.

The camera is of the ordinary folding type known as the "Kodak," and has the usual finder, folding casing, and movable lens front, and on the back is the usual red glass, through which the marks may be seen which indicate the proper distance the film should be moved at each exposure. On the lens front is the blender, 16, which may be constructed of any suitable material, and is preferably cap-like in form. It has a cylindrical body 17, provided with a front disc-like face, 18, in which is arranged a slot, 19. This slot 19 extends vertically when the "blender" is in use, and by reason of the slot, the "blender" cuts off gradually the view at both ends of each exposure, or causes the main part of the exposure to exceed that at the ends. If, for example, seven inches of film is used for each exposure the centre of each exposure would be full timed, but about one inch on each end is only partially exposed. The second exposure, which overlaps the preceding one to the extent of one inch, corresponds as to the view to the part to be blended in the preceding exposure, and the second exposure also has its ends gradually cut off, and its inner part between the ends full-timed. Thus the second exposure at the overlapped ends will make the exposure equal to the other part thereby producing a full-timed negative throughout, as well as to blend one exposure into the other where they overlap. By this means the photographs are produced without division lines, and are absolutely continuous.

The size of the opening in the "blender" depends on the dis-

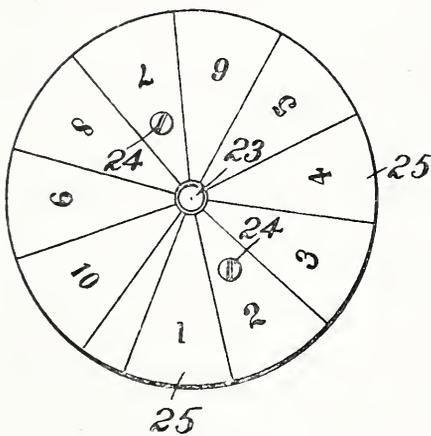


Fig. 2.

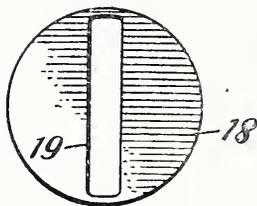


Fig. 3.

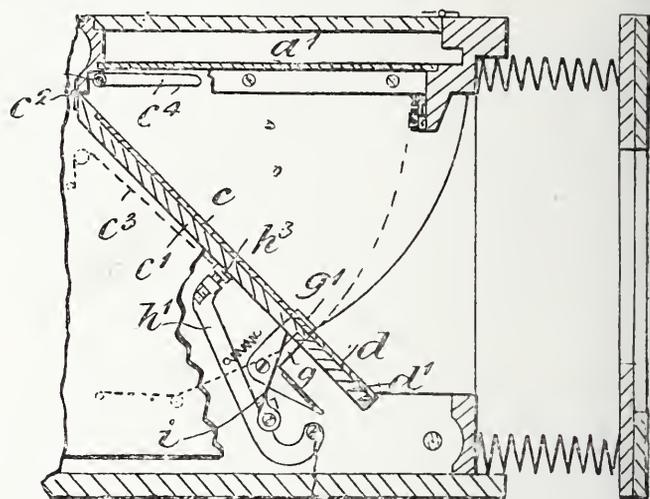
tance of the opening from the lens. If the opening is small, it will be placed nearer the lens, and if larger farther away, for the nearer the opening is to the lens the more it blends the picture taken. It will thus be seen that the exact distance of opening from the lens in any particular "blender" and the size of the opening or slot therein will vary according to the character of the camera, although the opening may be arranged relative to the lens at any point desired within a reasonable distance thereof.

Where a succession of views is to be taken, it is desirable that the camera be arranged so that the same may be moved a fixed distance according to the size of the pictures to be taken. If it is intended to use seven inches of film for each exposure, in that case the camera would be turned a corresponding distance each time. For this purpose a dial, 20, may be arranged on the head of the tripod, this dial being provided with the central opening, 23, which is adapted to fit over the usual tripod screw. This dial is provided with a series of divisions, 25, numbered consecutively and made to correspond with the distance the film is to be moved after each exposure, and the extent of view to be taken at each exposure.

The camera is provided with pointer 26, Fig. 2, and this pointer will indicate the exact distance the camera is moved each time along the dial. As the camera is moved for each exposure the film is correspondingly moved in the camera in the usual manner, and by reason of the blender, the successive photographs or views will have a part thereof overlapping the one next adjacent thereto, and these overlapped portions will be merged into each other as already explained. Edward Nelson, White, Banes, Oriente, Cuba

REFLEX CAMERAS.—No. 338, 1909 (January 6, 1909).—According to this invention the component parts of the mirror are not connected: the retaining mechanism of one portion is actuated by the other when it approaches its terminal position, one part being alternately released by the other when setting the mirror and releasing it.

The mirror is formed in two parts, *c* and *d*, of which the larger part *c* is secured to the plate *c*¹ hinged at *c*² in any convenient manner to a transverse portion of the body of the camera. The upward movement of the plate *c*¹ is effected by means of a spring such as *c*³ indicated by dotted lines in Fig. 1, whilst the movement of the plate *c*¹ against the action of the spring is effected by means of the arm *c*⁴. The opposite or smaller portion of the mirror *d* is attached to the plate *d*¹, which is under the influence of a spring, not shown, the tendency of which is to force the body upwards until its further movement is checked by its ends coming



against the edges *d*³ of projections or cheeks secured to the sides of the interior of the camera body or by the mirror plate *c*. The meeting edges of the parts *c*¹ and *d*¹ are preferably so shaped that they overlap, and thus the mirror presents a practically continuous surface sufficiently large to reflect the whole of the view. In order that the portion of the mirror carried by the part *d*¹ may be prevented from throwing any light into the interior of the camera, a shield *i* is pivotally secured at its ends to the cheeks, which are shown broken away in Fig. 1. The shield *i* has bearing upon it one end of a spring, which, as the part *d*¹ is moved downwards, causes the shield to swing over and lie upon the upper surface of the mirror *d*. The shield otherwise occupies the position shown in the figure. Herbert George Chessher, trading as the Tella Camera Company, of 68, High Holborn, London.

PRINTING FRAMES.—No. 16,093, 1909 (March 15, 1909). The invention consists in forming the pressure-giving surface by leaf springs supported in suitable supports so that the actual surfaces of contact are widely and regularly distributed. The pressure between the frame supporting the springs and the negative-holding frame may then be obtained by a single clamping bolt and nut co-acting with a bracket on the spring frame. In small frames the necessary distributed pressure may be obtained by a row of similar parallel springs extending across the whole width of the pressure frame; in larger frames alternatively with the springs passing from side to side are a series of shorter springs, a support for which is added along the centre of the pressure frame, and these shorter springs have the effect of extending the pressure towards the sides. As it is important that the points of contact should not all be in line, springs of various lengths may be employed so that these points of contact are distributed in two or more parallel lines, by which the useful pressure surface is largely increased as compared with the surface available if the springs are in one row.

The supports for the springs are so placed that when not under pressure they have a small downward curvature, consequently when the pressure is applied the point of contact is extended by the continued compression of the springs. Dr. Eugen Albert, 55, Schwabingerlandstrasse, Munich, Germany.

CINEMATOGRAPH-PHONOGRAPH.—No. 27,766, 1903 (December 21, 1908).

The apparatus devised by the inventor consists of two members arranged to receive reciprocating motion from the cinematograph and sound-production apparatus respectively, and thereby to engage and operate an intermediate member in such a way that the latter is not moved in a linear direction when the movements of the cinematograph and sound-production mechanism are synchronous, but does receive such motion when the movements are out of synchronism. Cecil Milton Hepworth, 17, Cecil Court, Charing Cross, London.

The following complete specification, etc., is open to public inspection before acceptance, under the Patents Act, 1901:—

COLOUR PHOTOGRAPHY.—No. 26,911. Device for production of three-colour reticules for colour photography. Krayn.**New Trade Names.**

RODINAL.—No. 317,271. Chemical substances and chemical preparations used in photography. The Berlin Aniline Co., Ltd., 26, Princess Street, Manchester, Chemists and Druggists. October 15, 1909.

ISOLAR.—No. 317,293. Chemical substances used in photography. The Berlin Aniline Co., Ltd., 26, Princess Street, Manchester, Chemists and Druggists. October 15, 1909.

UNAL.—No. 317,295. Chemical preparations for use in photography. The Berlin Aniline Co., Ltd., 26, Princess Street, Manchester, Chemists and Druggists. October 15, 1909.

Analecta.

Extracts from our weekly and monthly contemporaries.

Printing-out and Toning Gravura Paper.

In the course of an article on the manipulation of Gravura paper in "Photography and Focus" for December 7, a writer says: "The Gravura paper can be placed in the printing-frame in diffused daylight in precisely the same way as the ordinary print-out papers. The prints lose very slightly in toning and fixing, so must not be printed too deeply. Printing should be done in direct sunlight if printing is slow, and each print should be washed for ten minutes in several changes of water before toning.

The following toning bath may be used, toning until no traces of the red image are visible through the backs of the prints by transmitted light:—

Gold chloride (15 grains in 5 drams)	30 minims
Ammonium sulphocyanide (10 per cent. solution)	15 minims
Water to make	7½ oz.

This quantity is sufficient for twelve quarter-plate or six half-plate prints. After toning, the prints are washed for about ten minutes, fixed for ten minutes, in a plain hypo bath of 3oz. to the pint, and washed as usual."

New Books.

"Kompendium der Gerichtlichen Photographie." By Wilhelm Urban. Leipzig: Otto Nemnich. 7 mks. 50.

In this volume of 200 pages the author gives an account of the practical methods employed in using the camera for the purposes of identification of criminals and for the many other departments of criminal investigation. In the preface by Herr Koettig, the chief of the Dresden equivalent of Scotland Yard, reference is made to the great interest aroused by the section of the recent Dresden Exhibition devoted to this subject. Herr Urban's volume has been prepared with a view of placing in the hands, not only of police departments large and small, but also in those of individual officials and experts, the systems and methods which have been adopted by police authorities in the chief European countries. Naturally among these, France, with its elaborate systems worked out by M. Bertillon, occupies a leading place, and considerable space is devoted in the volume to a description of the Bertillon outfit for recording the

physical characteristics of prisoners and also of obtaining measurements of any scene from a single photographic exposure. Herr Urban sticks closely to the practical side of his subject, and commendably refrains from enlarging on the triumphs of judicial photography. Sensational as some of these are. In the latter portion of the book, which is devoted chiefly to the methods for the deciphering of burnt or damaged manuscripts for detecting forgeries and erasures, the practice of Dr. Jeserich of Berlin and Professor Reiss of Lausanne is largely drawn upon, and very effective use is made of illustration in showing the remarkable results obtainable by comparatively simple methods. The volume concludes with a bibliography of its subject arranged as an alphabetical list of the authors; there is also an Index to the text and a short glossary evidently prepared for readers who are unacquainted with photography

"Die Standentwicklung." By Hans Schmidt. Halle: W. Knapp. 2 mks. 40.

In this addition to the very useful series of books on photographic processes—some seventy of which have now been issued by the firm of W. Knapp—the subject is the development of plates and films a number at a time in apparatus specially devised for the purpose and usually supporting the plates in a vertical position. Herr Schmidt's monograph deals strictly with development in this way and does not touch the question of factorial development nor of the compensation for temperature by varying the time of development. It is a pity, perhaps, in a volume in which is brought together a good deal of useful information, that its scope was not enlarged to take in these almost equally important developments of the subject. A good deal of the space devoted to developing formulæ might easily have been spared, for although the author states that many published formulæ are unsuitable for stand development, he does not point out what are the essentials of a suitable formula, and it is difficult to gather, from the five or six pages of prescriptions which he gives, any clear conclusion as to the essentials of a developing solution for stand work. Allusion is made to the discrepancies as regards time of development noticed when a solution is diluted considerably with water. The author gives an example showing the great excess of time over, say, ten times, which must be given when a certain developer is ten times diluted, but he omits to point out that this feature is not shown to anything like the same extent by other developing solutions, nor does he point out that dissolved air in the water is largely the cause of the effect. Possibly the manuscript of the volume was in the printer's hands before the publication of the paper of Messrs. Wratten and Wainwright some months ago.

"Deutscher Camera-Almanach," 1910. Edited by Otto Ewel. Berlin: Gustav Schmidt. 4 mks.

The fifth issue of this German annual appears under a new editorship, Herr Loescher having died whilst the previous issue was passing through the press. The "Almanach" divides its space about equally between articles which provide fairly light technical reading, and illustrations which are selected apparently to show the progress in pictorial work in Germany and other countries. In the present volume we notice the novel and very convenient system of bunching the reproductions together in lots of about half a dozen instead of allowing them to break up almost every page of text. This makes the text easier reading, and has allowed of pictures illustrating a particular subject being all brought together. Thus, "Pictorial London," which is treated by Mr. E. O. Hoppe, goes with six pages of illustrations by Mr. A. H. Blake. Mr. Martin Duncan writes on orthochromatic photography, and Miss A. B. Warburg on portrait photography in England, with illustrations by Edith L. Willis, T. Lee Syms, Will Cadby, F. T. Hollyer, and herself. Among the most interesting reproductions in the volume are the intensely clever photographs of animals by Käthe Hecht. In photo-engraving and printing the volume is altogether admirable, though one may wish that the publishers could do with a less glossy art paper.

"Deutscher Photographen-Kalender," 1910. Pt. I. Edited by K. Schwier. Weimar: Office of the "Deutsche Photographen-Zeitung." 2 mks.

The twenty-ninth volume of this "Kalender" includes, as before, a diary of the year, a large number of tables, and a formulary of

photographic processes from A to Z—that is to say, from wet-collodion through dry-plate, developers, intensifiers, etc., and printing processes to such odds and ends of photographic practice as putting titles on negatives, or cementing paper to glass. This programme is carried out in Part I. of the Kalender, Part II., which forms a separate volume, not yet issued for 1910, being devoted to trade and other photographic information. We note that one item in the volume before us is the text of the German Copyright Act of 1907.

New Materials, &c.

“Hyptona” (self-toning) Collodion Paper. Made by Ilford Limited, Ilford, London, E.

When the Ilford Company, at the commencement of last year’s photographic season, placed a collodion paper on the market, it was naturally to be assumed that there would follow in due course a C.C. paper of the self-toning class which would particularly appeal to the amateur worker. In the new “Hyptona” paper, just issued, we have this natural development of events in a product which surely represents the furthest which a manufacture may be expected to go in enabling prints of beautiful quality being produced with the very minimum of trouble. We learn that the new paper receives its name in reference to the fact that the only “bath” in which it requires to be treated is a solution of hypo of the strength of 2ozs. in a pint of water. But we are, nevertheless, glad to notice that the Ilford Company direct a brief washing of the prints first of all in plain water, a proceeding which removes the toning process from the suspicion of being due to the introduction of acid into the hypo from the paper. We found that when following these instructions we obtained the most excellent cool-brown tones in the hypo bath, and as for the general qualities of the emulsion as regards gradation we can only say that we employed a dozen or so negatives of very different character—some almost flat and others in which the contrasts were quite excessive—and did not obtain a single print which could be called bad. The very best results in our experience are obtained with that type of negative which prints well on ordinary P.O.P., and the degree of over-printing which is necessary for a perfect result on “Hyptona” is exactly that to which users of ordinary P.O.P. are accustomed. The vehicle of the silver salts being collodion, the worker is further relieved of troubles incidental to drying the prints, whilst he has nothing to pay for this in the way of curling of the prints in the bath or their cracking on drying, the prints lying very flat in the dishes and showing a quite flexible coating when finished. For those who prefer a colder tone—that is, one of a more purplish hue—the use of a salt bath, prior to fixing in the hypo, may be recommended, but for ourselves we think the full beauty of the paper is obtained by simply fixing alone.

“Hyptona” paper, we should add, is made in four varieties—glossy-mauve, matt-white, matt cream smooth, and matt cream rough; these varieties, with the exception of the last, being also obtainable in a stouter variety, heavy enough to make a mount unnecessary, but, perhaps, not unduly stiff. All four of these variants of the paper have their special qualities—the Matt White is a very smooth paper, giving the very finest detail; the Matt Cream Smooth has the same quality of surface, but with a very pleasing cream tint, which does every justice to subjects in which a suggestion of warmth is wanted; whilst Matt Cream Rough has a figured surface which particularly suits negatives the excessive hardness of which calls for some ready means of breaking up unsuitable masses of shadow and of producing a more harmonious effect. The prices of the new paper are 2s. 4d. per two sheets, 24½ by 17; or 1s. per packet of twenty-two quarter-plate pieces; or, again, 8s. 6d. per box of one gross 5½ by 4 pieces.

CATALOGUES AND TRADE NOTICES.

POSTCARD PRINTING.—Messrs. Droege and Co., 43, Comeragh Road, West Kensington, London, W., send us their latest list of prices for postcard printing, enlarging, and other departments of trade work for which they are well equipped.

Dew Apparatus, &c.

The “Choroplast” Double Anastigmat $f/3.9$. Made by Dr. Staebble-Werk Optical Company, Munich, Bavaria. English Agents, Sherwood and Seldt, 15, Mount Pleasant, London, E.C.

This anastigmat lens of the very large aperture of $f/3.9$ makes its appearance on the English market along with a number of other photographic objectives from the Munich factory of the firm which was formed about two-years ago under the title of Dr. Staebble-Werk. The firm represents the conjunction of two mechanics—O. Jaeger and A. Neumann—with Dr. F. Staebble, under whose charge is the theoretical and scientific side of the business. Dr. Staebble’s two colleagues have occupied positions in several of the leading German optical factories, so that this young firm of opticians approaches the manufacture of photographic lenses with experience gathered in the best centres of the trade. They have made several innovations in the form and mounting of their manufactures, of some of which we shall be able to write later. In the meantime, we would suggest that those who are interested in the new series of these optical instruments should address their inquiries to the English agents, Messrs. Sherwood and Seldt, 15, Mount Pleasant, London, E.C., who represent the interests of the Staebble firm for the United Kingdom, the British Colonies and Possessions, and other parts of the world. The “Choroplast” is a double anastigmat of an aperture that



renders it of the greatest possible service in high-speed focal-plane work, while the corrections are extremely good. At the full aperture it is intended for use on a quarter-plate, and it covers this excellently and without more falling off in illumination that is to be expected. Indeed, a feature of the lens is the relatively large area of plate over which the full aperture is effective. As a general rule, with lenses of $f/4$ or thereabouts, the cutting off of the aperture by the mount begins almost immediately one leaves the centre of the plate, but in this case the full aperture is effective over an appreciably large circle. The definition is very fine, indeed, and a test with a point source of light shows hardly a trace of astigmatism. The correction for this aberration is, in fact, far better than we are accustomed to see even with lenses of much smaller aperture. The 6-inch lens submitted to us covers a half-plate well at $f/5.6$, and as the angle of illumination is a wide one, a much larger plate can be covered with $f/8$ and smaller apertures. The price is certainly moderate, as a 4¾-inch lens only costs £5, and the 6-inch that we have tried only £6 15s.; a 7¼-inch lens costs £8 5s., and either this or the 6-inch lens would be a most valuable instrument in a reflex camera. We can recommend the “Choroplast” as a really high-class large-aperture lens at a moderate price.

PRICES OF BUSCH OMNAR ANASTIGMATS.—Messrs. Emil Busch Optical Co., 35, Charles Street, Hatton Garden, London, write to point out that an error appears in their advertisement on page 367 of the “Almanac,” 1910, relating to the prices of the Omnar lenses, $f/4.5$. This portion of the advertisement should read as follows:—

BUSCH ANASTIGMAT “OMNAR,” SERIES I. F 4.5.

No.	Diameter of Lenses.	Equivalent Focus.	Covers Plate.		Covering Circle.	Prices with Iris Diaphragm.			
			F. 4.5	F. 8		Ordinary Mount. Model A.	With Helical Focussing Mount. Model B.	In “Unicum” Shutter Model U.	With “Kohlos” Shutter.
2	1½	5½	4½ × 3½	5 × 4	7½	£ 4 10	£ 5 5	£ 5 10	£ 6 10
2½	1¾	6	5 × 4	6½ × 5	8½	5 10	6 10	7 7 6	7 18
3	2	7½	6½ × 4½	8 × 6	10½	7 10	8 10		
4	2½	10	9 × 7	10 × 8	14½	12 10			

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, DECEMBER 10.

- Salisbury Camera Club. "The Photographic Lens." C. P. Goerz, Ltd.
St. Andrew's Photographic Society. "Large Prints from Small Negatives." W. F. Slater.
Borough Polytechnic Photographic Society. "Manipulation of the Camera and Copying." W. H. Spare.
Mill Camera Club. "Autochromes." N. Fearnley.

SATURDAY, DECEMBER 11.

- Edinburgh Photographic Society. "Four Year's Holiday with the 'C.H.A.'" A. Maitland Ritchie.

MONDAY, DECEMBER 13.

- Bradford Photographic Society. "Modern Photographic Apparatus and Exhibition of T.P. Prize Slides." R. Hesketh.
City of London and Cripplegate Photographic Society. "Criticism of Members' Prints, and 'A Few Hints on the Gum Platinum Process.'" Malcolm Arbuthnot.
Cleveland Camera Club. Discussion Night.
Scarborough and District Photographic Society. Members' Night. Lantern Slides and Prints.
South London Photographic Society. "How to Make Lantern Slides." C. H. Oakden. Monthly Competitions—(Lantern Slides).
Leek Photographic Society. "Autotype Carbon." Demonstration.
Wilkesden Polytechnic Photographic Society. "Autotype Carbon." Demonstration.
Southampton Camera Club. "The Camera at Home." E. T. Holding.
Marylebone Camera Club. "Holiday Photography." Dr. F. Thompson.
Derby Photographic Society. Royal Photographic Society's Affiliation Competition Slides, 1909.
Dundee and East of Scotland Photographic Association. "Large Prints from Small Negatives." W. F. Slater.

TUESDAY, DECEMBER 14.

- Royal Photographic Society. "The Relation of Photography to Vision." F. W. Edridge-Green.
Glasgow Southern Photographic Association. "Large Prints from Small Negatives." W. F. Slater.
Blyth and District Camera Club. "What Can be Done with a Hand Camera." C. P. Goerz, Ltd.
Grantham Photographic Society. "Ensyna." F. J. Stedman.
Leeds Photographic Society. "Nature Notes with a Camera." Riley Fortune.
Hackney Photographic Society. "In Distant Lands." A. Raven-Briggs.

WEDNESDAY, DECEMBER 15.

- Croydon Camera Club. "Rambles in Sicily and Italy." W. Ashcroft.
North Middlesex Photographic Society. "Intensification and Reduction."
Dennistown Amateur Photographic Association. "Large Prints from Small Negatives." W. F. Slater.
Sale Photographic Society. "Control in Printing." Mr. Lowe.
Borough Polytechnic Photographic Society. "Flashlight Photography." F. C. Hart.
Woodford Photographic Society. "Development." E. Marriage.

THURSDAY, DECEMBER 16.

- Hull Photographic Society. Annual Dinner.
Glasgow Eastern Photographic Association. "Large Prints from Small Negatives." W. F. Slater.
Wembley and Sudbury Camera Club. "Ensyna." F. Marshall.
Edinburgh Photographic Society. *Photography* 1909 Prize Slides.
Watford Camera Club. 1. "Competition," Christmas Cards including Post Cards. 2. "Telephotography." E. Marriage.
Liverpool Amateur Photographic Association. Smoking Social.
Handsworth Photographic Society. *Amateur Photographer* Prize Slides.
Longton and District Photographic Society. "Holiday in English Lakeland." R. Leach.
London and Provincial Photographic Association. "Two Solution Development." W. R. Stretton.
L.C.C. School, Bolt Court, E.C. "The Usual Methods of Reproducing Illustrations." A. J. Newton.
Optical Society. "The Optical Properties of Precious Stones." B. J. Tully.
Rodley, Farsley, Calverley, and Bramley Photographic Society. "Ensyna." T. Taylor.
Midlothian Photographic Association. "Silhouette Photography." Andrew H. Baird.
Eastbourne Photographic Society. "Autotype Carbon." Demonstration.
Bournville Camera Club. "Autotype Carbon." Demonstration.
Woolwich Photographic Society. "Autotype Carbon." Demonstration.

ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held Tuesday, December 7, the president, Mr. J. C. S. Mummery, in the chair.

A donation was made to the society by Messrs. Newman and Guardia, Ltd., in the shape of an Atkin-Swan tilting table. Mr. and Mrs. Ernest Marriage also presented a recent work by themselves to the library. The thanks of the society were tendered to these donors. Mr. A. B. Hitchins exhibited several bromide prints which had been locally toned with a set of uranium and iron toning solutions. Mr. E. H. Atkinson showed a piece of apparatus for attaching binding paper to lantern slides. It consisted of a pair of rubber rollers which pressed the gummed binder firmly to the edges and sides of the lantern slides; on the latter being removed from the apparatus, this automatically fell back from the slide so that there was no tendency for the gummed strip to come away from the

glass. Mr. Atkinson also exhibited a focussing screen of greater transparency and finer grain than ground glass. He stated that the screen was more liable to damage than that of ground glass, but that it allowed of much greater fineness and ease of focussing. It was being placed upon the market.

Mr. H. Essenhigh Corke then gave a lecture on "Screen-Plate Colour Work," which he illustrated with a large number of lantern slides, made chiefly on the Autochrome and Thames plates, with also one or two on the Omnicolore. He also exhibited a specimen and a photo-micrograph of the Aurora screen-plate. Admitting, with quite refreshing candour, that his discourse on this branch of photography should be accepted as coming from one who claimed no scientific knowledge of the subject, but did claim a considerable practical experience of at least two methods, he contributed a good deal of very useful information on the making both of Autochrome and Thames colour transparencies. He commenced by showing a few slides illustrating the failures to be met with in the Autochrome process, such as over- and under-exposure, over- and under-development, green spots, etc. In the case of outdoor work, he said he had found the exposure indicator of Burroughs Wellcome a most useful guide. He ignored the division of subjects, and treated all outdoor alike as "strong foregrounds." He still used the pyro ammonia developer of Lumière, but found also that the quinomet formula worked excellently, and where it was necessary to deal with great extremes of light and shade he used 1:12 rodinal, developing for six minutes, or 1:40 azol, developing in four minutes. In the case of these subjects he preferred to wait until the sky was somewhat obscured by light clouds in order to lighten up the shadows of the subject. For development he found Dr. Drake-Brockman's suggestion of the use of a solution of potassium metabisulphite applied to the plate a minute or so before pouring on the developer of the greatest service in allowing development to be done by a quite bright yellow light. In redeveloping when daylight was not at hand to which to expose the plate, he used incandescent gas, or better, burnt one foot of magnesium ribbon fairly close to the plate. Unless ample exposure to light was given, and also the full time of re-development, the plate would lose very greatly in the fixing bath. He had tried the glycerine method of preserving plates from the action of heat, but he found that in those particular instances where he had used the glycerine bath the Autochromes, on keeping, developed a bright red in the skies, whilst spots also appeared in other parts. In common with speakers who took part in the after-discussion, he attributed these spots to bacterial growths in the moist gelatine. So far as concerned the duplication of Autochromes, he had made many experiments, but had never been able to prepare a duplicate equal to the original. This he considered a great drawback to the Autochrome from the commercial point of view, since the photographer could not obtain a high enough price for one transparency to make the job worth his while, whereas if a dozen could be prepared from a single exposure the process became commercial. On this account, and also because of the much shorter exposure which could be given, he had turned his attention to the Thames plate. He had not got on well with the first form in which the plate had been sent out, where a separate panchromatic plate had to be reversed and then bound up with the original separate screen. He found he could not reverse the plate so as to get a good clear positive, and, therefore, in ignorance of what Joly and others had previously done, he had prepared from the negative made through the screen a positive transparency, binding this up in register with the original taking screen. He still thought that this method, on account of the ease of preparing a number of duplicates, was the best form of screen-plate colour work, though he exhibited one or two results made on the Thames combined plate—that is, with the emulsion coated on the filter-screen. He thought it was due to the Thames Company to emphasise the very great improvement which they had made in the screen of later manufacture. Those first issued were not really fit for the market, but in regularity and colour great strides had been made by the makers, and he found that for studio portraiture he could take the plate as having the rapidity of 40 H. and D., which allowed of portraits in the studio being made with an exposure of 4 or 5 seconds at f/4.5. He exhibited several excellent colour portraits made in this way on the Thames plate by the separate system, and pointed out the great opportunity which this form of the process offered in

controlling or improving the result attained in the negative when printing the positive transparency. He had not found any difficulty in registration, and had, in fact, registered one transparency whilst travelling to the lecture that evening in a South-Eastern train.

In the discussion which followed Mr. Atkinson drew attention to the value of the yellow dye—such as tartrazine—for correcting the blueness of Autochromes which had received too much exposure or for which an inadequate compensating filter had been used.

Mr. E. J. Wall said he found it difficult to find in his own mind a reason for the better colour values of the Thames plate as compared with the Autochrome.

Mr. F. C. Tilney asked whether there was any reason to suppose that the tonal colour values of the Thames plates which had been shown were better than those of the Autochrome. He had no doubt in his own mind that the Autochromes were immeasurably superior to the Thames, and, speaking as a non-technical person, he would like to hear Mr. Wall's opinion of the two.

Mr. Wall replied that Mr. Tilney was an artist, and he (Mr. Wall) never argued with artists.

Mr. Oliver Dawson on this point said that possibly the answer was to be found in the fact that exposures made in daylight were exhibited by artificial light. He went on to say that the great want in screen-plate photography was a means of determining the exposure which went further than the ordinary exposure meters.

Mr. W. A. Casson referred to the very long exposures required in making Autochromes of interiors: for these subjects he found it best to use a diluted developer.

With Mr. Corke's replies to these and several points which were raised by other members the meeting closed.

LONDON AND COMMERCIAL PHOTOGRAPHIC ASSOCIATION.—At the meeting held on December 2, Mr. Haddon in the chair. Mr. W. F. Marshall demonstrated "Ensyna," and in the course of his remarks said that if a colder tone was required, all that need be done was to add a few drops of a weak solution of potass bichromate to the soaking water prior to development, until the water was faintly tinged yellow. Development was done as usual. Over-developed prints should be bleached in potass ferricyanide and potass bromide and re-developed. For bright red tones in place of plain water it was well to use a saturated solution of plain alum for the soaking water, and give plenty of exposure; the longer the exposure the redder the tone, the resulting image was in all cases pure metallic silver.

MIDLOTHIAN PHOTOGRAPHIC ASSOCIATION.—At a meeting held on the 2nd inst an illustrated lecture, entitled "A Midlothian Burn," was given by two of the members, Mr. John Reid and Mr. R. M. Readdie. By word and picture the course of the Gogas Burn was traced from its source in the moorland of the hills down the open slopes and through the tree-clad dells to the pasture lands and the noble estates of Midlothian, till it met the Almond Water. The illustrations gave evidence of careful selection, both with regard to pictorial effect and the varied character of the scenery through which the charm of the stream has carried these two devotees of the camera. To those were added notes on the historic associations of the neighbourhood, and on the more fleeting beauties of the flowers and birds in their haunts by the stream which showed how the labours of photography could be lightened. Every season had afforded opportunity for the work, and there was accordingly a delightful variety of spring sunshine and autumn haze, the strong lights of summer and the whiteness of winter. In conveying to the lecturers the thanks of the appreciated audience, the president, Mr. J. B. Johnston, recommended the members to adopt such a plan for their photographic work, and in his acknowledgment Mr. Readdie dwelt on the pleasure and value to his friend and himself of the work they had undertaken.

WELLCOME PHOTOGRAPHIC CLUB.

An excellent little exhibition of photographs by members of the Wellcome Photographic Club was opened at the Wellcome Club and Institute, Dartford, on Saturday, the 4th inst., by Mr. G. E. Pearson, general manager of the firm of Burroughs Wellcome and Co. The chairman of the club opened the proceedings by extending on behalf of the club a cordial welcome to Mr. Pearson and their

visitors. He further expressed his appreciation of the favour which Mr. Mortimer, the editor of the "Amateur Photographer," conferred upon the club by coming down to act as judge. Mr. Mortimer said that as a members' exhibition it was excellent, and it was very encouraging to see so many members of the staff taking an active interest in photography as a hobby, particularly when there was such a variety of other enjoyments and recreations available for the members of the Wellcome Club and Institute.

Mr. Pearson, in opening the exhibition, referred to the origin of the club in 1900, which, he explained, was entirely due to the kindness of Mr. Wellcome, who provided the dark-rooms and equipment for the use of members. From a membership of twenty-two it had now increased to fifty. The present was the eighth exhibition which had been held, and, in the opinion of visitors and the Press, these exhibitions had been marked by steady improvement in the work shown. Dr. Jowett proposed a vote of thanks to Mr. Pearson for his kindness in coming down to open the exhibition. This was carried with applause.

AWARDS.

CLASS A (open to all members).—Bronze casket (presented by Mr. G. E. Pearson), "Portrait," by H. W. Lane. Second award: "The New Bailey," by G. T. Gale. Hon. Mention: "Trafalgar Square," by E. G. Price; "Ebb Tide," by W. H. Fowkes; "The Mermaid," by F. H. Carr; "Evening," by F. S. Clarke; "Winter," by W. H. Fowkes; "View from Lyme," by F. C. Starnes.

CLASS B (open only to members who have not previously won awards).—1st, bronze plaque (presented by Dr. H. A. D. Jowett), "Homeward," by R. G. R. Swainston. 2nd, bronze plaque, "Taking the Air," by F. H. Carr. Hon. Mention: "San Mamette, Lake Lugano," by H. C. Sayer; "Gathering Wild Flowers," by C. I. Pearsall; "Dartford Heath," by R. E. Jackson; "To the Golden Sands," by F. H. Carr; "Santa Maria dell Salute," by H. C. Sayer; "Sunrise, Brent," by C. I. Pearsall.

TECHNICAL SECTION.—Award: H. G. Sayer. Hon. Mention: G. G. Watt.

News and Notes.

THE LATE MR. WM. WARRINGTON.—We regret to record the death, at the comparatively early age of 37, of Mr. Wm. Warrington, who carried on a business at 38, Church Street, Liverpool.

A DEALER'S ADVERTISEMENT.—A very effective scheme for advertising a newly installed photographic department (writes "System") was employed by the Raboteau Drug Company, St. Louis. With every film purchased on a certain Saturday the firm gave a ticket entitling the holder to have a roll of films developed and one print made from each negative, provided the film was presented within a week from the date of purchase. This offer brought crowds of amateur photographers to the store and the new department was thoroughly advertised. The free service cost the company very little, as it employed a photographer regularly, and the plan simply kept the developing department busy.

THE HOUGHTON SMOKER.—Messrs. Houghtons Ltd. announce their annual "Ensign" smoking concert, to take place on Saturday, December 18, in the Prince's Hall, Hotel Cecil. A fine programme has been arranged under the direction of Mr. Phil Payne, and several star artistes will appear, including Mr. Charles Pond, Miss Clarice Mayne, Miss Mabel Green, Miss Ruby Wilson, Mr. Will Edwards, Mr. John Vincent, Mr. Clifford Morgan, Mr. Harry Hall, Mr. George Blackmore, and Mr. Frederick Arthur. Applications for tickets (2s.) should be made to the Secretary, 88/89, High Holborn, W.C.

ROYAL INSTITUTION LECTURES.—The following are the lecture arrangements at the Royal Institution, before Easter:—Mr. W. Duddell, a Christmas course of six illustrated lectures on "Modern Electricity," adapted to a juvenile auditory:—1, First Principles; 2, Electrical Instruments; 3, Röntgen Rays; 4, The Generation of Electricity; 5, Electric Oscillations; 6, Electric Lighting; Professor W. A. Herdman, three lectures on "The Cultivation of the Sea"; Rev. C. H. W. Johns two lectures on "Assyriology"; Professor F. W. Mott, Fullerian Professor of Physiology, R.I., six lectures on "The Emotions and their Expression"; Major Martin Hume, two lectures on "Europe's Debt to Mediæval Spain"; Professor Silvanus

P. Thompson, three lectures on "Illumination, Natural and Artificial"; Mr. A. J. Finberg, two lectures on "Turner"; Dr. H. Walford Davies, three lectures on "Music in Relation to other Arts"; Professor Sir J. J. Thomson, Professor of Natural Philosophy, R.I., six lectures on "Electric Waves and the Electromagnetic Theory of Light." The Friday evening meetings will commence on January 21, when Professor Sir James Dewar will deliver a discourse on "Light Reactions at Low Temperatures."

THE CROWN PHOTOGRAPHIC MANUFACTORY of Rotherham ask us to state that they have received two applications from a Mr. H. Culliford—dated November 18 and December 3, respectively—asking for a copy of the firm's price list of Christmas mounts, but in neither case has any address been given. If Mr. Culliford will rectify this omission and send his address to the Crown Photographic Company the required list will be forwarded to him by return of post.

THE members of the Tunbridge Wells Amateur Photographic Society recently presented Mr. Joseph Chamberlain, the late secretary, with a handsome clock, as a mark of their appreciation of the valuable work he had done for the society during the twenty-one years of its existence.

FORTHCOMING EXHIBITIONS.

December 4, 1909, to January 1, 1910.—Southport Photographic Society. Sec., J. McLellan, 2, Pilkington Road, Southport.

December 15 to 16.—Cowes Camera Club. Sec., E. E. Vincent, 4, High Street, Cowes, I.W.

December 31, 1909, to January 8, 1910.—Wishaw Photographic Association. Entries close December 18. Sec., R. Telfer, 138, Glasgow Road, Wishaw, N.B.

1910.

January 26 to 29.—Bolton Camera Club. Entries close January 12. Sec., H. Mills, Higher Bank, Southills, Bolton.

April 5 to 9.—Sheffield Photographic Society. Secs., J. A. George and J. R. Wigfull, 14, Parade Chambers, Sheffield.

Correspondence.

- Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.
- We do not undertake responsibility for the opinions expressed by our correspondents.

MEASURING VARIATIONS IN THE "RAPIDITY" OF LENSES.

To the Editors.

Gentlemen,—I am much pleased to see your suggestion on p. 930 "The British Journal of Photography" for December 3, 1909. As regards the desirability of measurement rather than an all-round estimate there can be no two opinions, especially as the measurement should include all those disturbing factors to which you refer. I cannot think of any method of testing better than that which you suggest ("B.J.," December 3, 1909, p. 930-1), and the method at I have experimented with involves a somewhat similar principle, but my radiant was a large surface, rather than one so small that in theory it should be a point. The lens was directed towards an evenly illuminated surface, and an exposure was made; a second exposure being made after the removal of the glass or glasses. According to circumstances, one or both of the following readjustments may be necessary after removing the glass or glasses. Alteration of the diaphragm from its actual size to its virtual size. Approximation of the illuminated surface, and the sensitive surface to a distance equal to the separation of the principal planes of the lens. Further, when lenses of different type are compared, considerable corrections or readjustments may be required. This method of testing did not prove by any means satisfactory in practice as a means of record, the only real success being when comparative experiments were made in immediate succession, with a constant source of light, and when all exposures were on different parts of the same plate, so that development conditions were identical.

Complications and sources of error arising from the chemical or physical conditions incident to the production of density, and from

the measurement of density, are by no means trifling; but the variations which may arise from more or less of the highly actinic elements in the light are of much more moment, and the colour-sensitiveness of the recording surface has a considerable influence. All ordinary glasses in their absorption discriminate unfavourably against the more actinic rays, and as the method of testing that is now under consideration allows of no distinction between loss by absorption and loss by reflection, widely different readings are obtained with the same lens by standard-candle light, on the one hand, and mid-day light on the other hand.

A quite extreme difference might be expected between a measurement made by the light of an ultraviolet (quartz mercurial) electric lamp and a determination by standard-candle light.

Should we ever arrive at fluor spar-quartz-rock salt lenses for ordinary use the issues may be somewhat simpler; but alas! such lenses as at present made lack stability sadly; still it has sometimes occurred to me that the City process worker might with advantage use such lenses in conjunction with the quartz mercurial lamp, and special plates for ultra-violet—such plates as were suggested some seventeen years ago by Dr. Schumann. Possibly a system of this kind might make it quite easy to cinematograph at night.

The subject of testing lenses for rapidity bristles with difficulties and complications, and there is much merit in the simple test mentioned by the late J. Traill Taylor in his chapter on "The Deterioration of Lenses by Light" (Optics of Photography, 1892 edition, pp. 158 to 164). In a good light the lens is placed on white paper and inspected. If a random assortment of lenses be thus examined, the difference in colour and brilliancy may surprise the observer.

Yours faithfully,

THOMAS BOLAS

Chiswick,

December 4, 1909.

THE "B.J." PYRO-SODA FORMULA

To the Editors.

Gentlemen,—The Almanac has appeared (as probably you are aware), and I send you my congratulations on it. On looking through its pages I was particularly glad to notice that you had included in the Selected Formulae the pyro-soda formula you first published in the "Colonial Number" of this Journal last April. As I have always been very keen on this form of developer, and have never lost an opportunity of trying any formula that appeared distinctive, I made yours up the day the "Journal" came to hand, and after using it for six or seven months I have no hesitation in saying that it is the best and most convenient formula ever published for a pyro-soda developer, and I have tried them all.

For landscape and architectural work I use one part of mixed developer with two parts of water; for reproduction of negatives, one part of mixed developer and one part of water; for black and white copies, equal parts of the stock solutions. The freedom from staining is really quite remarkable, and its keeping qualities are excellent, as you will see from the sample sent, which is part of the pyrogallol solution made up last April. Those who, like myself, have a predilection for pyro-soda as a developer must certainly feel indebted to you for originating a most satisfactory formula, and I suggest that it be called the "B.J." formula, or, as Imperialism is now so much in the air, "The Colonial."—I am, yours faithfully,

Sidmouth, S. Devon.

G. T. HARRIS.

REVERSAL BY PHOSPHORESCENCE.

To the Editors.

Gentlemen,—Mr. Welborne Piper's interesting note on the late Mr. Douglas Carnegie's experiments on the above subject winds up with a question as to its novelty, and also as to the extinction of phosphorescence by red light. In the face of this, possibly the following notes abstracted from Eder's Photochemie, chap. 30, pp. 447-455, may be of interest.

Seebeck, in 1810, discovered the extinction effect of the less refrangible rays, which include the yellow and orange, besides the red. This was also pointed out as regards yellow glass in Polytechn. Notizblatt, 1881, p. 305. Becquerel (compl. rend., 1884, vol. 94, p. 374) used this property for obtaining spectrograms of the infrared. This action was also pointed out by Dahms (Chem. Zentralbl., 1905, I., p. 1,054).

With regard to the obtaining of reversed negatives, Warnerke described a process in a letter to the Photographic Society of Great

Britain, April meeting, 1880. No doubt this is printed in the Journal, and quite possibly in the "B.J.," but I have not at the moment the opportunity of referring to either. It appeared in the "Photo. News," 1880, p. 257. Lieutenant Darwin also reports on similar experiments ("Photo. News," 1880, p. 262), as did also Vincent ("P.N.," 1881), and Zenger ("Annal. d. Physik," 1887, p. 94).

Warnerke suspended calcium sulphide in albumen, and coated glass therewith, exposed it for one minute in the camera, and obtained a reversed negative by placing in contact with a dry plate. He points out that heat increases the luminescence, and that red and green light destroyed it. The phosphorescent plate is to be exposed also to light so as to excite the whole of its surface, then placed in contact with a negative and a plate of glass of the extinguishing colour and exposed to light; there is thus obtained a luminous positive image.

Ives ("Philadelphia Phot.," 1887, p. 180) obtained positive pictures by extinguishing the luminescence of a phosphorescent plate by the heat rays alone, such as would be passed by black glass and printing from the luminous tablet by contact. Lime-light was used as the source of heat.

According to Abney (Colour Measurement and Mixture, 1891, pp. 32-34) it has been asserted that, if a luminous tablet be excited generally, and a spectrum allowed to fall on the same, and then cut off so as only to act for a short time, the red and infra-red rays increase the brightness of the luminescence, although if allowed to act longer there is extinction. This he explains by the familiar experiment of placing a hot iron on the back of a luminous tablet, with consequent increase of radiation, so that the image of the iron appears brighter than the general surface. As the luminescence is merely the giving out again of energy, which has been imparted by light, it is obvious that the more rapidly that energy is given out the shorter the duration of the radiation, hence the image of the iron eventually appears darker than the general surface. Obviously, on the face of this explanation, any terms such as "extinction" or "destruction" of the primary light action are not quite correct.—Yours faithfully,
E. J. WALL.
Ealing, W.

THE MAKING OF A PHOTO-BUTTON.

To the Editors.

Gentlemen,—As "photo-buttons" will be much in evidence at the approaching General Election, perhaps the following details of production might be of interest to the uninitiated. As we make our own parts, it takes twenty-four distinct operations to produce a "photo-button" as follows:—

1. Cutting of steel sheets into strips for shells.
2. Stamping out blanks for shells.
3. Shaping blanks into shells.
4. Rumbling off rough edges of shells.
5. Cutting tin sheets into strips for backs.
6. Stamping out blanks for backs.
7. Shaping blanks into backs.
8. Stamping out centres of backs.
9. Titling and preparing original for copying.
10. Exposing plate for making negative.
11. Developing exposed plate.
12. Fixing plate.
13. Washing plate.
14. Printing from negative.
15. Toning print.
16. Fixing print.
17. Washing print.
18. Uniting print to celluloid.
19. Stamping out to correct gauge
20. Stretching over shell in press.
21. Closing shell over back in press.
22. Inserting advertisement at back.
23. Inserting pin.
24. Counting, carding, packing, and despatching,

thus completing an article which sells to the trade for ½d. and under, yet we are invariably asked whether we cannot do them cheaper.—
Yours truly,
DORRETT AND MARTIN.
16, Belle Vue Road, Upper Tooting, S.W.

A HANDY FORM OF FOCUSING SCREEN.

To the Editors.

Gentlemen,—The demand for critical focussing in connection with the use of lenses of large aperture, coupled with the necessity of carrying a screen separate from the camera of a none too portable

and fragile nature, prompted the writer to adopt the form described later, which may prove welcome to the many users of the "A" pattern Mackenzie-Wishart slide.

First, cut a piece of finely ground glass to the size of the plate in use, and insert it as one would a dry plate, cut through the linen envelope and celluloid back, leaving a margin sufficient to stick the edges down with any form of glue; remove the strip of wood attached to cover. This will form a screen of the exact register as the dry plate, and easily carried and protected with the envelopes in the same case.—Yours truly,
R. C. RYAN.
Bream's Buildings, London, E.C

AMADOU.

To the Editors.

Gentlemen,—In the "Answers to Correspondents," in this week's "B.J.," I notice "N. Enlargers" ask where they can purchase some "Amardor."

I fancy they mean "Amadou," which I understand is a dried fungus. It is probably obtainable from most large dealers in artists' materials, and is certainly listed by the Army and Navy Stores at 11d. an ounce.—Yours faithfully,
L. SAVORY.

51, Horsford Road, Brixton, S.W.

December 3, 1909.

To the Editors.

Gentlemen,—What your correspondents want is probably "Amadou," or German tinder, a prepared velvety surface fungus, sometimes used as a "stump" in pastel and charcoal drawing. Try Winsor and Newton's.
W. B. FERGUSON.

Answers to Correspondents.

** All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

** Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

** Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co. 24, Wellington Street, Strand, London, W.C.

** For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C. undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form etc. Two unmounted copies of each photograph must be sent with the fee.

LAMP.—The arc lamps you mention were made from 15 to 20 years ago, and it is very improbable that you would find them at a suitable for instantaneous portraiture. Most probably the lamp would not be in a very good condition, and the advances made since they were placed on the market are so great that you would be seriously handicapping yourself by using lamps of an obsolete type. We should have no hesitation in saying that the actinic power—as we understand actinic power to-day—would be distinct low.

GOVERNMENT PHOTOGRAPHER.—Could you please let me know in your next issue how to become a Government photographer, and what qualifications are necessary? Trusting you can give me the required information, and oblige—A YOUNG READER.

What do you mean? So far as we know, appointments of photographers are not filled from those outside the Civil Service. Your query is too general for us to say more than this.

PRESS PHOTOGRAPHY.—1. What is the quickest method of developing plates and getting glazed gaslight prints from same? 2. Is it possible to take photographs here in the afternoon and get printed in London in time for publishing in the papers next morning? What is the best way of glazing prints so that they dry quickly?

—C. E. B.

1 and 2. By adopting the ordinary methods of printing from a wet negative and drying prints with spirit, you could usually have

photographs ready for despatch within an hour of getting into the dark-room; but, as a general rule, your results could not get to London in time for use in the next day's morning papers. 3. Squeegee on to glass and put to dry in a warm place. If prints are hardened with alum or formaline before putting on the glasses a degree of warmth can be used such that they will dry and strip off in half an hour.

L. SAVORY.—We are much obliged to you for your letter, and for your correction, which latter is deserved.

RIGHT TO NAME.—I should be glad if you would kindly give me some advice regarding the following particulars:—I am going into partnership, and we desire to have the name of the studio as, viz., "The Globe Photo Co." Is it a registered name, and can we use it without any action being taken against us?—**J. P. JEFFERSON.**

So far as we are aware there is no registered company under that title. There will be no objection to the use of the name supposing there is not a similar title to a studio in your town.

STOPPING OUT SUN.—I should be glad if you could tell me a way of stopping out direct sunlight on a west sidelight. A room which I am thinking to convert into a studio must have the light that side. There are no buildings which might shade it; all on that side is a large open space. Could I so arrange screens inside to prevent, or would to stipple the glass with starch (as mentioned in "B.J.," March 21) be best?—**LYNDO.**

With a west light you are not likely to be very much troubled with the sun. When troublesome, it may be stopped out with a large movable screen, covered with thin muslin, or permanently by stippling over the glass in the way given in the article referred to. The former way will be the preferable, as the screen need only be used as occasion may require.

PRINT CLEANING.—Some little time ago you published in the B.J. some very useful instructions for cleaning old and stained engravings. Presumably the treatment prescribed might be detrimental to coloured prints. If you could give further instructions for the proper method of cleaning valuable old coloured prints the information would be much appreciated.—**WALTER BOURKE.**

The method given would certainly disturb the colour, supposing the prints are coloured with water colours, and if the engravings are printed in colours it is possible that the bleaching action of the chlorine might have some influence on them. The best advice we can give you, as the engravings are valuable, is to put them in the hands of a professional print-restorer to do the work for you. It is not advisable to tamper with valuable pictures.

BIG ENLARGEMENTS.—1. It is not absolutely necessary. If washing is omitted we advise you to add $\frac{1}{2}$ oz. of potass metabisulphite to each pint of fixing bath, as a remedy against stains. 2. In the case of a few enlargements we suggested a pair of boards, each about 30 by 40, placed supporting each other like a roof of a house and with a water-supply pipe (perforated) on each side running along the ridge. A stream of water running over the prints for half an hour will be ample washing. If the number is greater than this method will allow, we can only suggest the use of a large wooden dish, with glass bottom. 3 and 4. Hang up in the usual way, but do not let them become bone-dry; whilst still a little damp they can be easily put under pressure and will then dry flat easily. 5. The best solution for removal of stain is very weak solution of iodine and potass cyanide. This is a reducer, will clear the white parts perfectly, but must be used with care, and not until it has been tried on a spoilt print. 6. Yes; a diluted developer applied with a good big scrap of cotton wool or a soft Turkey sponge would answer. For this purpose we should prefer a metol developer to one containing hydroquinone, as density is not reached so quickly, and the work is under better control.

E. F. RICKARDS.—No doubt any of the photographers who have negatives of marine subjects can supply you. Try a firm such as West, of Southsea, explaining your wants.

PRINTING IN SIGNATURE.—I should be very much obliged to you if you will give me a few hints as regards titling and initialling, or signing prints. If ink is used it looks so very black and prominent; on glossy paper it looks hideous, and on a lightly-printed bromide most obtrusive. Then on some mounts—certainly on the majority

of those I use—ink runs, and looks very bad. I am not clever enough to paint anything on with a brush, as I believe is done by artists, and I should be very glad to know if there is anything else I could use, more artistic than ink, and that would lend itself to harmonise better with the colour of the mount or of the print.—**H. M. S.**

We should advise you to write to the Autotype Co., who prepare film signature negatives, which can be obtained to print of depth suitable for any given class of print.

JOURNAL, ETC.—1. Is there any journal or periodical giving information to artists like the "British Journal" does for photographers? 2. I would like to colour enlargements in oil or water. Am I obliged to join some society before I can work in the trade?—(Miss) **L. BALL.**

1. The art publications rarely deal with technical matters of interest to artists. The best source of such information is the series of text books such as those issued by Geo. Rowney and Co. 2. No; certainly not. 3. Certainly; we will gladly give you our opinion on work for the trade in the way of working up colouring.

METOL DEVELOPER.—Please inform me, through the "B.J.," how I could make a metol developer up without it precipitating when I add the sulphite, etc. I generally dissolve metol first, then add sulphite, and it curdles to a grey curdle and does not keep. The formula is:—Metol, 75grs.; soda sulphite, 1 $\frac{1}{2}$ ozs.; soda carbonate, 1 $\frac{3}{4}$ ozs.; potass bromide, 8grs.; and water 4ozs. I use everything pure and clean. Could you give me a remedy?—**METOL OAKHAM.**

You are apparently using too little water, 4ozs. is not enough to keep all the ingredients in solution. Your formula is generally made up to a quantity of 10ozs.

VARIOUS.—1. Please tell me the percentage composition of "bisulphite solution" referred to in the "Almanac." Is this the same as "bisulphite lye"? 2. Please give a formula for coating paper with gum and pigments to be sensitised at some future date, similar to the commercial papers.—**J. P. O'HEA.**

1. Yes; it is equivalent to a 40 per cent. solution of sodium bisulphite. 2. We cannot give you the commercial formulæ, and can only suggest that you use the ordinary formulæ, omitting the bichromate. You can then sensitise at a later date by applying the bichromate solution.

FIXED FOCUS ENLARGER.—I am desirous of making a fixed focus enlarger, $\frac{1}{4}$ to $\frac{1}{2}$ -plate, and should like to know if a Lancaster lens ($\frac{1}{4}$ -plate) will serve the purpose; also what length the box should be, and how to find out the distance between negative and lens.—**A. J. B.**

Quite impossible for us to answer your query in the form you state it. If (as we can only guess from what you say) you wish to enlarge from $\frac{1}{4}$ to $\frac{1}{2}$ -plate, and if your lens has a focal length of 5 inches, then the distances either side of the stop of the lens will be about 12 $\frac{1}{2}$ and 8 $\frac{1}{4}$ inches respectively. But until you have verified the focal length of your lens you must not take these figures, since the focal length may be 4 $\frac{1}{2}$ or 5 $\frac{1}{2}$ inches. The rule for finding the above distances is as follows:—Distance from lens to paper = focal length \times degree of enlargement (1 $\frac{1}{2}$ in case of $\frac{1}{4}$ to $\frac{1}{2}$ -plate) plus the focal length. Distance from lens to negative = focal length divided by 1 $\frac{1}{2}$, plus again one focal length.

STRIPPING NEGATIVES.—Some time ago a very good formula appeared in the "B.J." for stripping negatives from glass for storing purposes without the use of hydrofluoric acid. Will you kindly reprint it, and oblige?—**L. A. GORDON.**

We think you must refer to an article which appeared in "Photography," February 4, 1908, p. 100, and an abridgement of which was given in the "B.J. Almanac," 1909, p. 588. A later article appeared in our pages for September 10 last, but is too long for quotation here.

COPYRIGHT.—We have two registered photographs, which a trade paper (copy sent herewith) has reproduced without any permission or pay for same, the prints being bought in the shop in the ordinary way of sale. We, on learning they had reproduced them, placed the matter in the hands of a local solicitor, and, after a few letters had passed between them, the firm offered £5 in full settlement. But we do not think this amount meets the case, as we had anticipated advertising these photographs, and thought we should have a great sale for them, but as they appeared in this paper

we did not go on with it, as we consider the interest gone. Now our solicitor tells us to take it into court; we must prove what we have lost in sales, which we consider a difficult point to prove, for by doing the way we had intended might have been a very large one, or the opposite, so that to prove a loss this way is, as we say, difficult. So before moving further in the matter we thought we would ask your advice. We may say in conclusion the prints were sold at 2s. each, and by buying this paper they got the lot for 3d., as you will see.—X. Y. Z.

Certainly, if you claim damages, you must be prepared to prove them. You will most likely be asked to produce evidence of having in previous instances made profits by publication of similar photographs. In this particular instance we imagine you will not find it easy to prove great damage, as from the journal it is evident that several other photographs of the event were taken. Yours was not the only one. We should feel inclined to accept the offer, which for a case of ordinary infringement is reasonable.

POSTCARD JOURNAL.—I remember about twelve months ago getting a monthly or quarterly trade paper dealing with postcards. It is mentioned in 1s. book on "Postcards" by H. Snowden Ward. I have mislaid the book. Will you kindly let me know where I can get it, and its title?—D. J. DAVIES.

"The Postcard Collector," as it was formerly called, is no longer issued separately. We believe it appears as a supplement to "Stationery Trades' Journal," published at 11, Warwick Lane, E.C.

STUDIO QUERY.—Nearly eighteen years ago I started business in this town, and some few years after I built a new studio here, on a fifteen years' lease, which is now almost at a close, and as the proprietor now proposes to take re-possession of the premises I occupy, to safeguard my position I have purchased a property in an adjoining town in the main street, to which I propose removing, after building a new studio there. My difficulty is that nearly all the feus in this particular street are only 25ft. wide, although extending back for upwards of 162ft. in the case of my own particular property; but the exposure necessitates building on the width of the feu to obtain a N.E. light. Would you advise me to obtain lenses of short focus, to use on a working length of only 24ft., which will be the absolute maximum working length, or would you suggest the building of a tunnel studio, which would enable me to use longer focus lenses? My present studio was built fourteen years ago, and cost me almost £300, and is 36ft. by 15½ft. floor space, and, as you can understand, I fear I shall feel very much cramped in working in a room only 24ft. long. Undoubtedly there are very many studios of no greater length than 24ft., but I feel rather undecided as to the best course to pursue.

Here I have had my studio entirely glazed with obscured glass, and I think that by glazing with clear glass the exposures might be much more rapid, but there is the disadvantage of being overlooked by the tenant in the house above the shop on the street frontage. No doubt you may think it is a curious request on the part of a practical photographer to put such a series of questions, but I am anxious to have a technical opinion from a reliable source, and to consider it in conjunction with my own before going on with the building and alterations.—W. J. S.

In all the circumstances we think you will do well to put up with the 25ft. studio. You will require lenses of shorter focus than you employed in the studio you are relinquishing, but use the longest that circumstances will allow, so as to get as far away from the sitter as possible. If the place is glazed with fluted glass instead of plain, neighbours cannot see through, and but little light will be obstructed.

COPY OF PAINTING.—Some time ago I received permission to copy an oil painting from an original by a living artist, which was exhibited in a public art gallery. A friend of mine is anxious to purchase the copy which I painted. Can I do so without being liable to a penalty legally? The Curator of the gallery gave me permission to copy the original only for study purposes, but hinted that no business was to be made with the same. I should be very thankful if you would please inform me whether I can sell the copy as such with safety.—A. A. GITTLESON.

We should say that if there is still copyright in the painting—and there probably is, as the artist is alive—you have no right to

issue copies. It is a moot point, but we expect the rights of the matter are based on the law of contract, not of copyright. Apparently you were granted permission to make one copy for your own use, nothing more than that.

ELECTRIC LIGHT IN STUDIO.—I have taken a shop with premises at the back, which I hope to turn into a studio, and would be glad of your advice as to the lighting of same. The premises are 25ft. by 11ft., and I want 18ft. by 11ft. for studio. I have a light in the roof 5ft. by 4ft., also windows in end of building. The ceiling is about 14ft. high, and the room seems very light, but I wish to put in electric light. I have two good arc lamps, and would like to know the best position for them. I enclose a rough sketch of the room, so will you please state if one lamp is required or two, and the distance from sitter, also height from the floor for fixing lamps?—H. C.

We should advise the use of the two lamps, the one to soften the shadows cast by the other. The one for the dominant light may be placed at the side and a little before the sitter, so that the light falls upon him at about the angle of 45 degrees. One lamp, the chief one, may be, for a sitting figure, about 8ft. 6in. or 9ft. from the floor. The other lamp may be placed on the opposite side, and at a greater distance from, and more in front of, the sitter. A few experiments will show you the best position of the lights to get different effects in the lighting.

LENSIST.—The orthoscopic lens by Voigtländer is a very good lens for the time it was introduced—now more than fifty years ago. It was eclipsed by the triplet, afterwards by the R.R., and later by the anastigmats. It has practically, at the present time, no market value. If you advertise it at the price you mention it is very unlikely that you will get a purchaser of it. Indeed, we should doubt if it would sell at a tenth of the sum you name, for it is quite an obsolete form of lens.

A. P.—Glucose may be had from any operative chemist, and when obtained from such a source it may be relied upon for the powder process. Glucose in the form of syrup is much used by confectioners, and is an important commercial article, but it is not to be recommended for photographic purposes.

THOS. WAKELEY.—1. Undoubtedly a good R.R. lens to cover the half-plate size may be had for fifty shillings, but you will have to make your own selection, as it is strictly against our rule to recommend any particular maker or dealer's goods. If you get the instrument from a good house you may rely upon getting value for your money. 2. Tank development can certainly be recommended to amateur photographers. 3. We have not used the apparatus ourselves, but we have heard it well spoken of by those who have.

R. A. C.—A village druggist is not the best source from which to obtain photographic chemicals, particularly those which deteriorate by keeping, such as sulphite of soda, liver of sulphur, etc. The village druggist naturally has but a slow sale, and the goods often remain a long time in stock. It will be better for you in future to draw your supplies from a regular photographic dealer in some large town. We have little doubt that your stained negatives arise from the use of an unsuitable sulphite of soda—one that has suffered from long keeping and exposure to the air.

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SUMMARY.

Mr. D. Berlin, in experiments on flash powders, has found that the shape of the tray exerts more effect on the flash than so-called "spreaders." (P. 967.)

Stereoscopic Portraiture, Colour in the Stereoscope, Reversal by Phosphorescence, Carbon Printing in Winter, Production of Photo-Buttons are among the topics discussed under "Correspondence." (P. 980.)

In some notes on page 966 photographers are reminded of a few of the regulations as to the carriage of parcels, attention to which is more necessary than usual at this time of year.

A species of heartless fraud, which apparently has been going on for many years, would appear to have been brought to an end at the London Sheriff's Court last week. (P. 973.)

A practical point in trimming a number of prints from one negative, so as to include the same amount of subject in each, is mentioned on page 966.

Some simple geometrical rules of occasional service are given on page 971.

Still another film-pack patent, and the use of a tube railway as a cinematograph, appear under "Patents of the Week." (P. 975.)

At the annual general meeting of Ilford Limited, the chairman addressed the shareholders on the improved condition of the company, and the directors' recommendation of a 6 per cent. dividend was adopted. (P. 973.)

There seems a call for definiteness in describing enlarger movements. (P. 966.)

The inaugural address recently delivered by Professor Sylvanus Thompson, before the Society of Illuminating Engineers dwelt upon a number of points likely to become of photographic importance. An abridgment of the address appears on page 969.

Under "Photo-Mechanical Notes" we review Messrs. Penrose's "Year-Book," just published, and refer to several other process matters. (P. 974.)

In some notes on the economics of preserving sulphite solution, attention is called to the advantageous use of hydroquinone for this purpose. The cost of preserving one pennyworth of sulphite by a method which has been recommended is sixpence. (P. 965.)

EX CATHEDRA.

The Chemistry of Sulphite.

The mere fact that hydroquinone and other developers act as preservatives of soda sulphite is sufficient to disprove the old theory that sulphite preserves a developer by using up the oxygen that would otherwise attack it. This theory dies hard, for it still often appears in modern textbooks and articles, even though it is some time since its fallacious nature was made clear. Evidently the action is not so simple, and we have yet to understand why two readily oxidisable substances when brought together seem to preserve each other from oxidation. The whole subject is very obscure, for, in spite of the amount of research that has been devoted to the subject of sulphites, we do not as yet comprehend how they deteriorate. It is repeatedly stated in textbooks, photographic ones especially, that sodium sulphite oxidises to sulphate, but this is not strictly correct. The sulphite eventually reaches the state of sulphate, it is true, but it does not do so directly, excepting under very special conditions. It appears that the precise series of changes that it undergoes depends to some extent on the rate of oxidation, and upon the amount of oxygen present. Apparently before the state of sulphate is reached dithionates, trithionates, and various other thio compounds may be formed, while sulphur, sulphides or thiosulphates, and oxides are possibilities. Careful titrations of a sample of sulphite made at frequent intervals during its slow decomposition show various anomalies that can only be accounted for by assuming the formation of various temporary decomposition products that affect the titration. For one thing, the formation of an acid is always strongly suggested. In these circumstances, it is very difficult to prophesy what will happen when other substances are added. We cannot say whether they will assist or retard any of the unknown intermediate reactions, and therefore cannot say what their effect will be on the general progress of decomposition. There is a fine field of research here for anyone with the time and inclination to enter it, but it will not be an easy one to explore.

* * *

The Preservation of Sulphite.

We see that Dr. J. H. Wigner, in one of our contemporaries, in dealing with the matter of the preservation of soda sulphite, describes some experiments of his own upon the action of mannite, and comes to the same conclusion as we did some time ago, namely, that it is practically useless as a preservative. He found that it reached oxidation but did not prevent it. One per cent. of mannite in a five per cent. solution of sulphite had only a slight effect, and it is evident that with sulphite at sixpence per pound, and mannite at something like nine shillings per pound, the game is not worth the candle. His experiments with hydroquinone as the preservative gave, however, very dif-

ferent results, and he appears to have found, as others have also done, that this is a most excellent preservative. A five per cent. solution of sulphite kept well with the addition of one-twentieth per cent. of hydroquinone, so that one part of the latter compound sufficed for 100 parts of sulphite. The cost of preservation in this case is very different, for, in round figures, we may say that one pennyworth of hydroquinone will preserve six pennyworth of sulphite, whereas in some old experiments of our own we found that about six pennyworth of mannite was required to preserve only one pennyworth of sulphite, and even then the advantage was not very substantial. It would seem that before adding the hydroquinone it would be just as well to dispose of any carbonate existing in the sulphite by adding an acid, sulphuric, for example, until the solution is neutral to phenolphthalein. The carbonate can do no good, and it is quite possible that the hydroquinone will be even more efficient in the absence of any alkaline salt.

* * *

Description of Enlarger Movements.

The movements of enlargers now almost rivalling those of a field camera, it seems a pity that some short and descriptive phrase cannot be uniformly adopted for each of them with a view to shortening catalogue and other specifications. The part of the apparatus to which different, and in some cases contradictory, terms are applied is the negative stage in which, at the present time, three distinct movements are usually embodied, namely, one straight up and down of the negative, a rotating movement of the negative, and again a swing movement by which the negative is placed at an angle, other than a right-angle, with the optical axis of the lens. We think much confusion would be saved if the usual terms applied to the back and front of a camera were used in describing these movements of an enlarger, since everybody would know what they mean. Hence we might speak of a negative stage with "rise and fall," "rotating," and "swing" movements. In a recent admirable article on enlargers in the "Times," the writer uses the word "tilt" to describe the rotating movement of the negative in an enlarger stage, a phrase which we are afraid most people would take to mean the swing movement above referred to.

* * *

Trimming Prints,

Where a number of prints from a single negative are all required to be trimmed down as closely identical with each other as possible, the use of a trimming shape and a knife calls for the separate adjustment of each edge of each print when making the cuts. A ready means of getting over this difficulty is to make use of the ingenious "Maitland" trimming gauge of Messrs. Butcher. This, we may remind some of our readers, is a piece of translucent paper accurately ruled into squares. It is laid over the face of the print—or in our present case over the pile of prints—and through each of the four corners of the rectangle, which corresponds with the size the print is required when trimmed, a fine pin is driven, the prints being afterwards cut down by any suitable means through each of the pin holes thus made, these being most easily seen from the back of the print. So long as means are taken to push each printing paper up to the corner of the printing frame when taking off the prints the use of the gauge will give a ready means of securing a whole lot of prints, each including exactly the same amount of subject. We are writing now for those who have not a fairly strong guillotine trimmer with which the whole batch of prints can be cut at one stroke for each side while the prints are clipped together in register with the outside edges.

PHOTOGRAPHERS' PARCELS AND THEIR TRANSIT.

COMPLAINTS have been pretty frequent of late of parcels dispatched or received by photographers being damaged or lost in transit. In many instances which have come under our notice this has been due to the sender's carelessness in the packing; indeed, in not a few cases it was not at all surprising that the contents of the parcel came to grief: it would have been more surprising if they had not. When such carelessly packed parcels reach their destination intact they seem to show with what care they have been handled by those through whose hands they have passed. It may reasonably be supposed that just at this season photographers will be dispatching more packages than usual, and that also there will be more than a usual amount of parcel traffic through the different channels than at other times of the year. Under these circumstances it can readily be conceived that in the press of business parcels may not meet with the same care that is usually given to them by carriers, and it therefore behoves the senders to take extra care with regard to the packing and labelling.

Carriers and railway companies are responsible, and have to pay compensation in the case of loss or damage which may result while any parcel is in their hands, and the object of this article is to give prominence to a few points in connection with this subject. In the first place, carriers—railway companies come within the same category—are protected by an old Act of Parliament to a limit of ten pounds only. Beyond that sum no compensation can be claimed, even if the value of the goods were a hundred pounds or more. But it must not be imagined that, should a parcel, we will say, of the value of fifty or a hundred pounds, be lost or destroyed, the owner will recover even the ten pounds; he would, in fact, get nothing at all, as the value of the parcel should have been declared at the time it was handed to the carrier, and a small insurance fee paid on it. The railway company thus becomes responsible, and that to the amount of the declared value. But even then it must not be assumed that when the contents of a parcel are declared of a certain value that, therefore, that sum will be paid. The owner will have to prove that it was of that actual value, and, further, if the contents of a parcel are insufficiently protected by the packing, that fact will exonerate the carriers from liability, as it would be through the fault of the sender that the damage was sustained.

All parcels containing fragile articles, such as negatives, framed pictures, etc., should be distinctly labelled as "glass," pictures, etc. For such things an extra charge for carriage is made, and in the event of the parcel not being so labelled nothing will be recoverable if the contents include glass or such things as would be charged at the higher rate.

When a parcel is delivered to the consignee it should be examined before it is signed for, and if it is seen from its outside appearance that the contents may be damaged it should be opened in the presence of the one who delivers it, and then signed for as received damaged. If broken glass or anything else can be detected in it by shaking, the parcel should be refused, and it will then be returned to the sender, who can then fight the matter out with the railway company. It should be borne in mind that when a parcel is received and the carman's sheet signed, the signature implies that it has been delivered in good condition, and therefore a rule should be made to sign "unexamined." If it is found when opened that the contents have been damaged in transit, no time should be lost in apprising the company of it by letter, so that it can forthwith investigate the matter. Sometimes photographer

are negligent, and do not do this until some days afterwards, when difficulties frequently arise that might have been avoided if more immediate action had been taken.

After the full compensation for the loss or damage has been paid, the parcel becomes the property of the railway company, unless an arrangement to the contrary is made at the time. Goods paid for are usually consigned to the lost luggage department, to be sold at the succeeding periodical clearance sale for what they will fetch. Some little while back a correspondent wrote us with reference to an enlargement he had sent by rail. The portrait, which was that of a lady, got injured on the way, and the husband claimed for its value. This the railway company paid in full and sent the picture on to the lost property office. Our correspondent wanted to know if the company could legally sell the enlargement, as her husband would, naturally, not like his wife's portrait to be put up to public auction. Of course, as the company had paid the full amount claimed, the picture was their property to do as they thought fit with. We mention this case to show that in arranging terms of compensation, facts such as these should be kept in mind.

In all business establishments a "parcels book" is kept, in which the names and addresses (as on the packages), with the date of dispatch, are entered. This book is always taken with the parcel to the receiving office and is signed by the clerk or agent who receives it. This is a receipt that the parcel was received for transit, and no after-dispute on that point can arise. It is not uncommon to find that parcels are merely handed in at carriers' receiving offices and no receipts for them taken. That should never be done. If a regular parcels book is not kept, the name and address of the consignee, with the date, should be written on a slip of paper, to be signed by the agent. The signature in either case will be a proof that the parcel was placed in the agent's hands.

As parcels up to eleven pounds in weight can be sent through the post, and photographers probably do more with the Post Office than with carriers or railway companies, and it may be of service to some to say a few words with regard to carriage by the Post Office, inasmuch as some instances have come under our notice which show that senders are not fully cognizant with the rules. It may not be generally known to everybody that no legal liability rests on the Post Office for loss or damage to parcels. That is to say, it would be useless to sue in a court of law for compensation. However, the Postmaster General will, as *an act of grace*, give compensation up to two pounds, but not more, unless the parcel was registered. The fee for this—in addition to the ordinary postage—is but trifling. Thus a fee of twopence covers up to £5, threepence up to £10, and so on up to £400, for which the fee is only one shilling and tenpence. Photographers who send parcels of negatives, framed pictures, etc., through the post should not neglect to register them, as the extra cost is a mere bagatelle. The parcels, however, must be marked "registered" and sealed with wax; and, in the event of their containing glass, or easily breakable articles, must be labelled "fragile, with care." The mere word "fragile," or "with care," are not sufficient; they must bear the words "*fragile, with care*" to secure compensation. When the parcel is posted a certificate for it must be obtained for it to ensure recompense. Certificate forms can be had at all post offices, and no charge is made for them. Photographers will do well to keep a small supply of them always in stock, and then all that has to be done is to fill in the name and address of the party to whom the parcel is sent and hand it in with the packet. The clerk will sign it and append the official date stamp—two points of importance, as no compensation will be paid unless the certificate of posting is forthcoming in the case of loss or damage.

SOME FLASHLIGHT TESTS.

THE area of flame given by a stated quantity of flash-powder seems to deserve some consideration both with regard to the effect of lighting and also from the point of view of safety, as when working among inflammable surroundings. The following experiments were made with the idea of finding whether any definite size of flame might be expected under similar circumstances. At the same time, it was thought a suitable opportunity to test a device advertised in one of the American journals as a "flame-spreader," much being made of the large area of flame supposed to be given, with the natural result of more even lighting. This lamp was apparently similar to Houghtons' "Ideal," viz., a trough of semi-circular section of about 1½ in. diameter and about 9 in. long, with mechanism in the centre for exploding a percussion cap by a pneumatic release; the "flame-spreader" being a sheet of metal forming, as it were, a roof curving upwards a couple of inches above the trough.

Having an "Ideal" lamp (with an attachment, of my own device, for rapidly placing and holding the cap in position), a "spreader" was made of a piece of tin, so that it could be placed on or lifted off the lamp as desired. The lamp was set up a couple of feet from a black screen, and with the trough lying parallel with the background. The camera was pointed at the screen, so that the image of the trough would be near to and parallel with the top edge of the focussing screen.

A few preliminary exposures showed that the flame spread somewhat over the lamp itself, and so obscured it in the photographs, even with the smallest quantity of powder; so a wooden

bar was supported about six inches in front of the lamp, so that the top edges of the wood and of the lamp-trough coincided on the focussing screen.

Perpendicular and central with this bar an upright was fixed, having wire nails driven in at intervals of one inch apart as a scale which would automatically register the size of the flames.

The flame in Fig. 1 was one gramme of flash-powder (Agfa powder was used throughout), in a heap over the cap. It will be noticed on reference to the photographs that the combustion is so rapid that no image of the ascending column of smoke is obtained, the lens being open for some seconds both before and after the flash.

Fig. 1A is a repetition of No. 1, but with the "spreader" fixed in position. In order to obtain the greatest possible accuracy, Nos. 1 and 1A were developed simultaneously, as were each of the other pairs.

The size of the flame is easily measured by means of the scale, and it should be noticed that the flame in every case goes below the lamp, but the so-called "spreader" in neither 1A, 2A, or 3A has altered to any extent the practical area of the flame. In Nos. 2A and 3A it has driven the flame forward and downward, so that it may be of some use when working near a ceiling.

Nos. 2 and 2A were each 3 grammes of powder in a central heap, Nos. 3 and 3A being 6 grammes each, laid in a train about six inches long.

A larger quantity should be laid in a longer train in the

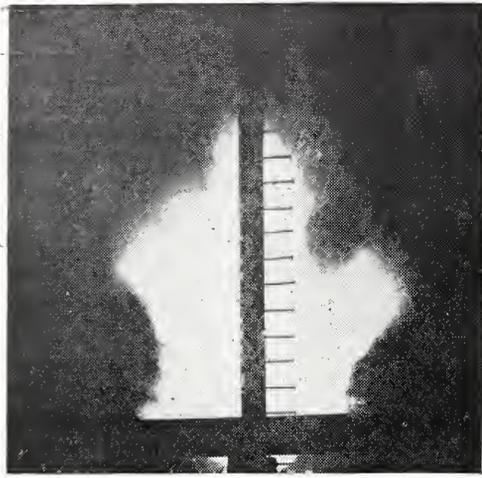


Fig. 1.



Fig. 1A.

SCALE 1/2 INCHES.

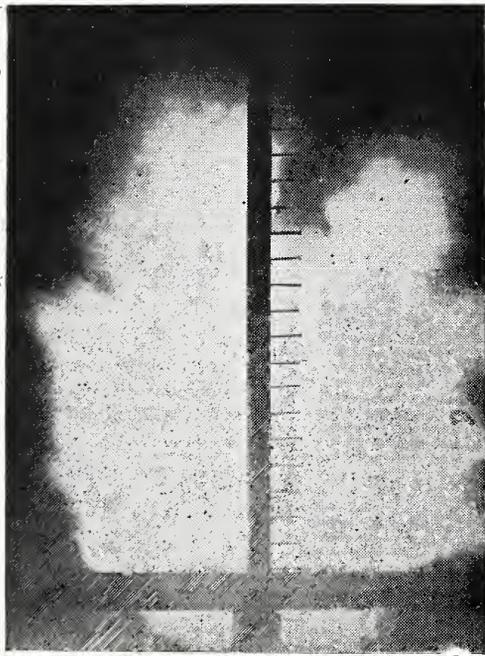
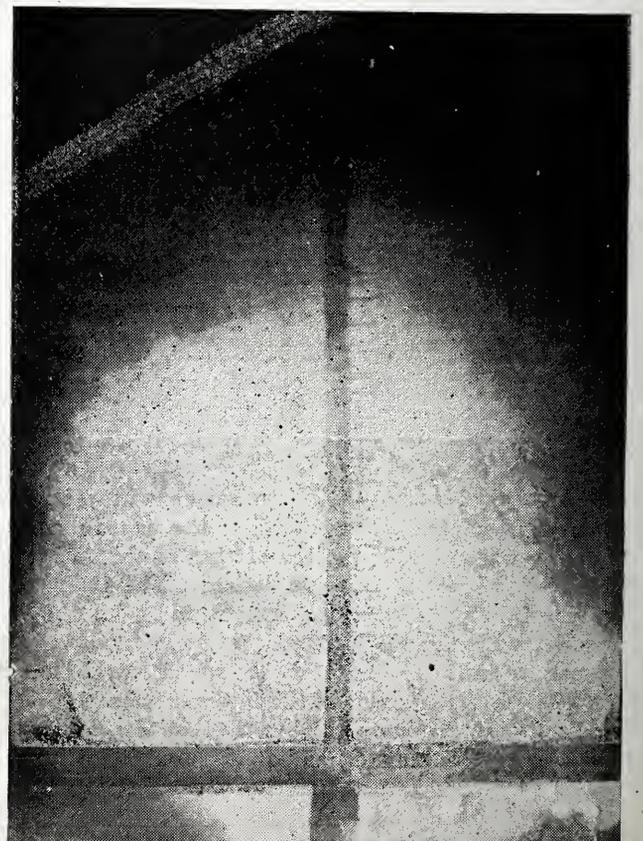
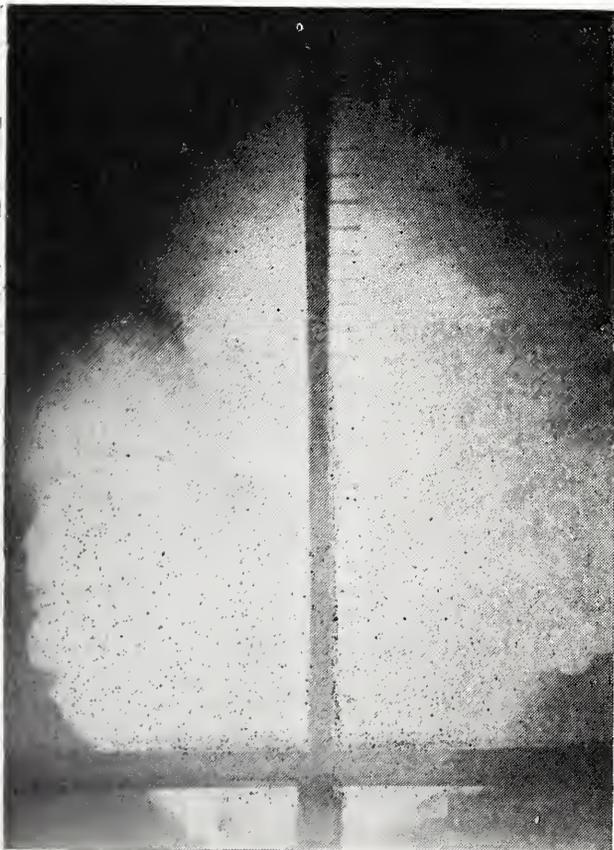


Fig. 2.



Fig. 2A.



same proportion, so that the flame need never exceed twenty-four inches in height from the lamp; it is sure to vary according to circumstances, such as currents of air, but the duplicate exposures made in the course of these experiments differed only in a negligible degree, both as to size and shape of the flame.

It would appear that the shape of the tray has more effect on the flame than any device over the top, the gutter-shaped trough apparently making the flame spread fan-shape, whereas

on a flat surface one would expect a pear-shaped flame. This is, of course, a point in favour of the trough.

The quantities of powder were measured, as they would be in practical work, with a small spoon which holds three grammes, while the handle end, which is bent up slightly, holds one gramme.

The plates used were Ilford "Process." The positions of camera, lamp, etc., were kept the same throughout.

D. BERLIN.

THE ART AND SCIENCE OF ILLUMINATION.

[The subjects with which the newly formed Society of Illuminating Engineers is to occupy itself are naturally of prime importance, both to those who employ daylight or artificial means for the illumination of photographic studios, exhibition galleries, factories, and work-rooms. Professor Sylvanus P. Thompson, in delivering his address as President at the inaugural meeting of the Society, showed the great advances which have been made of late in lighting, and drew attention to the more scientific methods which are now available for the measurement of illumination. The following is an abridgment of his address.]

This society has been founded to bring together all those who are interested in the problems, practical and theoretical, of the art of directing and adapting light, that prime necessity of civilised, as well as of uncivilised, existence, to the use and convenience of man. To advance the subject of illuminating engineering, to investigate through all its lengthened breadth the facts within its domain, to increase and diffuse knowledge respecting them, and to unite those who are devoting their energies to these things, is the object of the society. The ascertained facts are few—all too few; their significance is immense; their economic and social value is great; but the ignorance respecting them generally is colossal.

For practically a century only have there been any systematic means of illumination in use in any civilised country. Before the year 1800 there were, as means of illumination, daylight, oil lamps, rush lights, tallow dips, and wax candles. Monarch and peasant, merchant-prince and workman, had alike to depend on individual sources of light at night. Only in the larger towns and cities was there any organised attempt to light the streets by oil lamps. In 1819 the authorities of the day stoutly resisted the proposal to light the then House of Commons by gas—nothing but wax candles could be admitted; but gas lighting was coming in, and Argand and colza lamps were the sole competitors until after 1850. Everything else dates since then—practically during the last half century. For paraffin lamps were not widely spread until the 'sixties. Arc lighting, though tried for spectacular and lighthouse purposes from the 'fifties, did not come into public question until about 1879. Glow-lamps followed three or four years later. Still later came incandescent gas mantles and acetylene gas lights, while the newest things in both gas lighting and electric lighting are affairs of only a year or two ago. Many persons now realise the immense stride made in the introduction of the Auer (Welsbach) mantle for incandescent gas; far fewer people realise the significance of the corresponding step forward that has been begun by the introduction of the metallic filament glow-lamp. We are, on both sides, in the very middle of an immense evolution in the art of illumination.

But whilst the means of illumination have thus been developing with amazing strides during a single generation, and the organised systems of distribution by municipal and urban and rural authorities, and by private corporations, have ramified throughout the community and brought supplies of gas and of electricity—shall I also say of oil?—to our doors, there has been another and very different development going on. I refer to the growth of that branch of the science of optics which deals with the measurement of luminous values. Photometry has been growing into an exact science by the explanation of its laws and the improvement of the instruments of measurement. It was not until 1760 that the first real discussion of photometric principles was made known. In that year Lambert, in his "Photometria," laid down the fundamental laws, and likewise in the same year Bonguer gave to the world his "Traité d'Optique," wherein a primitive photometer was described. Rumford's shadow photometer was invented in 1794, and Ritchie's in 1824. Then comes a long gap. Save for Bunsen's over-rated grease-spot instrument, there was no important advance in photometry until the

'eighties, when there were produced many novel forms, some of them, including the now well-known forms of L. Weber, Lummer-Brodhun, and Rood, capable of yielding results of much higher precision in the comparison of different sources of light; also in the 'eighties we meet for the first time with special forms of photometer of the kind destined to play a very important part in the work of our society, many photometers measuring the values, not of the brilliancy of a source of light, but the illumination of a surface.

Our primary concern is the adequate and proper illumination of things; and as we have to reduce the present chaos to an exact science, our first business is to secure some common agreement as to the measurement of illumination and the establishment of reasonable rules as to the amounts of illumination required in different cases.

Foremost, then, in the programme of work for our society we put the question of the units of measurements and the promulgation of the proper definitions of them. We must secure agreement—national, and, if possible, international—as to what shall be taken as the unit of light and what as the unit of illumination at a surface.

Happily, the long-standing controversy as to the former appears to be settling itself by at least a preliminary agreement between the standardising laboratories of the great nations. One "candle" is no longer to be a vague and indefinite thing. The new definition provisionally agreed upon is an ideal unit, in terms of which one can describe the several standards in use in different countries. If this provisional *entente* can but be ratified by a little international common sense we shall have henceforward an international "candle," such that it is the same in England as in America, equal to the *bougie décimale* accepted in France, and related to the Hefner-candle of Germany in the precise proportion of ten to nine.

But we have still to find agreement on the standard of illumination. Here in England, and in the United States, we have already grown accustomed to describe amounts of illumination of surfaces in terms of a British unit—the "candle-foot"—not perhaps a very happy term—one that we would readily exchange for a better—meaning, thereby, the intensity of the illumination at a surface situated at the distance of one foot from a light of one "candle." The source being assumed here to be concentrated at a point, the law of inverse squares holds good.

Adopting the candle-foot as the unit of illumination, one may readily state certain facts with definiteness. All competent authorities are agreed that at night, for the purpose of reading, an illumination is required not less than one candle-foot, some authorities saying $1\frac{1}{2}$ candle-foot. The facts appear to be that reading is impossible with an illumination of one-tenth candle-foot, difficult and fatiguing with one of one-fifth candle-foot, comfortable with from $1\frac{1}{2}$ to 3 or 4 candle-foot, but that if the illumination exceeds 6 or 8 candle-foot, the glare of the page is again fatiguing and dazzling. The page should neither be under-illuminated nor over-illuminated. Something depends, it is true, on the size of the print. Under a feeble illumination of, say, $\frac{1}{2}$ candle-foot, a type of pica size printed in a fount of bold face properly inked is legible, when one of long primer size, printed in a weak way, would be practically illegible.

Something also depends on the state of the eye as affected by the general illumination of the surroundings. Very seldom does one find in any ordinary room an artificial illumination exceeding 3 candle-foot. By day, on a writing-table placed near a north window—or near any window not receiving direct sunlight—the illumination may exceed 3, and may even attain 4 or 5 candle-foot.

Until a unit of illumination was thus agreed upon, it was impossible to render any reasonable certainty to estimates of the amount of illumination in any case of dispute. What is the meaning of the term well-lit as applied to any room, building, factory, workshop, or studio? Formerly the term was entirely vague. To-day the answer can be given in numerical terms. Formerly judgment had to be made by the unaided eye, and the eye is notoriously a bad judge. As between two different illuminations, the powers of discrimination of the eye are very limited. The eye can equate, but it cannot appraise. It can tell with fair accuracy whether two adjacent patches are equally bright; if they are not equally bright it cannot say with any kind of proportionality what their relative brightnesses are. All photometry depends on the perception of an equality.

Photometers for the measurement of illumination have been mentioned earlier as coming first into notice in the 'eighties. One of the earliest in this country was that constructed by Sir William Preece, with the assistance of Mr. A. P. Trotter, for measurement of the illumination of side-walks and pavements of streets. It has been subsequently developed by Mr. Trotter, and, as constructed by Mr. Edcombe, is a most useful and handy instrument, telling the amount of illumination directly in terms of the candle-foot. Another, by Mr. Haydn Harrison, measures the illumination, not on the horizontal, but at 45 degrees. Almost equally early with the Preece-Trotter illumination photometer was the school photometer of Petruschewsky, apparently little known in this country. Most recent of this sort is the form due to Martens.

The principles and construction of photometers are matters that have interested me for nearly thirty years. About 1880 I brought out a form of wedge-photometer (modified from Ritchie's form), in conjunction with Mr. C. C. Starling, for electric light measurements. Later I gave to the Physical Society an investigation of the errors arising in photometry from the almost universal assumption that the law of inverse squares is fulfilled. In 1882, when lecturing at the Crystal Palace Exhibition, I gave diagrams to show the effect of the superposition of illumination from two or more lamps, and discussed the variations of illumination in a street between the places of maximum and the places of minimum illumination. Twelve years ago I described a tangent photometer, which has remained a mere optical curiosity.

No one can have worked at the photometry of modern lamps, or of the illumination of surfaces lit by lamps, without becoming conscious how much misunderstanding there is of the elementary laws of illumination. There is Lambert's cosine law, admirable and simple, if only it were not in so many cases vitiated by the presence of organised—that is, specular—reflection. There is the law of inverse squares, itself a universal geometrical law of action radiating from a point, so fatally and absolutely misleading if applied to any other case than that of action from a point.

One subject on which more information is badly needed is the specific brightness of surfaces of different kinds when subjected to a standard illumination. For instance, how much light is reflected, per square inch, when illuminated with an intensity of 1 candle-foot, from such materials as oak panelling, whitewash, brown paper, or the surface of a red brick wall? Here in this theatre the walls are tinted of a dark Pompeian red or maroon, which reflects but little light. The extra annual expense on lighting that might be saved had a lighter tint been used is surely worth considering.

The subject of diffuse reflection which here comes into play has indeed been investigated partially by several persons. There are Dr. Sumpner's researches of 1894 and those of Mr. Trotter on white cardboard and other white matt surfaces, but how few others! Again, there is the subject of diffuse refraction, which occurs in ground glass shades, ribbed and corrugated glass panes, and other devices for diffusing the concentrated light of lamps. Yet how little does any optical book tell us on the subject of diffuse refraction. Reflection and refraction as they occur at dull or irregular surfaces appear to be of no importance to the academic writer of text-books of optics, but they are of vital interest to the illuminating engineer.

Again, there are a number of semi-physiological problems that demand investigation and settlement. We all know that our eyes have an automatic diaphragm which stops down the entering light to protect our eyes from glare, rendering us relatively insensitive to bright lights. Does anyone know whether the contraction of the pupil depends on the total amount of light entering the eye or on the intensity of the image on local patches of the retina?

Again, we all know how an unshaded arc-lamp, or even glow-lamp, "cuts" the eyes by the very concentration of its beams, even when it may be many feet away, while the same actual amount of light, if diffused over a greater apparent surface, as by a surrounding globe of ground glass, is quite readily endured, and does not produce the same painful sensation. Does anyone know how great is the specific brightness of surface that the eye will tolerate without experiencing this discomfort? We can look at a white cloud or at the blue sky without pain. Can we endure a specific brightness of so much as one-tenth of a candle per square inch?

Our eyes are provided by nature with a most exquisite and automatic iris diaphragm, which opens in the dark and closes in the light, thereby shielding us partially against the evil effects of glare. Putting it in the language which the photographer uses to describe the stopping-down of a camera-lens, the automatic iris of our eye can close the pupil so that while in a comparative darkness the aperture opens to $f/2$ or $f/2.5$, it closes amid a brilliant surrounding illumination to about $f/20$. Suppose we are looking out in relative darkness, and are confronted with a brilliant patch shining with a specific brightness of one-tenth of a candle per square inch, we shall feel a certain amount of discomfort from its glare, and if we regard it steadily for a second or two will, on closing our eyes or turning away, see those persistent coloured images that trouble us after looking at any very bright light; but now let the same brilliant patch be placed against a bright background. Far more light will enter the eye; the automatic iris of the eye will in a few moments have contracted, stopping down the lens of the eye so that it will be far less sensitive. In these circumstances, will the patch that has a specific brightness of one-tenth candle per square inch pain or dazzle the eye? I ask the question, but I do not know the answer. Does anyone know what the answer ought to be? It is a simple question, and a few experiments would soon settle it. Of course, one must admit that the automatic action of the iris diaphragm, important as it is, does not by any means account for the whole of the facts about the want of proportion between the intensity of a stimulation and the intensity of the resulting sensation. Fechner's logarithmic law of psychophysics gives a clue, but even this does not seem capable of expressing, much less of explaining, the facts about the observed want of proportionality. Why should a light of ten-fold brilliancy not produce a sensation ten times as intense? And why should a greater brightness of the general surroundings relieve us of the annoyance of those coloured after-images? After-images can be seen even under extremely feeble illumination, as I have again and again found. Has anyone discovered any exact law governing their occurrence?

All these queries show that there is plenty of work awaiting us, even in the mere collection and completion of such scattered information as is already available; but there are even more important questions before us, more important, not in science, but in their relation to the public welfare and the economics of the community.

Now that we have a standard of illumination and simple portable instruments that will measure it, there can be no excuse for inaction or ignorance in applying that knowledge to securing proper illumination for public and private buildings.

Let me begin with school buildings. They are the most important; for whatever bad results flow from bad lighting of churches, factories, or railway stations, those which result from the bad illumination of schools are far more to be deplored—they imperil the eyesight of the next generation.

All ophthalmic surgeons agree that the cause which forces the children into increasing shortsightedness is protracted poring over books under an insufficient illumination. Even in what an inspector might call a well-lit school the illumination at the surface of the desk may be quite insufficient if the desks are badly placed, or the windows insufficiently high, or the lamps badly distributed.

All educational authorities ought henceforth to insist on rational requirements as to lighting. Hitherto they have had nothing definite

to specify; now that illumination photometers are available, they ought to require a minimum of $1\frac{1}{2}$ candle-foot at the worst-lighted seat in the schoolroom, and not depend on purely architectural rules about heights of windows or areas of window space. In England the Board of Education, in its Building Regulation (1907), Rule 6, clause c, has laid down a foolish rule: "Skylights are objectionable. They cannot be approved in school-rooms or class-rooms." That perfectly monstrous provision ought to be at once repealed. The universal experience of the textile industries, where adequate lighting of spinning and weaving machinery is a prime necessity, is that no method of lighting is so satisfactory as skylights in roofs specially constructed to receive light from the northern sky.

Hitherto little attention has been paid by either local or central authorities to conditions affecting the lighting of factories and workshops. It is true that the factory inspectors require periodic white-washing of factories, but that is for sanitary reasons, not primarily to secure better illumination. The Home Office has its regulations as to temperature and degree of moisture required or permissible in the different classes of factories and workshops. Then why not also similar regulations as to the proper amount of illumination? Surely the eyesight of the workers is as well worth protecting from injury as their lungs and their limbs. So far as I am aware, Holland is the only country in which legislation has fixed a statutory amount of illumination in factories, the figure there being from 10 to 15 candle-metre, equivalent, therefore, broadly to the value of 0.9 to 1.35 candle-foot.

Architects are often blamed for deficiencies in the lighting of the buildings they design, perhaps more often for the deficiencies found

at night by artificial lighting than for those of the lighting by day. For this the fault rests no doubt largely with the persons who have installed the lighting arrangements, and one must not blame the architect too severely for having been as ignorant as all the rest of the world about the principles of illumination; but henceforward, when once it is known that much illumination is required in the rooms of different kinds, the architect ought in his specification to set down, with appropriate numerical values, what degree of illumination is required in the various parts of the building.

I venture to suggest that it would be a good thing if, in the public interest, our society, or some committee appointed by it, could draw up a model specification, or model clauses for architects to insert in their specifications, in which the proper way of prescribing the requisite amounts of illumination in different classes of cases should be set forth.

Outside all these matters of more public interest, there are topics enough to occupy our society for many months to come. We shall have discussions on several interesting subjects during next spring, and there are many problems awaiting solution. When all else fails us, we can turn to the eternal question of the measurement of colour. We have also the long outstanding problem of the production of light without heat, accomplished in nature by the fire-fly, but unrealised by any artificial lamp. We might turn to discuss special cases, such as the flashing lights of lighthouses, or the special lights needed in the hospital for the detection of rashes or the treatment of disease. Amid such endless ramifications of our subject there is no fear of coming to a premature end of our programme. There is, indeed, abundance of work before us. SYLVANUS P. THOMPSON.

SOME USEFUL GEOMETRY FOR PHOTOGRAPHERS.

[Some simple methods of geometrical construction, which are as the author remarks, by no means new, yet are probably unfamiliar to many photographers who, in cutting vignetting masks, trimming glasses, etc., to various "fancy" shapes, will at times find the simple use of a drawing board, T-square, and set-square of the geometrical method as regards tools is in favour of the latter. and a straight rule are the only instruments required.—Eds.]

1. To halve a distance. From each end of the distance ab strike a portion of a circle on either side of the line, the line forming the two points of intersection—i.e., the line cd bisects the line ab . (Fig. 1.)

2. To draw, from a point in a given line, a perpendicular to the line. From the point c in the line an equal distance ca and cb on either side is marked off with the compass. From each of these

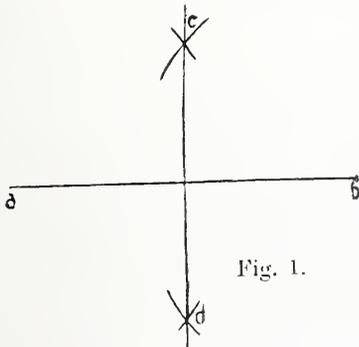


Fig. 1.

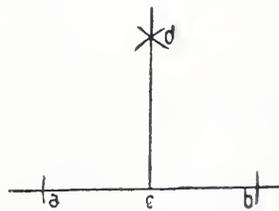


Fig. 2.

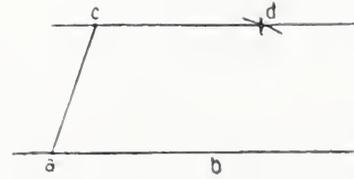


Fig. 3.

points a and b a piece of a circle is marked off with the same stretch of the compass, the two portions crossing in d . On joining d and c the line formed is the perpendicular to the line ab . (Fig. 2.)

3. To draw a parallel line at a given distance. A perpendicular from any point in the line to which the parallel is to be drawn is erected as just described in 2. The distance which the parallel is to be from the given line is marked off on the perpendicular, and then a second perpendicular drawn forming the parallel.

4. To draw through a given point c a line parallel with a given line. Joint the point c with any point in the line, say a , then from any second point in the line, say b , describe a circle with ac as

radius, and from the point c , a second circle with ab as radius, these two circles intersecting in d . On joining the points c and d by a straight line this latter is the parallel required. (Fig. 3.)

5. To halve an angle. The construction in fig. 2 divides the angle adb into two parts by the perpendicular dc . In a similar way any other angle may be divided into two.

6. To construct a triangle with three equal sides. Drawing the

line ab to form one side of the triangle a circle is struck off both from a and from b , the two portions intersecting at c . On joining c to a and b the complete triangle is formed. (Fig. 4.)

7. To draw a regular hexagon. Draw a circle with a radius of length equal to the desired length of each side of the hexagon. Starting from any point of the circle set off successively with the compass straight lines each equal to the radius of the circle. On joining the points thus marked on the circumference the result is a regular hexagon. (Fig. 5.)

8. To draw a square. A straight line ab to form one side of the square is drawn, and a perpendicular drawn from a and from b by

line ab to form one side of the triangle a circle is struck off both from a and from b , the two portions intersecting at c . On joining c to a and b the complete triangle is formed. (Fig. 4.)

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line ab to form one side of the triangle a circle is struck off both from a and from b , the two portions intersecting at c . On joining c to a and b the complete triangle is formed. (Fig. 4.)

the method given in 2. Along each perpendicular the distance $a b$ is marked off, giving the points c and d , on joining which the complete square is formed. (Fig. 6.)

Another method is to draw a circle and one diameter of it. A second diameter perpendicular to the first is then drawn, and the

The point d is then connected to a and b by straight lines, and e is likewise connected with these two points. From b with radius $b a$ the arc of a circle is drawn, $h a i$, and from a with the same radius the arc $f b g$. Finally, with radius $d f$ and from the points d and e further arcs $h k f$ and $i l g$ are drawn completing the oval. (Fig. 9.)

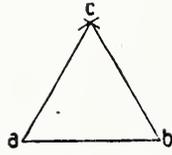


Fig. 4.

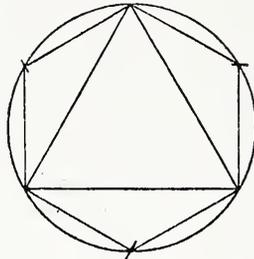


Fig. 5.

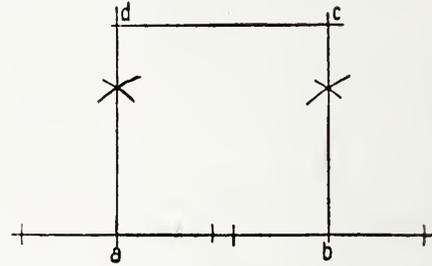


Fig. 6.

four points at which the two diameters intersect the circumference of the circle on being joined together form a square. (Fig. 7.)

9. To draw a regular pentagon. A circle is drawn and the diameter $a b$ drawn through the centre c . The radius $c b$ is then halved at d , and from c a perpendicular drawn $c e$. Then from d as centre and with $d e$ as radius the arc of a circle is drawn which meets the

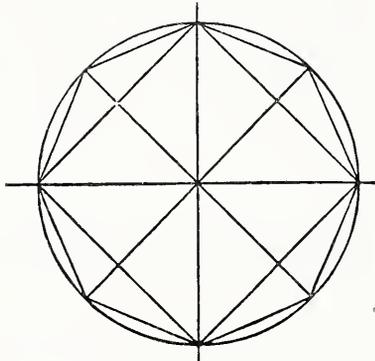


Fig. 7.

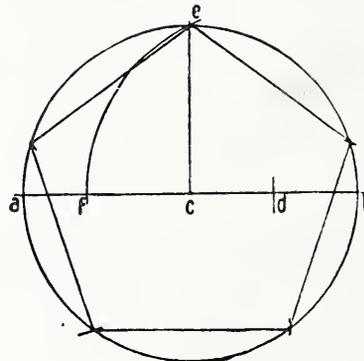


Fig. 8.

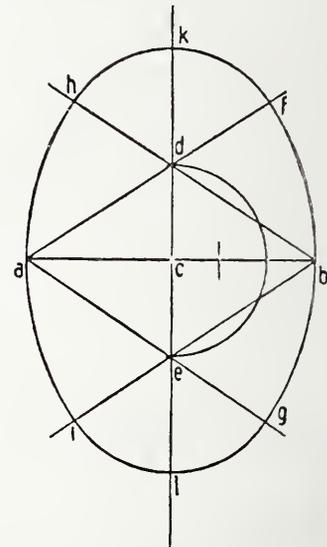


Fig. 9.

diameter $a b$ in f . This distance $e f$ is then set off five times inside the circle forming the pentagon. (Fig. 8.)

10. To draw an oval of given width. A line $a b$, the desired width of the oval, is halved at c and a perpendicular drawn each way. The distance $c b$ is then divided into three equal parts, and from the centre c , with radius two-thirds of the distance $c b$, a semicircle is described which meets the perpendicular to $a b$ in the points d and e .

If, instead of proceeding as directed above, the first semicircle drawn from centre c is made with a less radius than two-thirds of the distance $c b$ and the remainder of the process carried out as before the oval obtained is rounder, whilst if a longer diameter, that is more than two-thirds of $c b$ be taken a longer oval is obtained; but the most pleasing dimensions are those when two-thirds of the diameter is adopted.

ILFORD, LIMITED.

INCREASED REVENUE AND A DIVIDEND OF 6 PER CENT.

THE thirteenth ordinary general meeting of shareholders in Ilford, Ltd., was held last week at Winchester House, Old Broad Street, E.C., Colonel Ivor Philipps, D.S.O., M.P. (Chairman of the company), presiding.

The Secretary (Mr. F. J. Jenks) having read the notice convening the meeting and also the auditors' report,

The Chairman said: Gentlemen,—Taking the debtor side of the account first, the reserve for bad and doubtful debts is exactly the same as last year. The item of sundry creditors shows an increase of £4,000; that is because last year we had purchased a lot of silver and paid for it in advance, while this year we had, at the time the books were closed, a debt of £2,000 for silver and of £2,000 due to the builders for the new buildings at Ilford. The item of goodwill is reduced by the sum of £6,000, and it stands at £216,000, but the Board look forward to reducing it steadily as opportunity occurs. The item of freehold land and buildings shows an increase of a little over £7,000 since last year, caused by improving and enlarging our factories, etc. Then we have written off for depreciation £3,147, which makes the net increase on freehold land and buildings £3,900. Your buildings and plant have never been in such good order as they are this year. I have personally taken great trouble to see that your buildings and property generally should be put in good order

and kept in good condition, and I can say, without any question that your buildings are in perfect order. As to the item of "investments at cost or under," they stand in your books at £100,267, which is an increase of £12,690 since last year. Here I would draw your attention to the note appearing in the balance-sheet which says that the actual market value of these investments was £86,617 on October 31 last. All these investments are in easily realisable securities, and if you should, for any reason, wish to develop your business in any line you have at your call at any moment a sum of between £80,000 and £90,000. Sundry debtor are the same as last year, which is satisfactory, considering the increased business done. The office furniture is a little reduced in amount, as we have liberally depreciated that small item.

Turning to the profit and loss account, the item of salaries, advertising, rates, taxes, and sundry trade expenses is £2,300 more than it was last year, but it is still £1,000 less than it was in the preceding year. The item of income-tax is less. There is an increase in the item of repairs and depreciations of £881, and we have written off more for depreciation, as we wished to place the company in as satisfactory a position as possible in this respect. The item of directors' and auditors' fees is the same as last year. The net profit on trading shows an increase of £8,064. This increase is satisfactory, but it is not quite as satisfactory as we could wish in comparison with the increased turnover. The item of "interest on investments" is about the same as last year.

The result of it all is that we carry to the balance-sheet a balance of £33,618, as compared with £28,810 last year, an increase of £4,808. We brought into the account £3,649, which leaves available for us to dispose of £37,267. We have already paid the Preference dividend of 6 per cent., which absorbs £11,400, and leaves £25,867 to be dealt with to-day. Your Board has considered this matter very carefully, and they recommend that we should set aside £12,000 to writing down goodwill and investments and also to writing off plant and for general contingencies. That leaves £13,867, and out of that we recommend an Ordinary dividend of 6 per cent., which absorbs a further £11,400, and leaves £2,467 to be carried forward, as against £3,600 last year. The comparatively small attendance here to-day shows, I hope, not that their interest in Ilford, Ltd., is less to the shareholders, but that they are satisfied with the steps which the Board have taken to carry on your property during the last twelve months. I should look upon it as a misfortune if it indicated that the shareholders were taking less interest in their property. The market value of their shares is, I am glad to say, returning to somewhat like the proper value, and I hope—and indeed I know—that not many of our shareholders have been so foolish as to part with their shares in that time of depression which overtook us. I hope you will agree that the progress we have made during the past year is satisfactory, but it is not quite so satisfactory as we desire or consider that it should be, in view of the manner in which the turnover has developed.

The constant cutting of prices, and the severe competition to which this business is exposed, prevent us getting the full benefit from the superiority of our productions, and the large sales thereof which take place. I have referred on previous occasions to this cutting of prices, and I can only say now that it continues, and is even more violent than before, much to the damage of your property. I believe that it is a very foolish policy; I do not know who benefits by it, but we certainly do not. It is our intention, of course, to maintain the high quality of our goods and to push their sales in every way possible, and we hope to continue to show a good profit. Still, I cannot hold out very great hopes of increasing profits in proportion to this increasing output. It is to the economies which we have effected, as foreshadowed at the last meeting, that the present improvement in the gross profits is mainly due. The expectation held out at the last meeting has been amply realised, and I look forward to still further economies in that direction, economies not in any way affecting the quality of your goods, but mainly economies in manufacture. It affords me very great pleasure again to express our indebtedness to those shareholders who bring their complaints and suggestions directly to the Board. We received a great number during the year from shareholders interested in the business, and every letter that is received has my personal attention. Suggestions that are put forward are always adopted whenever we believe that they will in any way benefit your business, and the Board fully appreciates the benefit to your business resulting from shareholders taking a personal interest therein. We have a large body of shareholders, many of them personally interested in the retail trade and the pushing of your goods; therefore, it is to them that we must look to spread about the country the fact that your goods are not only as good in quality as they ever have been, but that they are a great deal better. (Applause.) The steady increase in your business shows that quite clearly. We stand, as regards our business, in a different position to any other photographic business in the country. We are the only photographic business whose accounts are published, and in these days of severe competition that is, undoubtedly, a very great disadvantage. It is on this account that I am compelled, in your own interest, to give you as little information as I can on many subjects which I know would be of the greatest interest to you, but I am always pleased to give shareholders any information which I possibly can. The company is going ahead, and the Board are working harmoniously together in your interest. The staff, as on all occasions since the company was started, have been most loyal to the Board and to your interests. The balance sheet we have put before you is more satisfactory than you have had for many years, and I can assure you that we are working wholeheartedly to put your business in a still better position than it occupies at present. I now beg to move: "That the annual statement of accounts and balance-sheet, together with the reports of the directors and auditors, be and are hereby adopted, and that a dividend be declared in accordance therewith."

Mr. J. Kemp-Welch seconded the motion, and after a short discussion, it was unanimously adopted.

On the motion of the Chairman, seconded by Mr. W. Ashmole, the retiring director, Mr. R. D. Lewis, was re-elected. The auditors were reappointed, and the proceedings terminated with a vote of thanks to the Chairman, directors, and staff.

THE P.O.P. FORMULA FRAUD.

IN the London Sheriff's Court, on December 8, before Mr. Under-Sheriff Burchell and a jury, the case of Brandes v. Macfarlane, which had been remitted from the High Court for the assessment of damages, came on for hearing. There was no appearance for the defendant.

Mr. W. Allen, counsel for the plaintiff, said his client, Mr. Wilfred Brandes, was a young German gentleman who, in the autumn of 1907, was prepared to go into business. In December of that year he saw the following advertisement. —

Gentleman with £150 wanted as partner or otherwise, to assist in working an exceptionally nice business selling for cash only at very large profits, and with small expenses. Advertiser has special facilities for commanding a large sale and can furnish absolute proofs and best references. Can rely on £200 a year. —Apply H. M., etc.

Plaintiff got into correspondence with the defendant, who resided in Avenue Road, Isleworth, and Macfarlane wrote him a letter giving him particulars of a new photographic printing-paper which he had invented, and which he said would be the best "P.O.P." on the market. It would, he added, cost about 6s. 3d. a quire to produce, and could be sold for 15s. a quire, and seeing that there were 40,000 professional photographers and 2,000,000 amateurs, he calculated that there would be no difficulty in disposing of fifty quires a week. In his letter Macfarlane also said that he could not work the business himself, being in a situation.

As a result of the correspondence, counsel said, the parties entered into a contract, whereby the plaintiff paid him £60 down for the formula, the names of firms, and the necessary apparatus. In a verbal conversation Macfarlane said he had got reports from the best experts in England that his paper was better than any other. The plaintiff made the paper according to the defendant's instructions, but instead of selling fifty quires a week he sold only half a quire in four and a-half months. The plaintiff issued a writ alleging misrepresentation and fraud, but the defendant put in no defence, and he also failed to comply with an order to deliver up the documents. The defence was accordingly struck out, and the plaintiff signed judgment.

Wilfred Brandes, formerly of Lime Grove, Uxbridge, but now of Amsterdam, bore out his counsel's statement, and said the defendant told him that a child could make the paper. Beside the £60 which he paid the defendant, he spent £31 15s. 10d. in raw paper and chemicals, and £20 15s. 10d. in rent, circulars, and the wages of an assistant, etc. He devoted his whole time to the business from January to June. One photographer who purchased some paper wrote saying it was useless. He showed the letter to the defendant, who kept it. When he asked the defendant to show him the expert reports, he replied that they would be no use to him.

Frederick Weidhoff, called to give expert evidence, said that commercially the paper was absolutely useless.

In summing up, the Under-Sheriff said it might strike the jury, as business men, that the plaintiff was badly advised in not ascertaining the commercial value of the paper before launching into the business.

The jury awarded the plaintiff £100 damages, and judgment was given accordingly.

MINIATURE PAINTING FOR PHOTOGRAPHERS.—An evening class in miniature painting, tinted-pencil drawing, and water colour from the costume model will probably be arranged at the L.C.C. Central School of Arts and Crafts, Southampton Row, W.C., on Tuesdays and Thursdays, from 6 to 8.30. The class is intended primarily for the assistance of retouchers and others professionally engaged in photography. The fees are quite nominal. Full particulars and forms of application can be obtained from the secretary at the school.

Photo-Mechanical Notes.

A New Process of Reproduction.

The "American Photographer" has a supplement this month, of reproductions by a new process, in which they profess great pride, and of which they state that "as a matter of fact, they are probably the most faithful reproductions of photographic originals we have ever presented to our readers." All we can say is that either the former reproductions offered by the "American Photographer" must have been atrociously bad, or else these originals are such as should never have been reproduced. It is true the illustrations are printed on rough paper, and while no one has pleaded more persistently than the "British Journal" for experiments in this direction, yet to put forward results such as these with a flourish of trumpets is far more likely to retard progress in abolishing the glossy clay surface than to hasten it. Some of the results remind us of the early attempts of the newspapers to print half-tones. Although details regarding the process of production of these illustrations are kept back, it seems pretty certain that they are cross-line and irregular screen work printed from the offset press. Great things are hoped from the alliance of process with lithographic methods of printing, particularly in offset work, but if the conjunction cannot improve upon these results, the letterpress printer will not have much to fear.

A New Tex-book.

"Metallithography." By Charles Harrap. Published by Raithby, Lawrence, and Co., Limited. 3s. net.

With the advent of the offset press and the many applications of lithography to process, this new text-book ought to be very welcome to process engravers, as well as lithographers. Besides pure lithography, it deals with many branches of photo-lithography, showing in what directions photography has already been applied. It gives full recipes, and references to patents, and it ought to be suggestive as to further progress in this direction. Although dealing mainly with printing lithographically from metal surfaces, it nevertheless gives a good deal of attention to stone, especially with regard to the chemical reactions concerned. The book is compact, well illustrated, and especially authoritative wherever proprietary articles are mentioned, as these references have all been checked by the readers themselves. We should say that no lithographer can afford to be without this book, and, in view of recent advances, the process engraver will be foolish to neglect it.

A New Process School.

THE Leeds Technical Institute has just added a photo-process and printing section in a separate building to its photographic department. The equipment for the photo-mechanical work has been provided by Hunters, Ltd., and comprises all the necessary apparatus of the most up-to-date pattern. In addition to the camera and "Westminster" arcs, there is a full line of mounting machinery, including straight-line router, beveller, and circular saw. The Institute is also to be congratulated on having secured a first-class instructor in the person of Mr. Guy Symmons, head of the photo-mechanical department of Alf Cooke, Ltd., whose former teaching experience at the Regent Street Polytechnic will serve him in good stead. The printing department is equally well equipped by Messrs. John Haddon and Co. In addition to a most complete outfit in the case-room, sufficient to accommodate eighteen students at one time, there is provided a Babcock flat-bed machine, a Caxton platen, an art platen, a cropper, and an Albion press. Altogether very complete provision is made for teaching the crafts concerned, and there is every prospect of a most useful future for the department, considering that the school has already secured the hearty support of the trade in Leeds. The large entries have very agreeably surprised everyone concerned. The principal of the institute, Mr. R. E. Barnett, B.Sc., has been exceptionally successful in organising trade classes in Leeds. This is one more laurel for him. He has been ably assisted in this instance by the energetic Mr. S. E. Bottomley, head of the department, who has worked extremely hard for long past to extend his photographic department in this direction.

The Process Year Book, 1909-10.

THE fifteenth volume of Penrose's pictorial annual is just to hand, and is a more tasteful production than ever before. The cover of green cloth, with quiet lettering in white and black, is a welcome change from many of the garish covers of previous years, and this restraint is carried further with regard to the inks used in printing the plates, as there are very few departures from a sepia or a black and none of the hideous "double tones" with which we have formerly been depressed. Although there are no examples of unrelated plates interpolated in the middle of articles, still the practice is maintained of sandwiching the pictures between the articles without any sort of order or classification. We once again reiterate our belief that the book would be more useful without any detriment to its appearance if the text were kept at one end of the book, interspersed only by such illustrations as had reference to it, and all the supplements at the other end. There is a very good precedent for this in the examples of "Eder's Jahrbuch," and we should like to see Mr. Gamble make the experiment.

With regard to the matter of the book, it is perhaps better than ever. Most of the well-known personalities in the process world contribute. Major-General Waterhouse on "Sensitive Asphaltum," Dr. C. E. K. Mees on "Orthochromatic Filters," Dr. Reginald Clay on "Determining the Constants of a Thick Lens," A. J. Newton on "Newspaper Half-Tones." Prof. Namias, N. S. Amstutz, Arthur Payne, E. W. Foxlee, H. L. Shawcross, and Chas. E. Dawson also have articles on various subjects. In short, no one engaged in the illustration crafts can afford to do without the volume. The supplements are about the usual level. They comprise examples of almost all the current processes and one notable novelty in the shape of a five-colour print, produced on the offset machine of Messrs. Mann and Co. The work is photo-mechanical, having been put on to the metal direct from screen negatives. The rough paper on which this example is printed and the generally soft effect is a startling example of what this process offers for reproductions in coloured half-tone. The frontispiece is a mechanically produced photogravure, and for the rest there are examples by practically all the reputable firms in the trade, several from abroad, though not so many as last year. Mr. Gamble, in his editorial survey, is rather gloomy, and speaks as though no one, either workman or proprietor, was deriving any benefit from the reproductive industries to-day. All we can say is that it would be hard to persuade any one not in such business to believe it, and the evidence of his own volume affords him no support whatever for his pessimism.

PHOTO-MECHANICAL PATENTS.

The following patent has been applied for:—

SCREEN-PLATES.—No. 27,906. Improvements in screen-plates for half-tone process printing. Henry William Hamblin Palmer, 52, Stephen's Road, Tunbridge Wells.

FORTHCOMING EXHIBITIONS.

- December 4, 1909, to January 1, 1910.—Southport Photographic Society. Sec., J. McLellan, 2, Pilkington Road, Southport.
- December 31, 1909, to January 8, 1910.—Wishaw Photographic Association. Entries close December 18. Sec., R. Telfer, 138, Glasgow Road, Wishaw, N.B.
- 1910.
- January 26 to 29.—Bolton Camera Club. Entries close January 12. Sec., H. Mills, Higher Bank, Southills, Bolton.
- April 5 to 9.—Sheffield Photographic Society. Secs., J. A. George and J. R. Wigfull, 14, Parade Chambers, Sheffield.
- February 1 to 5.—Norwich and District Photographic Society. Entries close January 18. Sec., J. T. Tanner, The Lodge, Bowthorpe Road, Norwich.

MESSRS. RAINES AND Co., Ealing, write: "During the last week we have received three parcels of negatives for enlarging, with order forms that have not been signed, and upon which the postmarks have not been sufficiently plain to enable us to trace the senders. May we beg the kindness of a note in your columns to this effect. It may help the senders to obtain enlargements that are doubtless wanted for Christmas."

Analecta.

Extracts from our weekly and monthly contemporaries.

Reducing Contrasts in Pigmenting Bromoils.

From an architectural negative with strong contrasts (writes Mr. Charles F. Gare in "The Amateur Photographer and Photographic News" for December 14), a 12 by 10 enlargement was made, yielding, naturally, an abnormally harsh result, with entire loss of detail in the shadows.

After bleaching, etc., pigmenting was proceeded with in the usual manner, producing, as expected, an image very similar in effect to the original bromide. At this stage a method was adopted for removing the excess of colour from the shadows, without vigorous "hopping." The dabber was thoroughly cleaned in the customary way, by drawing it over muslin moistened with petrol; when practically, *but not absolutely*, dry, the brush was applied gently to the heavy portions of the subject. By such means the shadows were immediately and evenly reduced, becoming beautifully transparent, while the adjoining lights remained unaffected, this almost magic action of the brush being maintained by frequent recourse to the petrol rag.

The finished picture displayed qualities unlooked for from the unsuitable class of negative—perfectly harmonious in gradations, and excellent rendering of sunshine and reflections. Another pleasing feature was that the entire print dried with a uniform matt surface.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents were made between November 29 and December 4:—

COLOUR PHOTOGRAPHY.—No. 27,818. Improved process of photography in colours. Auguste Jean-Baptiste Tauleigne and Elie Mazo, 11, Southampton Buildings, London.

CINEMATOGRAPH-PHONOGRAPH.—No. 28,161. Improvements in apparatus for indicating the movements of gramophones and cinematographs. William Fenn, 1, Beverley Cottage, Kingston Vale, Putney, London.

TRIPODS.—No. 28,162. Improvements in and relating to tripod and like stands. William Alfred Deane, 70, Chancery Lane, London.

LENSES.—No. 28,287. Lenses for cameras, cinematographs and the like. Harry Ashton Wolff, 33, Cannon Street, London.

CINEMATOGRAPHS.—No. 28,311. Improvements in and connected with cinematographs. Robert Stewart, 154, St. Vincent Street, Glasgow.

REFLECTORS.—No. 28,358. Improvements in or relating to reflectors for artificial light for photographic purposes. George Jobson, 111, Hatton Garden, London.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

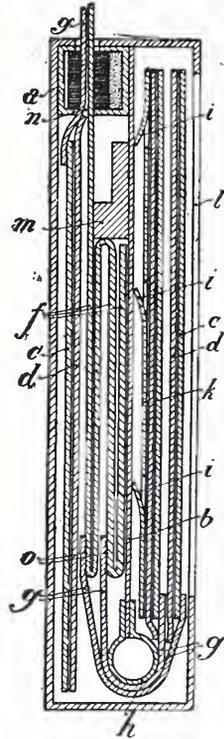
The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

FILM PACKS.—No. 18,266, 1909 (August 7, 1909). The invention has for its object to enable films to be more easily changed than in film packs, where the alternately folded film-carrying band also serves for covering the film. Whilst in these film packs the carrying band must be drawn out to about twice the length of the film when changing the latter, in the film pack according to the invention it only requires to be moved to about half that amount. This is rendered possible by the film, which is covered by a separate sheet and lies in the front chamber of the film changing box, being connected by intermediate bands with the carrying

band which lies in the rear chamber of the box and the separate folds of which (each consisting of two parts) are about equal to half the length of the film. Semicircular cut-out parts are formed in the intermediate bands, in order to enable the carrying band to be easily taken hold of beneath the ends of the intermediate bands, which adhere to the already exposed films and project from the extraction aperture, which ends have to be torn off each time a film is changed.

A film box with the improved pack is shown in vertical section on an enlarged scale in the figure.

The film box *a* is divided in the ordinary manner by means of a vertical partition *b*, into two chambers, the front one containing the films *c* to be exposed and the covering sheets *d* lying between them, and the rear one intended on the one hand for receiving the alternately folded carrying band *f*, and on the other hand acting



as a chamber for the already exposed films. The films in the front chamber and their cover sheets are connected with the lower edges of the folds of the carrying band *f* by intermediate bands or strips *g* which are carried round a cylindrical shoulder *h* formed on the lower edge of the partition *b*. The films are pressed forward towards the exposure aperture *l* by means of a plate *k* bearing by springs *i* against the partition *b*. In the rear chamber a cross-bar *m*, arranged on the partition *b*, serves as an abutment for the folded carrying band *f*, and is somewhat narrower than it. Consequently the films drawn into the collecting chamber do not encounter the cross-bar, as it is covered over by the carrying band which is drawn out in known manner through the outlet aperture *n*.

Somewhat beneath the point *o* at which the intermediate bands *g* are attached to the carrying band *f* the former are perforated, so that they may be easily separated. At the edge of the still adhering part of the intermediate band a semicircular cut-away part *p* is formed, and on the part of the carrying band which is to be separated is stuck a paper strip *q*, of such a width that it covers the cut-out part *p*. The object of this is that the corners of the cut-out

part may not catch in the outlet aperture and disarrange the film pack. When the intermediate band and the carrying band are torn through, the paper strip remains hanging on the severed part of the carrying band and uncovers the cut-out part *p*, so that now the carrying band *f* below the intermediate band *g* may be easily gripped and drawn out farther. The gripping of the carrying band is further facilitated by its being formed of white paper, and thus being strikingly different from the intermediate bands, which are made of black paper. Johann Georg Schneider, 2, Meiersgasse, Würzburg, Germany.

CINEMATOGRAPH MECHANISM.—No. 5,048, 1909 (February 8, 1909).

The object of the invention is to provide a combined spool and casing adapted to be slipped on and off the machine so that when the receiving spool has received the film from the machine it can be taken off the machine with its casing and laid to one side, thus preventing the films rolled upon the spools which may be out of use lying near the machine coming into contact with any fire, either from the machine, or any other outside source. The spool casing is not fixed to the machine, but is held stationary by the film as it passes through the casing from or to the spool enclosed within it. Frank Ernest Butcher and Francis William Baker, Camera House, Farrington Avenue.

CINEMATOGRAPH IN TUBE RAILWAY.—No. 21,491, 1909 (September 20, 1909).

The essential claim is for an animated picture apparatus wherein a vehicle moving relatively to another part of the apparatus causes images in an illuminated condition to be momentarily and successively brought into the line of vision of the observer, moving each picture in the direction of travel of the vehicle to maintain the picture stationary in relation to the vehicle.

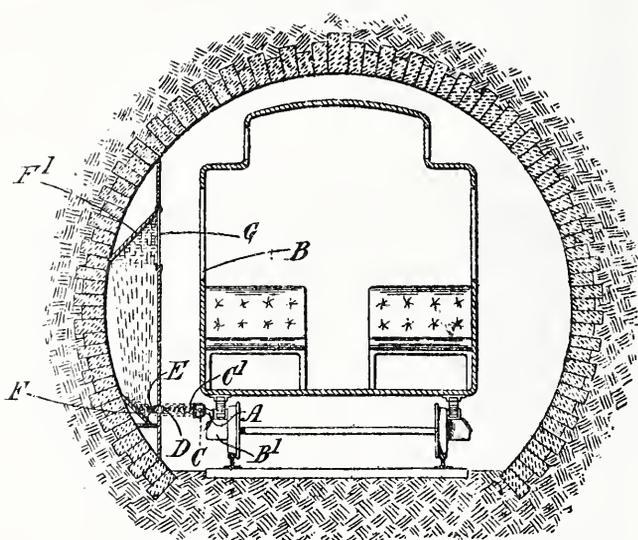
Preferably an arm projecting from the vehicle engages a proje-

tion from a support carrying the picture to move it in the direction of the travel of the vehicle.

According to one modification, the movable support carrying a picture has working in conjunction with it a restoring device whereby after the picture has been moved to a predetermined position the support carrying the picture will be returned to its initial position. Waclaw Czerniewski, 30, Palace Road, Crouch End, London, N.

CINEMATOGGRAPH IN TUBE RAILWAY.—No. 27,583, 1908 (December 18, 1908).—In this specification, applied for nine months earlier than No. 21,491 just mentioned, protection is claimed for the same idea somewhat differently worked out.

A bracket A is fixed to a part of the vehicle B, as for example on the axle box B¹. The bracket carries an electric lamp C that is situated at such a level that it can be brought to register with each of a series of progressive miniature pictures D carried on the wall of the tube. The lamp C carries lens C¹ and the picture on the slide is enlarged by means of a lens E of any well-known form and projected on to a mirror F disposed at an angle to the slide.



From the mirror F the picture is reflected on to another mirror F¹ disposed at an angle to the other mirror and at an angle to a ground glass screen G. By this means the picture is reflected on to the ground glass screen, which is so disposed at the side of the track that the picture on it can be clearly viewed by an occupant in the vehicle B.

The operation of this apparatus is as follows:—The picture on each slide is in turn illuminated by the rays of light from the lamp C as this is carried past by the vehicle. The image on the picture is enlarged and projected by the lens E on to the mirror F. From there it is reflected on to the mirror F¹ and thence on to the screen G, where it can be seen by an occupant of the vehicle. When the light has passed the slide momentary darkness ensues before the next slide is reached, and the result to an occupant carried by the vehicle is the same as that obtained with the well-known form of animated picture apparatus.

The details in this invention may be variously modified. Instead of the picture being projected upon a ground glass screen supported from the track or wall of the tunnel, it may be projected on to a ground glass or other screen carried by the vehicle itself.

Again, instead of a momentary illumination being provided for each picture a light may be constantly maintained before each, but intercepted by a shield or shutter operated by the vehicle as it passes, so that each picture is momentarily thrown on to its screen.

Also, instead of the vehicle carrying the source of light, as already stated, it can be so arranged that some part of the vehicle or the wheel operates a series of electrical switches so that the miniature pictures are in turn projected on to the screen as the vehicle arrives opposite each. Waclaw Czerniewski, 30, Palace Road, Crouch End, London, N., Witold Prus Szczepanowski, 65, Elsenham Street, Southfields, London, S.W., and Jozef Czerniewski, 30, Palace Road, Crouch End, London, N.

New Trade Names

FILEXTRA.—No. 317,853. Chemical substances used in manufactures photography, or philosophical research and anti-corrosives. Pinchin, Johnson and Co., Ltd., Minerva House, 26 and 27, Bevis Marks, London, E.C., varnish, colour, and paint manufacturers. November 3, 1909.

VELOX.—No. 311,795. Sensitised photographic paper. Kodak, Ltd., 43, Clerkenwell Road, London, E.C., manufacturers. March 29, 1909.

LILYWHITE (DESIGN).—No. 316,775. Sensitised photographic papers. Arthur Frederick Sergeant, trading as the Halifax Photographic Co., Lilywhite Works, New Brunswick Street, Halifax, photographic paper maker. October 1, 1909

New Books.

WATKINS' EXPOSURE NOTES.—The pocket-book of exposure data, published by the Watkins' Meter Co., Hereford, has appeared in a seventh edition, and is issued either at 3d. in a limp cloth cover, or at 2s. 3d. in stout pig-skin leather case, provided with two envelopes serving to accommodate the speed list, a spare light-filter or actinometer paper. The entries for exposure provide for notes as to the subject, plate, stop, light, and time of exposure, whilst underneath each set of six spaces for these particulars, lines are provided for entering the developing factor or total time of development adopted. The "Notes," though not in any sense claiming to be a substitute for the Watkins' "Manual," give useful tables and memoranda on exposure, copying, pin-hole photography, development, etc., and, particularly in their new form, should be appreciated by users of the Watkins' meters.

TRIMMING, MOUNTING, AND FRAMING.—No. 102 of the "Photographic Miniature" of our contemporary (the November issue) is a re-edition of No. 20 of the "Miniature," short books on photographic subjects, but is almost entirely a new monograph of these operations. No. 102 deals with trimming prints square with ruled cutting shape, T-square or guillotine, with mounting prints in numbers, with centring prints on large mounts, with dry mounting, with multiple mounting, with passe-partout framing, and with making cloth covered frames. The number is illustrated with several half-tone reproductions and line drawings.

New Apparatus, &c.

The "Sandco" Dark-Room Heater. Sold by A. E. Staley and Co., 19, Thavies Inn, Holborn Circus, London, E.C.

This is a little device which will be appreciated by those who wish to provide moderate heating of the dark-room without the trouble of installing a gas stove, for which frequently there is not sufficient



space, and the fumes of which cannot always find an escape. The "Sandco" heater consists of a fireclay vessel of almost spherical shape, and about 3½ in. diameter. This is mounted on a fitting about the size of one carrying an ordinary incandescent mantle and chimney, the whole adjustment screwing on to any standard gas

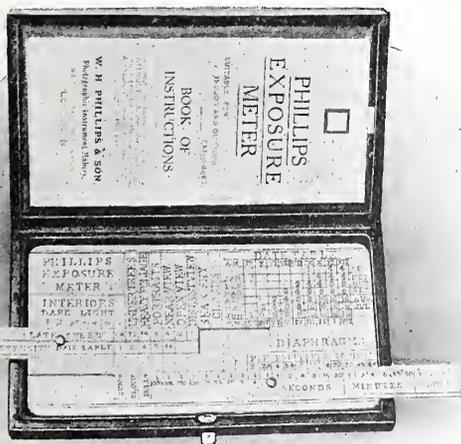
connection. On the burner being lighted the blue flame can be adjusted to heat the fireclay sphere, which then gives out a very considerable amount of heat. So long as the flames are not allowed to spread above the disc, but are adjusted to keep it at a red glow, the heater can be used with safety in the dark-room when handling sensitive plates and papers. The price is 3s. 6d.

The Dallmeyer Enlarging Calculator. Made by J. H. Dallmeyer, Ltd., 83, Denzil Road, Neasden, London, N.W.

Messrs. Dallmeyer have now brought out a spring tape measure to serve as a useful means of calculating enlargement distances when working with a lens of any given focal length, the little device being made up closely on the lines of the telephoto calculator which we recently reviewed. It consists of a circular case of nickelled metal of 1½ in. diameter and about ⅜ in. thick, containing a tape 38 in. in length. The free end of the tape is attached to the enlarging easel and the tape drawn out until the number indicating the required degree of enlargement or reduction appears. The distance between the negative and the easel is then adjusted until the negative is exactly opposite this number, when racking-out of the projection lens to get an image in sharp focus will give an enlargement of the required size, or—as there are always two positions for the lens in the space between the object and the image—will give also on further racking-out the position of the lens when reducing, as for making lantern slides by reduction. The reverse side of the tape bears a scale of inches divided into eighths, and when ordering this useful device it is only necessary to give the focal length of the lens which is being used. The price of the calculator for distances up to 3ft. is 2s., up to 5ft. 3s.

The Phillips Exposure Meter. Made by W. H. Phillips and Son, 98, Truro Road, Wood Green, London, N.

A most convenient form of exposure calculator is made under this name. It provides the means of ascertaining the exposure for the widest range of subjects, from cloud and sky to dark interiors, in all cases without any kind of mental calculation, and at the same time taking account of all the necessary factors, such as light-intensity, plate-speed, and lens-aperture. Not only this: the calculator is so arranged that the most variable element in the case, the condition of the sky, whether "sun" or "cloud," is adjusted last, so that the worker can keep his meter set to a given subject and plate, and make the final adjustment in an instant, according to the time of day and state of the light. This shows him the exposure for each of the series of eleven diaphragms from $f/2$ to $f/64$. We think

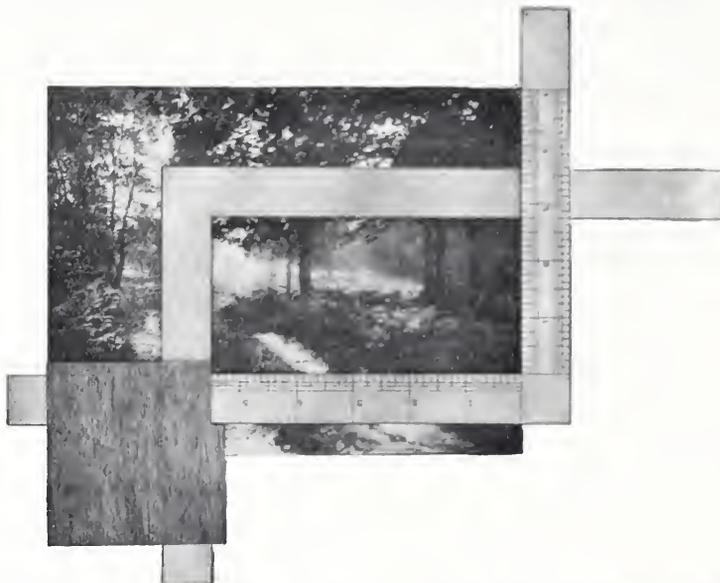


the designers of the meter have taken a very sensible course in dividing plates, as regards speed, into seven classes, denoting the most rapid by 64, and taking the numbers 32, 16, 8, 4, 2, and 1 as the denominators of slower plates. In the instructions it is stated that these Phillips numbers are about 1-10 of the H. and D. number, but it is probable that every worker would fix on the Phillips number which he finds most advisable by one or two preliminary exposures. The meter is made in polished boxwood, contained in a cardboard case, at the price of 5s. 3d., post free; a No. 2 pattern, in box-

wood, stained black, with white lettering and white ivory sliding scales, price 10s. 3d.; a No. 3, in white ivory with black lettering, in wooden case, price 15s. 3d.; whilst an "edition de luxe," made in aluminium, is also supplied, price 20s. 6d. The instructions for use with the meter give a good deal of useful information, including the means of using the meter in conjunction with the Steadman "Solio" method of actually measuring the value of the light.

The "Ensign" Print Proportioner. Made by Houghtons Limited, 88 and 89, High Holborn, London, W.C.

In this piece of apparatus, which Messrs. Houghtons have just issued, we have the old device (of two L-shaped pieces of card) for picking out the best part of a print put into still another, and, we must say, a very convenient, shape. The illustration is almost self-explanatory: the two L-shaped pieces are mounted to clip in a



wooden block, which can be held down firmly with one hand, while each piece is separately adjusted on the print. One piece is graduated into inches and eighths, and the user thus sees at once the exact size which the section he thinks of selecting will have. A pencil run round the inside of the gange then gives him a useful mark when trimming the print. The apparatus takes prints up to 7 x 5, and, rather, we should say, provides for selecting sections of a print up to this size, and costs 4s. 6d.

CATALOGUES AND TRADE NOTICES.

SPENCER'S SECOND-HAND LIST.—A new list from the well-known firm of Arthur Spencer, 41, Harrow Road, W., has just been published, and is particularly worth the attention of professional photographers on account of the large selection of portrait and other lenses, studio and field cameras, and studio stands. Mr. Spencer offers only goods (chiefly standard makes) which are in thorough working condition, and his prices are remarkably moderate.

COOKE LENSES FOR PORTRAITURE.—Messrs. Taylor, Taylor, and Hobson have just issued a 12-page illustrated booklet containing a set of illustrations of the work of the new Cooke $f/3.5$, $f/4.5$, and $f/5.6$ portrait lenses. The negatives are by Mr. Y. Burns, Victoria Studio, Blackpool, and that on page 11 is particularly interesting for its slight and pleasing degree of diffused definition. The booklet, which gives the focal lengths, covering powers, and prices of the lenses, is sent free on application to Stoughton Street Works, Leicester.

PRINT-ON BACKGROUNDS.—The Print-on Ground Co., 171, Jay Street, Schenectady, N.Y., U.S.A., send us their list of "print on grounds," which latter are supplied as stamps, serving to impress a given design of background on the back of the negative. The application of the ground to the negative is evidently an easy matter, but it is difficult to see how the same drawing of, say, a window seat, can be suitable for portraits taken from different standpoints. The price of an outfit, including seven patterns of background, is 12 dollars (£2 10s.).

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

MONDAY, DECEMBER 20.

Shettleston and District Camera Club. "Large Prints from Small Negatives." W. F. Slater.
 Catford and Forest Hill Photographic Society. Print and Lantern Slide Competitions.
 Cleveland Camera Club. "Phosphate Paper and Slides." W. D. Welford.
 Kiddminster and District Photographic Society. "What Can be Done with a Hand Camera." C. P. Goerz, Ltd.
 Scarborough and District Photographic Society. Photographic Chat. "Failures."
 South London Photographic Society. 1909 Affiliation Prize Slides.

TUESDAY, DECEMBER 21.

Royal Photographic Society. "Photography as an Aid to Marine Biological Research." Demonstration of Special Apparatus. Francis Ward.
 Dumbarton and District Photographic Association. "Large Prints from Small Negatives." W. F. Slater.
 Glasgow Southern Photographic Association. "Control." W. C. S. Ferguson.
 Hackney Photographic Society. Members' Open Night.
 Birmingham Photographic Society. "Ensyna." F. J. Stedman.

WEDNESDAY, DECEMBER 22.

Croydon Camera Club. Conversational Evening.
 Borough Polytechnic Photographic Society. "Developing the Negative." W. H. Spare.
 Wishaw Photographic Association. "Large Prints from Small Negatives." W. F. Slater.
 Sale Photographic Society. A.P. Prize Slides.
 North Middlesex Photographic Society. "Glorious Devon." A. J. Woolway.
 Edinburgh Photographic Society. "Gas Light Printing Processes." James Oliver.

THURSDAY, DECEMBER 23.

Watford Camera Club. Open Night.
 Coatbridge Photographic Association. "Large Prints from Small Negatives." W. F. Slater.

ROYAL PHOTOGRAPHIC SOCIETY.

At a meeting held on Tuesday, December 14, the President, Mr. J. C. S. Mummary in the chair, Dr. F. W. Edridge-Green gave a lecture on "The Relation of Photography to Vision."

CROYDON CAMERA CLUB.

On Wednesday, December 8, 1909, Mr. H. P. C. Harpur demonstrated the printing in of skies on lantern plates and transparencies in his usual inimitable style, the result being an evening abounding in practical instruction, blended with amusement. Mr. Harpur's usual method is to print the sky on a separate plate, to be afterwards bound up with the landscape transparency, and for this purpose he has devised and made several pieces of apparatus which would be quite beyond the mechanical skill of the average worker. The construction and use of these he explained at considerable length. He always makes warm tone slides, and said he never experienced any difficulty in getting his skies the same colour as his landscapes, because he was precise and methodical in his work. Mr. Harpur's Ex Cathedra style of exposition and his robust belief in the perfection of his own methods inevitably arouse controversy, which, in this case, was mainly sustained by Mr. W. E. Dunmore, who received a severe mauling at the hands of the lecturer.

Commercial & Legal Intelligence.

BANKRUPTCY OF AN INVENTOR.—The first meeting of creditors in John Berryman, 186, Sutherland Avenue, W., was held at the London Bankruptcy Court on December 8. Debtor, who did not appear, having written to the effect that he was ill, had filed no complete statement of affairs, but the Official Receiver said the liabilities were about £800, and there were no available assets. Debtor was described in the receiving order as a patentee, but in his preliminary examination he says that he was for fifteen years a photographer. Five years ago he invented a patent match-box, and gave the sole agency for the manufacture to a firm against whom he subsequently brought an action for infringement. He lost the case, and the firm was now one of his largest creditors. In the spring of 1907 he placed an order with another firm for the manufacture of match-boxes, and subsequently claimed £1,000 damages from them for infringement, but he failed to prove his case, and judgment was given against him for £205 costs in July last. He attributed his position to this litigation, and to speculations on the

Stock Exchange. He claimed to be entitled to about £200 under the will of a relative, but this was disputed. In the result Mr. Child was appointed trustee of the estate, with a Committee of Inspection.

BRIGHTON BANKRUPTCY.—The first meeting of the creditors of Richard William Wicks, photographer, carrying on business at 90, Preston Road, Brighton, was held in Brighton on December 8, when accounts were submitted showing liabilities £460 and assets £67. The matter was left in the hands of the Official Receiver. At a public examination at Brighton on the following day, debtor said that two years and nine months ago he took over the business from his father, for whom he had previously worked. He had a capital of £100—money borrowed without security. There was no profit on the first year's trading, and he believed there was a loss throughout. He added that probably there was no business in which profits had been so cut down as in photography. The examination was adjourned.

PHOTOGRAPHER'S AFRICAN TOUR.—His Honour Judge Woodfall heard an interesting case at Westminster on December 8, when Mr. Frederick Paget, a photographer, sued Mr. Newman, a lecturer in the United States, for arrears of salary and expenses incurred during an expedition through Africa.

Plaintiff's case was that he was engaged at a salary of £5 a week to accompany Mr. and Mrs. Newman on a journey from London to Mombassa, British East Africa, and other places, for the purpose of taking photographs to illustrate a series of lectures that the defendant proposed to deliver in the United States. All plaintiff's expenses were to be paid.

Mr. Paget left London on June 2 of this year, and arrived at Mombassa on June 23, and from there went to Nairobi, Lake Victoria Zanzibar, and then south to Johannesburg and Cape Town. In all the journey lasted 122 days, of which 69 days were spent in train and steamer travelling, leaving only 53 days on which he was able to take photographs. He arrived back in London on October 2, and three weeks' salary was still due to him.

In giving his evidence Mr. Paget said that for sixteen days they were camping out. He exposed over 500 plates and several thousand feet of cinematograph film, and he got 457 perfect negative suitable for lantern slides. Sometimes they crossed sandy desert when it was absolutely useless to take photographs. Developing the plates was also difficult, as it had to be done at night, and frequently in the morning the plates were not dry, and witness had to stay behind when the caravan went on and catch them up as best he could. The water where they camped was generally very muddy, and often contaminated, and this was bad for developing. With regard to the claim for extras, when they were on Lake Victoria the water was so bad as to be undrinkable, and plaintiff drank beer and mineral waters, which were respectively 2s. and 9s. a bottle, the total cost being £3 7s. 6d.

Photographs were taken as Mr. Newman directed, and plaintiff considered that the results were above the average. Mr. Cherry Kearton, whom he met in Nairobi, assisted him for three nights in developing cinematograph films, witness turning his bedroom into a dark-room, with water flooding the place, and the water from the drying films dripping all over the bed. In Zanzibar, plaintiff added that he took seventy-four photographs in two days and exposed 800ft. of film, and, as the result of the hard work in the hot sun, he caught fever, and was ill for a week.

In cross-examination, plaintiff said that for the most part they travelled by train and steamer, with the exception of sixteen days camping near Nairobi. Travelling was very expensive. He denied that Mr. Newman ever said he wanted 500 perfect negatives from him. He wanted 100 for each of five lectures, but he obtained a number of negatives from other sources. With regard to the cinematograph films, Mr. Paget said he took two of the "war dances of the chiefs."

Mr. Cherry Kearton explained that he met Mr. Paget, whom he knew as an expert photographer, in Nairobi, and helped him for three nights until 3 a.m. developing the film, which was better than his (witness's) own. "And the defendant never even had the decency to thank me," added Mr. Kearton.

Asked as to whether it was possible to take twenty-five photographs a day, witness, who had had experience of photography in all parts of the world, said that it was absolute nonsense.

photographs were required for a lecture, and there was a great difference between photographs wanted for that purpose and ordinary amateur snapshots for a penny reading.

Witness had often waited seven days for one photograph. Mr. Paget was working very hard, and Mr. Newman had expressed himself as being very pleased and satisfied with his work. Mr. Newman was rushing through the country like a madcap, and Mr. Paget was doing all he possibly could in the time at his disposal.

Other witnesses were called to show that Mr. Paget was not only an expert photographer, but that Mr. Newman had expressed himself as highly satisfied with his work.

Defendant's evidence, taken on commission, was read by Mr. A. M. Bullock, his counsel. Mr. Newman said that he was the president of the Newman Lecture Company, Chicago, and, having made arrangements for lectures on British East Africa and other places, he found that he must come to London to purchase the necessary apparatus for taking the photographs. He advertised in the "Daily Telegraph" for a photographer to accompany him, and plaintiff was engaged, and assisted defendant in purchasing the apparatus. The agreement was that Mr. Paget was to take 500 perfect negatives, and at his suggestion 3,000 plates were provided.

From the time that Mr. Paget arrived in Africa, Mr. Newman said, he was taking him to task daily about not having enough photographs, and he was always "going to do better next day." While his competitors were taking fifty photographs a day plaintiff was only taking seven, although there was always plenty of material.

His Honour found that defendant was entitled to set off certain items against plaintiff's claim, but he had entirely failed to make out his counter-claim. That being so, plaintiff would have judgment on the claim for £12 10s., with costs, and on the counter-claim with costs.

THE SERVICE COMPANY.—The report is to hand, and shows a gross profit of £7,234 7s., and a net amount available for distribution of £1,751 5s. 7d. Out of this the directors propose to pay a dividend amounting to 9 per cent. in all on the Preference shares, to pay 10 per cent. on the Preferred Ordinary, and 6 per cent. on the Ordinary shares. £196 4s. 6d. has been carried to reserve, increasing that account to £2,000, and the balance, £391 7s. 3d., is carried forward.

DISSOLUTION OF PARTNERSHIP.—The partnership between Esther Mary Robinson and Emma Chambers, carrying on business as photographers at Newark-upon-Trent, under the name of Hunt and Company, has been dissolved. All debts due to and owing by the late firm will be received and paid by Emma Chambers, who will continue to carry on the business.

NEW COMPANIES.

BARKER MOTION PHOTOGRAPHY, LTD.—Registered December 8, with a capital of £5,000, in £1 shares. Formed to enter into an agreement with W. G. Barker, and to carry on the business of cinematograph manufacturers, etc. Signatories: W. G. Barker, Westmorland Lodge, Ealing Common, W., cinematographer, and Raymond, 3, Town Hall Mansions, Fulham Road, S.W., stage manager. First director, W. G. Barker; qualification of other directors, fifty shares. Registered office, 1, Soho Square, W. Private company.

FRANCIS, BYRNE, AND COMPANY, LTD.—Registered December 10, with a capital of £5,000 in £1 shares. Formed to carry on the business of photographic artists, photographers, makers of, and dealers in, photographs and photographic materials, dealers in cameras, etc. Signatories, J. R. Francis and L. Francis, both of High Road, Chiswick, S.W. First director, J. R. Francis. Qualification, 400 shares. Registered office, 19, Hill Street, Richmond. Private company.

PHOTOGRAPHIC EXHIBITION.—At Moscow in March-April next there will be held an International Photographic Exhibition, under the direction of the Russian Photographic Society, of Moscow.

AMADOU.—In reference to the recent queries as to this material, J. Dunning, Chemist, Ventnor, writes:—"I can forward some Amadou. It is 1s. per ounce, and about twelve inches square to the ounce."

News and Notes.

"THE PICTURE POSTCARD."—We find we were in error last week in giving the name of the journal, with which has been incorporated "The Picture Postcard." This should have been the "British Empire Paper Journal," published at 57-59, Ludgate Hill, E.C.

LONDON CAMERA CLUB.—We learn that the minimum amount of capital necessary to launch the project had been subscribed, that steps will be taken forthwith to secure the premises, and that the new club will be ready for the first meeting by March next. Members of the old Camera Club and others interested are requested to write to Reginald Craigie, Esq., 32, Windsor Court, Bayswater, W.

AMERICAN FOOTBALL ON THE CINEMATOGRAF.—The prohibition of football in most of the public schools of America, consequent upon a casualty list of thirty deaths and more than two hundred serious injuries, has raised so great an outcry against the reckless and often brutal manner in which the game is played in the U.S.A., that Mr. Charles Urban (being in New York for the permanent installation of "Kinemacolor," at Madison Square Gardens), promptly bioscoped a typical "Rugger" match, as Americans play it to-day. It took place between the military cadets of West Point and the students of Yale University; the negatives were forwarded by express to this country, and Mr. Alfred Butt is now presenting them nightly in the "Urbanora" number at the Palace Theatre.

DEATH OF MR. MUDIE THOMSON.—We regret to record the unexpected death of Mr. J. Mudie Thomson, the late editor of the "South African Photographic Journal" and hon. secretary of the Cape Town Photographic Society, which occurred on Monday, October 1. The deceased, who was nearly 50 years of age, was educated at Glasgow, and after leaving the University joined the staff of the "Glasgow Herald." Subsequently he was attached to the "Yorkshire Post" and to the Paris edition of the "New York Herald."

Mr. Thomson went to South Africa about twenty years ago, and, in addition to a wide journalistic experience there, saw service in three campaigns—the Matabele Rebellion, the operations in German South-West Africa, when he was attached to General von Trotha's staff, and in the Anglo-Boer war as a non-commissioned officer in Damant's Horse.

LEEDS TECHNICAL INSTITUTE.—On Saturday last the annual re-union dinner of the past and present students of the photographic and printing departments of the Leeds Technical Institute took place at the Great Northern Hotel, Leeds. As the institute has only just added a process and printing section, it was thought appropriate to invite Mr. A. J. Newton, of Bolt Court School, to be the guest of the evening. A very enjoyable evening was spent, inasmuch as the dinner was excellent, the speeches short and enlivened with a good deal of humour, and the musical programme provided a very pleasant entertainment. Among others present were Mr. R. E. Barnett, B.Sc., principal of the institute, Mr. R. B. Fishenden, Mr. Guy Symmons, Mr. John H. Gash, and Mr. Herbert Bairstow.

PHOTOGRAPHS BY ELLIS AND WALERY.—In reference to the illustrations which accompany the inset of Messrs. Fordham and Co., Ltd., on pages 567-70 of the "British Journal Almanac," 1910, Messrs. Fordham write us as follows:—"We shall be glad if you will allow us to intimate to your readers that in our 'Almanac' advertisement of our specialities in mounts we have unwittingly infringed copyrights in three photographs, the property of Messrs. Ellis and Walery, Ltd. The photographs were attached to commercial mounts of our manufacture bearing the name of other photographers, and as these appear in the reproductions we shall be glad of this hospitality of your columns in order to make it known that the portraits in question are actually the work of Messrs. Ellis and Walery."

PHOTOGRAPHIC EXHIBITION AT ST. MORITZ.—Amateur photographers in the Engadine are invited to take part in an exhibition which will be held in the rooms of the Sergantini Museum, St. Moritz, from January 28 to 30, 1910. Three prizes will be offered in each of the following five classes: (1) Landscapes, (2) Sport Scenes, (3) Portraits, etc., (4) Autochromes, (5) Stereoscopic Pictures, and, with

the exception of class 3, preference will be given to photographs taken in the Engadine. Several painters and professional photographers have offered their services in judging the exhibits, which latter must be received at the Museum not later than noon on January 24. All pictures must be mounted, and transparencies provided with means for hanging, but apparatus will be provided for showing stereoscopic pictures. The prizes, which will be exhibited early in January in the windows of Mr. Küpfer's establishment, will be distributed on January 28.

GLASGOW AND WEST OF SCOTLAND AMATEUR PHOTOGRAPHIC ASSOCIATION.—The annual members' exhibition, held at the rooms of the association, 180, West Regent Street, Glasgow, has created a record in the annals of the society both with regard to the quantity and quality of the work submitted to the judges, Messrs. Archibald Cochrane and W. A. Gibson. The majority of the entries show that due consideration had been given, not only to the selection and composition of the subjects, but also to their technical qualities, whilst the greater portion also display an equal consideration in the method of framing, and the judges found it no easy task to select the best where so much was first class. The following is the list of awards:—Class I.—Bronze plaques: Messrs. John McClure, Alex. G. Watson, John W. Downs, W. R. Baxter, and Harry Thomson. Hon. mention: Messrs. Thomas Carlyle, Robert Ure, Peter Mitchell, and Thomas Calder. Class II.—Bronze plaques: Messrs. Robert Crerar and John Sawers. Hon. mention: Messrs. William Baird and John Weir. Class III.—Bronze plaque: Mr. John Martin. Class IV.—Bronze plaques: Messrs. Harry Thomson and John Sawers. Hon. mention: Mr. Robert Ure. Class V.—Bronze plaque: Mr. John Sawers. Hon. mention: Mr. V. L. Alexander. Class VI.—Bronze plaques: Messrs. James McKissack (2) and A. J. Gaswood. Hon. mention: Mr. Thomas Carlyle. In the non-competitive class Mr. James McKissack exhibits twenty-three of his characteristic studies, which form an attractive feature of the exhibition.

The association announce that they will hold an open exhibition in February of next year, particulars of which we hope to publish shortly.

Correspondence.

- Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.
- We do not undertake responsibility for the opinions expressed by our correspondents.

THE MAKING OF A PHOTO-BUTTON.

To the Editors.

Gentlemen,—I fear that the letter in the present issue on making "photo-buttons" will frighten many photographers; but if Messrs. Dorrett and Martin will only save themselves ten out of the twenty-four distinct operations by using my own London-made button parts, they could doubtless afford to sell the finished photographic buttons at a much lower figure. I have during the last few weeks supplied many photographers with "photo-button" outfits, and the only necessary operations they will find are as follows:—

1. Taking or copying photograph.
2. Printing from negative.
3. Cutting print and celluloid.
4. Covering shell.
5. Fixing back and pin to shell.
6. Despatching.

I have at present a repeat order from one of my customers for 25,000 button parts, and photographers who are energetic and wish to make a profit out of the coming general election cannot do better than take up "photo-button" work. I supply the complete apparatus, all London-made, for £5.—Yours faithfully,

JONATHAN FALLOWFIELD.

146, Charing Cross Road, London, W.

REVERSAL BY PHOSPHORESCENCE.

To the Editors.

Gentlemen,—Mr. Wall's letter (p. 961) gives some very interesting particulars with regard to the method of reversal by phosphorescence, and since writing my article on Mr. Carnegie's experiments

I have come across some of his notes, which may serve to confirm, as well as add, to some of the information collated by Mr. Wall.

With reference to the action of heat on the phosphorescence, it appears that Mr. Carnegie finally took advantage of this. The following is a note relating to the production of a positive transparency from a picture cut out of "Punch":—

"Exposed card to sun, then with ground ruby gave three-quarter minutes' exposure to bright sun [of course through the picture]. The card not quite black. Put process plate in contact and heated for four minutes over escape from dark lamp. A splendid strong positive, with whites quite clear. There was certainly some spreading of lines, but this probably due to over-exposure of plate. This evidently is best method of attacking the problem."

A later note says:—

"Subsequent experiment seemed to indicate that spreading of lines is a result of halation, and cannot be avoided by altering exposure." It appears, therefore, that the trouble of mottled appearances over the plate, or granularity, was got over by the heating process. The spreading of lines was not got over, but it was not a very obvious defect in the examples he showed me some time ago. For my own part, I think a perfectly smooth luminous surface will get rid of this trouble, but such a surface is hard to produce.

With regard to Warnerke's experiment of exposing luminous paint surfaces in the camera, Mr. Wall's note mentions an exposure of one minute, but Mr. Carnegie records a similar experiment in bright July sun in which seventy-nine minutes' exposure, followed by heating on a copper plate, was necessary to give a distinct luminous image.

Another item in the notebook refers to the effect of the spectrum when thrown for ten minutes on a sheet coated with luminous paint that had been kept in the dark for two days. The note says: "A sharp band in the red was dark. There was evidence of another darkish band further up the spectrum. The intensest phosphorescence was in the violet and ultra-violet."

Another experiment—this time made with an artificial spectrum—led to the following results, the same sheet being used:—

"On throwing artificial spectrum on it and examining at interval found—

"(1) About as much, if not as much, phosphorescence at less refrangible end of spectrum (red and yellow) as at more refrangible end.

"(2) The phosphorescence increased most rapidly at more refrangible end—in the violet, for the most part. The green and blue green remained darkest. The red end lost in intensity relative to the violet."

This seems to bear on Abney's statement referred to in Mr. Wall's letter.

Some other experiments recorded by Carnegie seem to show that the phosphorescence of one luminous card does not cause phosphorescence in a second card. He also makes several notes recording the fact that good images can be produced easily on bromide paper by placing it in contact with a luminous image produced directly, yet he seems to have failed to produce equally good results by using reversed luminous image produced by a second exposure through red glass. The first method is, of course, of no use, as the result is only equivalent to an ordinary print from the original.

Though hardly connected with the same subject, it may be well to draw attention to some further notes from the same book on Niepce de St. Victor's process of copying prints by first exposing them to sunlight and then laying them in contact with sensitive surfaces. A series of experiments with modern plates and papers recorded, but in every case the finish is "no result." Another set of notes, headed "Niewenglowski's Experiment," records complete failure to find any evidence of phosphorescent light acting similar to X-rays. Traces of fog are noted, but in each case it appears that pressure was the most probable explanation of it.

I think it fairly certain that Mr. Carnegie was not acquainted with Warnerke's experiments, but Abney's, Seebeck's, and Becquerel's work he was pretty sure to know. His own experiments that I have referred to formed only a part of the preliminary stage of what he hoped to make an exhaustive research into the phenomena of phosphorescence and fluorescence—subjects in which there is, of course, a vast amount of work to be done.—Yours faithfully,

C. WELBORNE PIPEF

CARBON-PRINTING IN WINTER.

To the Editors.

Gentlemen,—As the result of your article on carbon precautions in cold weather, I have been reminded of some very simple dodges that practical carbon-printers resort to for testing the condition of the issue. A slip of tissue is cut off and pinned to the workroom wall by its upper end. This forms a very effective little hygrometer. If it lies flat against the wall the atmosphere is moist and the tissue is considered to be damp. If, on the other hand, the slip curls outwards from the wall, it denotes dryness of both atmosphere and tissue. I have been told of one ingenious individual worker who has made a rough paper protractor or scale, which he fixes alongside his slip. As the slip moves it passes over the scale, upon which is indicated the modified procedure desirable for different degrees of humidity.—Yours very truly,
December 12, 1909.

TRANSFER-MAN.

STEREOSCOPIC PORTRAITURE AND THE "DIXIO" STEREOSCOPE.

To the Editors.

Gentlemen,—In the very able editorial dealing with the above subject, in your issue of December 10, some interesting and important points are raised. One of these, the pseudoscopic effect which results when the mirror of the "Dixio" stereoscope is placed at the right-hand side instead of the left, whether the stereograms themselves are transposed or not, is extremely perplexing and hard to explain. The fact, also, that the transposition or non-transposition of the pictures does not interfere with the stereoscopic effect, provided only that the mirror is on the left, adds to the perplexity, and almost seems at first sight to upset some of the usually received theories of binocular vision.

But, after all, this would not be surprising. Optical and physiological authorities are about as unanimous in their explanations of stereoscopic phenomena as chemists are with regard to the nature of the latent image. Brewster disagrees with Wheatstone, while Brücke and Le Conte differ from both.

Theoretically, as your editorial says, the ideal viewing distance should correspond with the focal length of the lens used in taking the stereoscopic negatives, or, strictly speaking, with the actual focus of the objective at the time of exposure. This, however, is a rule which, to a certain extent, may be violated without any very grievous detriment to the relief or perspective observed in the stereogram. One has only to consider the case of anaglyphic stereograms, seen through bi-coloured spectacles and with no fixed viewing distance, to perceive the truth of this statement. Stereoscopic projection, also, is another instance where the rule is broken, as far as most of the spectators are concerned, without very objectionable results. In the case of the "Dixio" stereoscope, prints larger than 2 in. by 10 in. are hardly likely to be examined, and with these there is no exaggeration of relief nor perceptible distortion with a 10 in. or 10 in. viewing distance, though, as far as portraiture is concerned, such conditions are not recommended. This size would be exceptional; for ordinary purposes the average dimensions probably would not exceed whole-plate.

It would certainly be an improvement if the partition were provided with a sliding panel holding the mirror, having a scale of inches attached and actuated by rack and pinion. Then, if the stereograms were marked with the focal length of the lens, the exact viewing distance could readily be obtained for any subject or size. In default of this, if very large pictures are to be examined, the partition with the mirror is easily raised in the hand.—Yours faithfully,
A. LOCKETT.

COLOURS IN THE STEREOSCOPE.

To the Editors.

Gentlemen,—In reference to Mr. Lockett's comparison of stereoscopic methods, I must say that, considering the advance in modern apparatus, I consider the double prism the most efficient and, when one takes into account its applications, the more commercial. As to the question of grain, the manufacturers may be complimented, for both plates and papers are so finely grained that even when magnified the grain does not assert itself so as to cause inconvenience; if it did, the effect would be eliminated by the exact grain

not coinciding in both pictures. Again, as to the amount of detail, let us consider the amount in a microscopic negative, and then we may readily obtain all that is desirable (and more, if necessary) on the stereogram, which is hundreds of times larger.

In reference to the paragraph in "Ex Cathedra," you say it is not possible to combine colours binocularly, and you state that when the effect is produced of combining blue and red the result is feeble or weak. Whatever did you expect? If you had gone further and added the complementary colour, say, by viewing in a yellow or greenish light, you would have made all trace of colour disappear. Why? Because one colour, when blended optically with another, dilutes it towards white. The result of the suggested experiment (that of viewing a white object by red and blue) I fail to imagine, but can inform you that the intermittent effect occurs from several causes, the chief being that the blue and red (or whatever colours are used) are not balanced, or are held at an angle to cause reflections from extraneous sources. This is obviated by screening out cross lights by "hooding" the prisms. I am led by the result of years of practice with the ophthalmoscope to ascribe this effect to the abhorrence that the brain has for confusion. This causes a sudden flow of blood to various parts of the system. For example, take the sudden flush of blood that immediately saturates the brain on the occasion of (may I say chaotic?) fright, and, similarly, the retina of each eye receives the same when the eye strain signals the brain for help. The more finite colour spores or minuter nerves are brought to a state of high efficiency, and then, choked with blood, it devolves upon the other eye to try to grapple with the confusion when, in the interval of rest, the blood recedes. Incorrect pupillary distance or badly centred prisms are, perhaps, another cause. The eyes will only combine colour when the result makes proper sense. The ears are similar. This can be proved by attaching two phonographs, mutually synchronised, one to each ear, and each playing part of the same music—one might represent the voice and the other the accompaniment—but make the pieces dissimilar so as not to harmonise, and the result is maddening. And, indeed, why not? Otherwise, if we could not expect one eye or ear to do the usual work of the two (except for difference of position), many a one-eyed or one-eared man would be worthless. Yes, we can obtain combined colour impressions in the brain when those colours are the assembling of parts to form a whole, but not otherwise. I enclose postcard to illustrate my meaning, and should be pleased to hear if you succeed in forming a yellow effect (in the centre of petal) from a red and green source.—Yours faithfully,
GILBERT DEAS.

9, Mary Street, Dublin.

December 7, 1909.

[We gather from the above letter (which reached us before the appearance of last week's article on "Stereoscopic Portraiture and the Dixio Stereoscope") that our correspondent is largely in agreement with our views as to the difficulty of combining colours on the stereoscope. But from the above letter we cannot be quite sure of this. It is quite true that a degraded yellow is to be seen in the stereoscopic combination of the prints which our correspondent sends, but other hues, saving a dirty plum colour, are absent, except in the background, which is disturbed by blue and bluish-green tints. Our point was that stereoscopic combination is most unsatisfactory for obtaining effects in natural colours, and this our correspondent's result abundantly proves. In reference to his theory, we are sorry we are unable to discuss "colour spores," and we have never known "chaotic fright." Has our correspondent studied Wheatstone's original writings on this subject in the "Philosophical Transactions," and now obtainable in "Wheatstone's Scientific Papers"?—Eds. "B.J."]

GOVERNMENT PHOTOGRAPHIC POSTS

To the Editors.

Gentlemen.—To become a Government photographer! The easiest and perhaps the best way is to enlist in the R.E., stating you desire to enter the Photographic School of Engineers. You will first be sent to the Institute School at Chatham and be taught process work, photo-litho transfers, and wet plate collodion for printing on zinc, also to produce dry-plate negatives of maps sufficiently dense by development, and this without blocking up the fine lines—tri-colour work, also enlarging and lantern-slide making, printing in albumen, carbon, platinum, bromide, gaslight, P.O.P.

and doubtless some of the newer processes. After this you may be sent to the survey at Southampton. Judging from Colonel Grant's lecture at Bolt Court, they employ about 50 retouchers and about 500 others as photographers, lithographers, engravers, electrotypers, accountants, typists, etc., in fact all the staff for a large commercial concern. Foreign posts are generally advertised. A man was recently required for Cairo at £300 a year, two months' holidays.

The British Museum, South Kensington Museum, the Royal Geographical Society, and the Law Courts all employ a man and a youth each. The Admiralty employ one man, whilst the Foreign Office, the Home Office, the Colonial, and the War Office and the India Office have to be satisfied with a man and a youth among the five offices. At Aldershot and other camps the work is generally performed by a local man, who can turn his hand to any process. Gale and Polden have the work from the Aldershot command. In the London offices preference is always given to an old army man who has been through Chatham and Southampton. The pay in London is not very grand, but the hours are from 10 to 5.—Yours, etc.,
X. Y. Z.

Answers to Correspondents.

- *.* *All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.*
- *.* *Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*
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PHOTOGRAPHS REGISTERED:

- A. H. Pain, 140, Manningham Lane, Bradford. *Two Photographs of Mr. Wm. A. S. Hewins.*
- G. Denney, The Promenade Studio, Teignmouth. *Photograph of Charles. R. Buxton.*
- G. Denney, The Promenade Studio, Teignmouth. *Two Photographs of Captain Morrison Bell, M.P., Mrs. M. E. Morrison Bell and Family at Pitt House, Chudleigh. Photograph of Captain and Mrs. Morrison Bell and Chauffeur with Motor-car. Photograph of Captain Morrison Bell, M.P. Photograph of Captain Morrison Bell and Mrs. Morrison Bell.*
- G. Barnard, 24, St. George's Road, Brighton. *Photograph showing Chest Expansion of Jabez Wolfe, Channel Swimmer.*
- W. Mudford, 10, Fore Street, Tiverton, Devon. *Photograph of Ian Murray Heathcoat Amory.*

WEIGHTS AND MEASURES.—Chemicals are sold, so the table tells us, by avoirdupois weight, which gives 16 drms. or 437½ grs. per oz., or 16 ozs. or 7,000 grs. per lb. Side by side with this is apothecaries' weight, by which formulæ are made up. 1. When I buy 1 oz. of pyro or bromide from a chemist, what do I receive—the avoird. oz. of 437½ grs. or the apoth. oz. of 480 grns.? The photographers' book of scales containing the weights from grains to a 1 drm.-weight are, I presume, apoth. weights, since formulæ are made up by apoth. measure; therefore, I understand that when I buy an ounce of any chemical from a chemist I get 16 drms. or 437½ grs., yet the table for making up a formulæ, the apoth., requires 480 grns. to its oz., and the lb. is 12 ozs. or 5,760 grns., while the avoird. lb. is 16 ozs., or 7,000 grns. I shall be glad to be satisfied on this matter once for all in the same simple way that you explained in last year's "B. J." Almanac what a 10 per cent. sol. was, and why.—C. W.

Chemicals such as you mention are sold by the avoirdupois oz. of 437½ grns. This oz. corresponds with the oz. of water, so that a 10 per cent. solution (to be measured out in ounces) is produced by dissolving 1 oz. in water and making up to a total volume of 10 ozs.

BLEACHING PHOTOGRAPHS.—In making line drawings from photographs, I have difficulty in getting the image to bleach entirely

away. The enclosed specimen is developed with amidol, fixed and washed, both very thoroughly, and then bleached in bichloride mercury, 1 oz.; water, 20 ozs. When the card is wet there is absolutely no trace of the image, but when dried it is as you see. I notice two other formulæ for bleaching in the "Almanac," but as I know it can be done with mercury, I am puzzled to know where I have gone wrong. Will you be so kind as to tell me in this week's "Journal," as I want to make some Christmas cards?—PUZZEL.

For the purposes for which the process is usually employed—viz., preparation of drawings for reproduction in the Press—the faint residual image is negligible. Still, we think you should get the image to disappear completely. Try adding 1 drm. of strong hydrochloric acid to the 20 ozs. mercury solution, and use a matt instead of a glossy paper. You must recollect, however, that the mercury-bleached image is very susceptible to chemical change, and that sulphur compounds in the air, such as those from gas, will revive it quite sufficiently to account for your difficulty. For your purpose it would be better to use, say, the iodine-cyanide formula (in the "Almanac," page 769) which removes the image completely.

COPYRIGHT.—I have been asked to copy an illustration from a book—the portrait of a gentleman—by a cousin of the person represented. The gentleman was killed in the Indian Mutiny, and his brother (who, I understand, wrote the book), has been dead thirty years or so. Will it be safe for me to undertake the work?—COPY.

All things considered we should say it will be safe. No doubt copyright in the original drawing has expired, and unless the subject is a person of great importance, it is hardly likely that copyright has been subsequently created in copies of the original.

EMULSIONS.—Please recommend me a good practical up-to-date work on emulsions.—BROMIDE.

There is none which represents the present practice. Abney's "Photography with Emulsions" (from second-hand booksellers), or his "Instruction in Photography" (Iliffe and Son) will tell you how to make a good but slow emulsion. Next to that you may get Eder's "Photographie mit Bromsilber Emulsionen" (Knapp Halle, a.S.).

ENGAGING AN OPERATOR.—Will you kindly advise me respecting the following, and what I had best do? Being out of a berth, answered an advt. appearing in "B. J." about three weeks since for operator and canvasser. I replied, submitted my references which proved satisfactory, and was engaged at a salary of 15s. and 10 per cent. on results. As I had no money to pay my fare from Liverpool, where I was living, to Sheffield, where the firm had their offices, I wrote and told them I was not in a position to pay the fare. They then wrote back, offering the fare, which was to be paid back out of my salary and commission in instalments, according to amount earned weekly. To this I agreed. They stated, when engaging me, the berth was permanent; so I, of course, accepted same. I was sent from Sheffield to address above, and started work on the Monday, and, as far as I have learned, my operating was satisfactory; at any rate no complaint was made by the gentlemen in charge here. But to my surprise this morning I was told that the firm did not require me further, and was paid up to the amount of 15s. only, and the money advanced for my fare from Liverpool to Sheffield was deducted, leaving me with the large sum of 8s. 6d. to pay my digs. and expenses for the week. It is practically leaving me stranded, about 150 miles from my town and the sum of 8s. 6d. to pay digs. and expenses and to get back. What do you advise me to do in the matter? They give no reason for not requiring me further. My work is all right, so they say; my references are of good character also. The only reason given is they do not require me further. Cannot a stop be put to these methods of dealing with employees? It is hard on a man to be placed in such a position. Is there no way of exposing firms who carry on these methods towards operators and canvassers, and is there no remedy for the employee so treated? Can you not make some warning of my case to the readers of the "B. J." and so prevent others from being caught in the same manner by advts. appearing in the "Vacant" column?—FETCHED.

Your case, as you put it, may seem somewhat hard to you,

we cannot see that you have in any way been duped. The firm sent you the money to pay your fare, to be repaid by instalments. It is not improbable that your work as an operator, or your methods as a canvasser, were found not satisfactory to the firm after the first few days' work. Possibly the statement that you were no longer required was a polite way of saying that. As the firm had advanced you the money to pay your railway fare, of course they would deduct it from the amount due to you. All things considered, we do not see that you have been so ill-used as you seem to think.

MERCURY INTENSIFIED PAPER NEGATIVES.—We have made some large paper negatives intensified with mercury. We find now that after some exposure to light the paper that is the back of the neg. turned brown, though the whites on the film were pure enough. To test it we took a freshly intensified paper neg. and exposed the back to an arc light, covering up half, and in less than thirty seconds it had turned brown. How can we avoid this?—FINCHLEY STUDIO.

This is due, no doubt, to the mercury retained in the paper. In the case of ordinary negatives, several acid baths are necessary to remove the mercury retained in the gelatine, and in the case of paper negatives no doubt the paper absorbs a quantity of the mercury, which is not easily got rid of. We suggest that you try the application of three or four baths of dilute hydrochloric acid after bleaching, and test the effect. If the trouble recurs it seems that your best course will be to abandon the use of mercury for paper prints. For the simple purpose of increasing printing contrast you would probably find chromium intensification quite as efficient.

COPYRIGHT.—About a month ago one of our firm, when out operating, had business in a certain country public-house. The landlady remarked that she would like to have her two children photographed on a large rocking-horse. Our representative offered to, and did, expose a half-plate on same, but did not trouble to take a definite order at the time, as he had other pressing business on hand, and knew he would be there again the next day. He called next day with proof, and showed same to the landlady, who asked the price of one only, but she was told that it would not pay us to take an order for less than half a dozen (half-plate p.B.711). Our representative, however, afterwards offered to print her three for 3s. She left him, saying, "Wait a minute," taking proof with her. He waited nearly half an hour, but she was not again to be seen. This also occurred again the next day. About four days afterwards our representative saw her husband, and asked him about it, and was told there would be no order, as we were *too dear*. He then asked for return of proof, but could not get it, but was told it had been sent away. We afterwards learned that it had been handed to a travelling firm of oil photo painters for a copy of it to be taken in oils (which we have since seen) at about double the price we should have charged for the same thing. What we wish to know is: (1) Have we any claim (if we copyright our photograph) against the publican or the Empire Art Company for infringement (we may say both were cautioned and told that we claimed the copyright by our representative, who happened to call when their proof arrived)? (2) If not, can we make a claim for our trouble and expense in taking negative and proof?—DOMINOE.

Apparently the landlady gave you some sort of an order in the first instance. You did your work in the expectation of being paid for it. You did not regard the job as one which you did with the idea of obtaining an interesting subject of which you, as the owner of the copyright, might make use. This being so, it is immaterial whether the landlady has or has not paid for the work; the copyright is hers. You can sue her in the county court for work done. The case, it seems to us, is almost on all fours with that of a person who comes to a studio to be photographed, and when he gets the proofs does not order from them, but gets them copied elsewhere. The fact that the landlady has had the photograph copied in an expensive way is proof that she considers it good work; she should be made to pay for it.

METOL-HYDROQUINONE DEVELOPER.—As we have several times seen normal formulæ for developers, etc., given in the "Journal," we should be very much obliged if you would give the formula

for metol-hydroquinone which you think to be the most profitable. We use the formula given below:

A. Metol	5 gms.
Hydroquinone	75 gms.
Sulphite of soda	100 gms.
Water to	1,000 gms.
B. Carbonate of potash	100 gms.
Water to	1,000 gms.

For plates equal parts A and B. For over-exposure two parts of A and 1 part of B. For bromide under-exposure 1 part of A and 2 parts of B. For lantern, gaslight, and bromide paper as for over-exposure. We get very good results indeed, but we should like to know your opinion about the following matters:—1. Which quantity of sulphite is necessary to make the developer most keeping? We find quantities from 14 up to 150 gms. in developers as given above, in other formulæ. 2. Do you think it profitable to work with different alkalis for different exposures? 3. Would it be better to use carbonate of soda or caustic soda for under-exposure? Which would be the proportion between these three alkalis? 4. Has the carbonate of soda any advantage over the carbonate of potash? Proportion for above developer? 5. Do you agree with Mr. Watkins that all developing agents are capable of giving throughout same result? 6. Is there any special reason why bromide is included in the different formulæ, wherein it is a general opinion that the best result (by normal exposure) are obtained without bromide (except, perhaps, by hydroquinone alone)? 7. Has the bromide influence on the keeping quality of the developer? We should be very much obliged if you would put this in a short form and answer the questions in the journal.—H. and P. (Copenhagen).

1. You can do with less sulphite if the developer is used for negatives only; you require more if for bromide and (particularly) gaslight papers. Thus we should say that for 1,000 ccs. of mixed developer as applied to the plate, 15 gms. of sulphite is sufficient. This equals 30 gms. of sulphite in your A solution. For developing papers the sulphite per 1,000 ccs. mixed developer may be 50 to 60 gms. = 100 to 120 gms. per 1,000 ccs. A solution. 2. There is no distinct advantage in using different carbonated alkalis for the B solution. The difference, if any, is insignificant. 3. Caustic alkali may be of advantage for under-exposures, though our experience is that the gain does not amount to much. 2. A suitable proportion of caustic potash for 1,000 ccs. B solution is 21 gms., using sodium carbonate cryst., 60 gms., is about right, whilst in the case of potash carbonate about 50 gms., equal to 25 gms. in 1,000 ccs. mixed developer. Caustic alkali is less suited for paper prints, owing to its softening action on the gelatine. We prefer soda carbonate cryst. as the alkali. 4. It has the advantage of being more regular in composition if purchased in pure crystals. There is always some doubt about the proportion of water of crystallisation in the potash carbonate cryst., or, in the case of the dry or anhydrous potash carbonate, how much water has been absorbed. 5. We cannot, nor do we believe that the statement is made in this way by Mr. Watkins. 6. We think a little bromide, say $\frac{1}{2}$ gm. per litre of mixed developer, should be used. It does no harm, and does actually improve the cleanness with which the developer works. 7. None at all.

DRYING PRINTS.—(1) Which is the best way to dry prints so that they will not cockle and curl? (2) Which is the best way to dry mount photographs, cabinets and others, so that they will be perfectly flat when dry? My method of mounting is as follows: I soak prints, blot off the surplus water, put my mountant on with a stiff brush, starch paste, then lay on the mount, and then squeegee in contact with a roller. After wiping with a sponge I put to dry on their backs on clean paper. Can you give me a better way than this? Hoping you can.—F. WALL.

(1) Lay prints face down on thin open-mesh nets, remove before they are quite bone dry, and place under pressure. Messrs. Houghtons supply these nets, mounted in wooden frames. (2) If you use a penetrating mountant like starch you must expect to get a certain amount of curl in the mounts. You will get less if you use a stiffer mountant like dextrine, and none at all if you dry-mount. However, we advise you to arrange some parallel strips of wood about $\frac{1}{4}$ in. square section, and at such distance apart that the mounts when placed between a pair of strips are

bent outwards into a slight bow. If left to dry in this condition they will be easily reduced to flatness under slight pressure.

STUDIO.—In the business of house-painter and decorator, with paintings in oil and water-colour added, it is intended to embrace a branch of artistic portraiture. Can you give any information and advice as to the erection of studio, the most suitable lens for the purpose, as well as a few accessories necessary to complete the outfit? The position of the present premises used is one in which there is a clear space facing to the south of 30ft. by 15ft.; there is no possibility of buildings obstructing this south view, as the ground in front is a churchyard, with an old and historic abbey, some 75 yards or 100 yards from the site of proposed studio. On the other side is drawn a small plan of the present buildings, with their surroundings, as well as the position of the proposed studio. Any information will be most gratefully welcomed.—R. M.

The sketch shows the best that can be done under the conditions. If the plan is drawn approximately to scale we should suggest that the light be somewhat increased, say, to 12 ft. We should also advise that it be glazed with ground glass, which will materially soften the light when the sun is shining. With regard to the lenses, we can give no opinion, as we have no idea of the size pictures it is intended to produce. However, those of the portrait type will be the most suitable, and, in the production of high-class work, the focus should be double in length that of the longest dimension of the picture. As regards accessories, you had better get the catalogues of two or three of the large dealers and see what will best suit your ideas.

CATTLE SHOW PHOTOGRAPHS.—Kindly help me to procure photographs of the different exhibits at the Cattle and Agricultural Show at Islington. I visited the show, and inquired if photographs of the cattle and certain other exhibits were being sold, and was told they were not. If you would kindly let me know to whom to apply I should feel much obliged.—HOPE KAVANAGH, 10, Alexandra Road, Bedford.

We have not heard that there was an official photographer for the show. A number of photographs have appeared in the weekly papers, and the photographers or agencies will doubtless supply prints.

REDUCING SULPHIDE-TONED PRINTS.—Will you kindly tell me if it is possible to reduce a sulphide-toned bromide print, and, if so, the method of procedure?—EN AVANT.

Prepare a stock solution of:—

Copper bromide	260 grs.
Sodium bromide	5 ozs.
Water	20 ozs.

and mix with two to three times its bulk of water to form the reducing bath.

THREE-COLOUR BLOCKS.—Could you inform me whether there is any method (in practice) by which three-colour process blocks can be made without fine-etching, that is—simply rough-etched? At the present time I am using pinachrome bathed dry plates, with Meister Lucius and Brunings' filter dyes. Have also used Dr. Albert's emulsion. Both these methods are good, but still there is a considerable amount of work for the fine-etcher. If you could tell me of a perfect method (practical), I should be greatly obliged.—COLOUR OPERATOR.

Whether three-colour blocks can be produced without fine etching depends very largely upon the original, the materials used, especially the inks, and the care with which the operations are carried out. In the report of the Bolt Court School the year before last, we remember seeing a lithograph and a three-colour reproduction (which was practically a facsimile) shown side by side, without any fine etching at all. On inquiry we find that they always use Wratten's Panchromatic plates, and their own, or Wratten's filters, which have similar absorption regions. On the other hand, they state that, to procure the best results, inks which are not quite permanent have been used. The best commercial inks on the market now are the three-colour complementary inks issued by Mander Bros. Unless, however, the greatest care is taken in all the manipulations, and the original is quite suitable, the inks especially, some fine etching is almost inevitable, whatever process is used.

JAP.—There are two monthly journals: "Shashin-Shimpo" (T. Tato, 4, 10 ch st., Kobikicho, Tokyo), and "Shashin Shava" (Y. Isawa, 18, Neihome, Minami Sullumacho, Sheba, Tokyo). We may refer you to a short article on photography in Japan, which appeared in our issue of March 26, p. 236.

DEPTH OF FIELD.—I have worked out the depth of focus of a 7in. lens according to the table on p. 894 of the "British Journal Almanac," and cannot make the theory agree with practice. In practice the infinity is not sharp in the following example, whereas according to theory it should be. Will you tell me where the fallacy is? I should be very much obliged. Example: Lens, 7in.; value, $f/16$; object focussed 10 yards. Result: Nearest object in focus, 4yds. 2ft. 2in.; farthest object in focus, infinity.—W. DE F. COLLENETTE.

Your figures seem to be correct for a circle of confusion of .01in., but this does not, of course, involve critical sharpness, a confusion of that amount being quite visible. If you want the distance to be critically sharp you must reduce the circle of confusion, as stated in the rules quoted. Probably you would personally consider a confusion of .005in. sharp, and if you calculate on this basis you will find that depth extends from 18ft. 9in. to 75ft. All depends on your own definition of sharpness.

MASTER.—If the young fellow has served two out of his three years' apprenticeship we are not at all surprised that his friends demur to his having to deliver parcels of photographs to customers after the day's work is finished. They paid you the premium to teach the young man his business as a photographer and not for you to employ him as an errand boy. We should certainly say that he is quite justified in refusing to act as such after serving so long a time.

WARNING TO COMMERCIAL PHOTOGRAPHERS.—"I don't take much stock nowadays in these mouth-watering pictures of salads and desserts that are so thick in all the magazines," said a young New York photographer who has lately added a writer of ordinary topics to his list of patrons. "The first time I was asked to take such a picture the subject was just about the most appetising collection of sandwiches I'd ever seen. They were arranged on a dainty d'oyles and placed in a beautiful silver dish. I was told where to deliver the photograph and return the dish, but to never mind about the sandwiches. As I saw in these a much better lunch than I could get anywhere else, I took the picture at once and then sent out for a pot of coffee to go with the sandwiches. I hardly knew which one to begin on, but finally decided in favour of an artistic combination of brown bread and cream cheese. The filling which I'd supposed was cream cheese proved to be a stiff paste, and rancid at that. It coated my mouth and stuck to my teeth. I did so inquiring after that and found that many a photographer has tried to eat similar stuff. Croquettes made of soap, then covered with glue and rolled in bread crumbs, was one appetising subject brought in to a friend of mine to be photographed, and another in the business told of little blocks of wood dipped in frosting to represent fancy cakes. Most of the whipped cream is in reality cotton wool and so it goes."

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SUMMARY.

The Committee appointed by the Board of Trade to enquire into the Revised Convention of International Copyright, signed at Berlin last year, has presented its report, and has indicated the respects in which the suggestions of the Convention are in agreement or at variance with British copyright law. Photography and particularly cinematography figure prominently in the report. We give the paragraphs in the latter concerned with photography (p. 995), and in an article on page 987 draw attention to the possible effect of the Committee's report.

In an article on page 986 an explanation is given of the somewhat puzzling effects which are obtained in the Pigeon or Dixio stereoscope according to the way in which that instrument is used. It is shown that the pseudoscopic and other effects correspond to those which are obtained when viewing glass stereoscopic transparencies under different conditions.

A recent paper by Dr. C. E. K. Mees, read before the Royal Society, has provided the first scientific investigation of the properties of dry plates in respect to "resolving power," that is to say, rendering minute detail. It is shown that resolving power depends both on reflection and diffraction by the grains of the emulsion film, and that it is not the finest grain plate which gives the best rendering of detail. The full text of the paper and reproductions of the results obtained are given on page 989.

Time-thermometers, developing tanks, etc., figure under "Patents of the Week." (P. 996.)

Engagements of operators, and a business point as to the despatch of goods, and the processes concerned in making a photo-button figure with other matters under "Correspondence." (P. 1,002.)

The few practical precautions which are necessary in using the carbon process for making lantern slides are the subject of some notes on page 988.

A notable instance of the capability of a platinotype print to withstand severe conditions is given on page 995.

Under "Photo-Mechanical Notes" reference is made to the production of half-tone blocks direct from transparencies. (P. 995.)

EX CATHEDRA.

A Centre Pointer for the Enlarging Easel.

Makers of the most recent patterns of enlargers have so pampered the worker as regards providing all manner of movements of the negative stage that perhaps there is less occasion for drawing attention to a little device mentioned by Mr. H. Hands in Penrose's "Year-book." It is the provision of a pointer pivoted to one corner of the easel and brought by a touch of the hand against a stop so that the free end of the pointer touched the exact centre of the easel. Such a pointer will, however, be of service when using an enlarger which does not allow of nice adjustment of the negative.

* * *

Photometry and the Law of Inverse Squares.

In our last issue we published an abridgment of Professor Sylvanus P. Thompson's address before the Society of Illuminating Engineers. It contains much matter of moment to photographers, even though at first sight that fact may not be very apparent. Photometry was a prominent feature in the address, and this is the special matter to which we now wish to draw attention. Many of those who have had experience in reading densities must have felt a sympathetic thrill when they noted the reference to "Bunsen's over-rated grease-spot instrument," but possibly they hardly appreciated the full force of the reference to "the errors arising in photometry from the almost universal assumption that the law of inverse squares is fulfilled," which law is, as Professor S. P. Thompson remarks, "so fatally and absolutely misleading if applied to any other case than that of action from a point." In at least one form of photometer that has been put on the market for the use of photographers the source of light is very much larger than the area that is illuminated by it, while in most instruments a fairly large source is of necessity employed in order to obtain a sufficient amount of light. In the type known as the H. and D. photometer the source of light is a disc 6mm. in diameter, and even this may be looked upon as too large in certain circumstances. The late Mr. Douglas Carnegie made some experimental observations on the effect of the size of the light source in this instrument, and we remember he told us that he found that an appreciable error was introduced when the photometer head was brought close to the light for the purpose of reading high densities. He therefore abandoned the usual method of using the instrument, and instead of working as long as possible from one zero observation, he took a new zero for every second or third density, and so kept the photometer head always near the centre of the scale. As, in this instrument, only the right-hand source of light can be reduced in size, and as the error due to size is less as the distance is increased, it

would seem advisable to work always with a zero that is as far to the right as possible. This diminishes the light for all readings, but the diminution is not felt so much as it is when we change from a strong light to a weak one.

* * *

A Bactericide for Photographic Papers.

We constantly receive from correspondents specimens of prints in which are spots and markings, the only apparent explanation of which is the presence of bacteria or the attacks of minute insects. The former trouble, of course, will prevail chiefly when the gelatine is in a moist condition, and on that account photographers in tropical countries are chiefly exposed to it. It is, therefore, interesting to find that a photographer, Mr. F. K. Lawton, in Ceylon, writing to Penrose's "Year-book," recommends a preparation which is without deleterious action on the silver image and yet renders prints immune to the attacks of insects. The active principle is said to be a decoction of the root of the aquatic plant "sweet flag," met with in Ceylon, and called in Tamil "Vasambu." We have no knowledge of the chemical constituent of this extract to which its alleged activity is due, but perhaps some of our medical or botanist readers may be able to supply the information.

* * *

Weights and Measures.

A correspondent last week once more raised the old queries with regard to avoirdupois and apothecaries' weights and measures, and asked whether it was a fact that chemicals were sold in avoirdupois ounces, while formulæ prescribe the apothecary's ounce. This point so often puzzles photographers that it seems necessary to state once more that the word "ounce," when applied to weights, always means the ounce avoirdupois, and never the apothecary's ounce, which does not exist outside books of weights and measures. If a formula in which the ounce is mentioned is to be translated into grains, the ounce should be transposed to $437\frac{1}{2}$ grains, or into 440 grains, which is quite sufficiently accurate for all practical purposes. Our correspondent also refers to another weight that does not exist outside the tables—that is, the avoirdupois dram or drachm. At one time the avoirdupois ounce was divided into eight drams, just as the fluid ounce is still divided into eight drams. If this weight existed to-day it would be a very useful one to photographers, for the two different drams had the same relationship to each other as the solid and fluid ounces, or the more modern gramme and cubic centimetre. However, interfering "reformers," who evidently knew little about the practical requirements of weights and measures, changed the avoirdupois dram. They halved its weight; made sixteen drams to every ounce, and so created a useless weight which dropped out of existence simply because nobody wanted it. It will be noticed that many photographic formulæ give such quantities as 22, 44, or 88 grains per ounce. These arise from the decimal division of the ounce of 440 grains, while quantities of 55 or 110 grains per ounce, which are also met with, show that the writer of the formula has been working on the basis of the old avoirdupois dram. All such formulæ are really in avoirdupois weights, as the avoirdupois ounce is the unit. Where, however, we see such quantities as 60 or 120 or 160 grains, we should look upon the formula as in apothecary's weight, with the dram as the unit, and the ounce should not be mentioned at all except as the unit of the fluid constituents. Unfortunately, some formulæ show that the writers have confused the weights, and the quantities change from avoirdupois to apothecary's units in the most erratic fashion. Carelessness

such as this is responsible for much of the confusion that exists. If people would only remember that there is no such thing as an apothecary's ounce of 480 grains, all confusion would be avoided. The only 480-grain ounce now in existence is the troy ounce, which is used for metals only.



THE DIXIO STEREOSCOPE AND PSEUDOSCOPIIC EFFECTS.

OUR article of December 10 on stereoscopic portraiture and the Dixio stereoscope drew attention to some curious effects produced in this instrument, which effects were described as not quite clear at a glance. From Mr. Lockett's letter of last week we gather that he has also been puzzled by these phenomena, and has apparently failed to find an explanation. It is, however, not a very difficult problem to solve, once we have grasped clearly the state of affairs that exists in the Dixio stereoscope.

It must be remembered that the left-hand picture of the pair used is a reversed picture. This is seen in a mirror which re-reverses it so as to counteract the original reversal; therefore, in the ordinary way the left eye sees an unreversed picture just as it does in the more usual form of stereoscope. Suppose we interchange the two pictures in the Dixio instrument. The reversed left-hand picture is now on the right, and is seen directly by the right eye without the intervention of a mirror, and it therefore appears reversed. The original right-hand picture which was unreversed is now on the left and is seen in the mirror which reverses it. The left eye, as well as the right eye, therefore sees a reversed picture, and the final effect is precisely the same as that of viewing an ordinary stereoscopic transparency from the wrong side. As is well known, such a transparency may be viewed from either side without disturbing the stereoscopic effect. The rights and lefts of the subject are changed, but the relief is just as true in the one case as the other. It is therefore apparent that the interchange of the two pictures in the Dixio stereoscope is simply equivalent to reversing an ordinary stereoscopic transparency, so that proper relief is obtained however we place the pictures.

Now let us consider the case in which the Dixio stereoscope is turned, so that the mirror comes on the right side of the central partition. Let the left-hand picture be on the left side and the right-hand one on the right. The former, which is reversed, is seen direct, while the latter, which is itself unreversed, is seen reversed in the mirror. The effect in the stereoscope is then pseudoscopic instead of stereoscopic.

An exactly parallel case to this can be produced as follows:—Take an ordinary stereoscopic uncut negative, and from it make a transparency without any cutting or transposition of pictures. On reviewing this transparency from the back and through the glass we have exactly the same condition of affairs in the case we are considering, for while each picture occupies its correct relative position, each is reversed as regards right and left. If viewed in the stereoscope a pseudoscopic effect is produced just like that seen in the Dixio instrument.

If we transpose the pictures in the Dixio instrument then the reversed left-hand picture comes on the right, and being re-reversed by the mirror becomes non-reversed to the eye. The unreversed right-hand picture is seen directly by the left eye, and the whole arrangement is therefore similar to that of an uncut print made from a stereoscopic negative, with which, as is well known, a pseudoscopic effect is always produced.

If we invert each of the two pictures so that the subject

is seen upside, the effect produced with the pictures when the right way up are, of course, reversed, just as it is with an ordinary stereoscopic print. The conditions that ordinarily give pseudoscopic relief therefore give stereoscopic relief when the pictures are inverted.

All these varying effects are most easily studied by using a Dixio stereoscope fitted with two mirrors, one on either side of the centre partition, so that the two can be used alternately. We can then get all the effects in rapid succession without the trouble of reversing the instrument.

Possibly the preceding explanation will be clearer if we state briefly the conditions that produce pseudoscopy. In the ordinary stereoscopic slide we see the left-hand view of the subject on the left and the right-hand view on the right, each picture being also correct as regards the rights and lefts of the subject. We can effect two kinds of changes in this arrangement. We can either transpose the pictures so that the left-hand picture is on the right, or we can simply reverse each of the two pictures as regards its own rights and lefts. Either of these changes made alone produces pseudoscopic relief, but if we make both changes together we still have stereoscopic relief, though the rights and lefts of the subject are reversed.

THE REPORT ON THE INTERNATIONAL COPYRIGHT CONVENTION.

THE report of the committee appointed by the Board of Trade to inquire into the recommendations made by the International Copyright Convention at Berlin last year has just been published, and we give on another page the extracts from it specially dealing with photography and allied processes. Our readers will perhaps remember that we published in our issue of November 27 last year the anticipation of the conclusions arrived at by the Berlin conference, and embodied in their Revised Convention, and that we followed these with a further article on December 18, that is to say, on the semi-official publication of the proceedings of the conference.

It will be understood the "Berne Convention" of 1885 represented the result of a conference held at Berne in that year by several of the Great Powers. In 1886 the British Government passed the International Copyright Act, the object of which was to enable the Crown to pass Orders in Council embodying the chief features of the new convention. The subsequent revisions in the Berne Convention made at Paris in 1896 were similarly endorsed in part by Great Britain in 1898, and presumably it is with a view to the issue of still a third order authorising the "Revised Convention" of Berlin that the present inquiry has been instituted by the Board of Trade. Certain passages in the report, however, seem to foreshadow a more thorough revision of the law relating to copyright.

The report of the English committee makes interesting reading. The committee represented the literary, artistic, and dramatic professions, in addition to having within its membership at least two representatives of the publishing trade and several authorities on copyright law. Moreover, the witnesses called numbered forty-five and represented practically all the interests affected by the amendment embodied in the Revised Convention." The first conclusion of the committee will be received with interest, in view of the efforts which are being made to introduce reform into British copyright law. As the result of epitomising the many acts still in force with regard to copyright, the committee refers to the "confusion which prevails," and proceeds to emphasise the advantage which could result if the law could be placed "on a plain and

uniform basis." At present, as the committee's epitome shows, the law relating to literary works, dramatic works, prints and engravings, sculpture, and to fine arts, are dealt with in a large number of Acts, in reference to which the committee quotes the report of the Royal Commissioners on copyright of 1878 to the effect that "the law is wholly destitute of any sort of arrangement, incomplete, often obscure, and even when it is intelligible upon long study it is in many parts so ill-expressed that no one who does not give such study to it can expect to understand it." The whole tenor of this portion of the report is to strengthen the hands of those who would wish to see the consolidation of copyright law. As our readers know, a draft bill for the alteration of the law of artistic copyright is in existence, but it would seem that if the recommendations of the present committee are heeded any new bill will include within its provisions copyright not only in artistic works but in the many other forms of original composition, literary, musical, etc.

One of the notable recommendations of the committee is that architecture be accepted as matter to be protected, an innovation in British legislation which it is thought should be undertaken for the sake of uniformity and because such legislation presents no difference in principle from that applicable to the sister arts. The committee, however, are not unanimous in this matter, and one member, Mr. T. E. Scrutton, whose wide experience of copyright procedure cannot be questioned, strongly dissents from the decision on the ground that it would be very difficult to say what are new and original houses or features of houses, and equally difficult to prescribe remedies for infringement. Nevertheless, in view of the fact that architecture is granted protection in France—possibly also in other countries—it would apparently seem that it is legislatively possible. The matter is only a side issue from the photographic standpoint, but if copyright protection was given to architectural work the result *might* be that photographs representing public buildings, in which there was copyright, would be held to be infringements.

The committee draws attention to the anomalies which exist in copyright law as to registration, and its general conclusion is that it is unfair to authors to enforce compliance with a technicality before granting them the facility to enforce their rights. They are led to recommend the adoption of the clause of article 2 of the Revised Convention, namely, "the enjoyment and the exercise of these rights shall not be subject to the performance of any formality; such enjoyment and such exercise are independent of the existence of protection in the country of origin of the work. Consequently, apart from the express stipulations of the present Convention, the extent of protection, as well as the means of redress secured to the author to safeguard his rights, shall be governed exclusively by the laws of the country where protection is claimed."

A good deal of discussion centred round the period for which copyright shall last, article 7 of the Revised Convention recommending a period equal to the life of the author and fifty years after his death for works of fine art, but for photographic works a period regulated by the law of the country where protection is claimed, provided that this term shall not exceed the term fixed in the country of origin of the work. In regard to this matter, Mr. E. C. Elliott, on behalf of the Artistic Copyright Society, advocated a term of fifty years for photographs, whilst Mr. George Davison advocated the same term as that given to drawings, whatever the latter might be. We may take these two opinions as expressing the commercial and amateur, or pictorial, branches of photography respectively. It will be remembered that the draft bill prepared by the Artistic Copyright Society named thirty years as the period during which copyright endured, and we believe

that that time was decided upon after consultation with leading professional and commercial photographers in whose judgment it was thought to give ample protection and to be more efficient than the present regulation of a term for the life of an author and seven years after his death. The committee, however, in reference to photographic works, recommend a period of protection of the life of the author and fifty years after his death, and in doing this they suggest that when a photograph is produced by an individual author who takes it himself or personally superintends and directs its production on his own account, he should receive the same protection as the actual producer of any other work of fine art, viz., life and fifty years, but that where a person is employed by another, whether the employer be an individual, a firm, or a company, the employer should receive protection for the term of fifty years from publication. They suggest that works produced by processes analogous to photography should be dealt with in a similar manner.

In regard to copyright in cinematographic productions, the committee is quite in accordance with the recommendations of the Revised Convention, namely, that authors of literary or artistic works should hold the exclusive right in the reproduction of these latter in animated photography, whilst original productions intended for representation by cinematograph should receive protection as literary or artistic works provided that the "arrangement of the acting form" or "the combinations of the incidents" can be regarded as the creation, by the author, of work of a personal and original character.

It will thus be seen that the report of the committee, although limited by the matters brought up in the Revised Convention, nevertheless touches a number of points of importance to photographers, and there is every reason to think that the document will be of importance in influencing any proposed alterations in copyright law in this country. Although the draft bill prepared by the Artistic Copyright Society aims to deal only with copyright in this country, yet the great complexity of International Copyright makes it very desirable that any changes in the copyright law of a country should be in the direction of bringing it more closely into line with that in other countries. This view appears to have been kept before the committee.

LANTERN SLIDES BY THE CARBON PROCESS.

THERE was a time when the carbon process was looked upon by amateur photographers as being a difficult one to work. That idea, however, has to a great extent been dispelled, and it is now a favourite process with many amateur workers, partly on account of its simplicity, but largely because of the varied effects which can be obtained with the least possible trouble and with great uniformity in the results. Notwithstanding its large employment for paper pictures, it is at present not very extensively worked for lantern-slides, yet for this purpose it is most admirably suited. This neglect is no doubt due in some measure to the excellence of the special lantern-plates now on the market, the ease with which they can be manipulated, and not least, perhaps, their cheapness. Most persons know that with them, by modification in the exposure and development, a great variety of tones from red-brown to black may be obtained; also, that by different methods of after-toning the colours first obtained can be greatly modified. But in these processes there is difficulty in getting a series of slides all of the same uniform tone, and some methods of after-toning cause the deepest shadows of the picture to lack transparency and the high-lights to be veiled, hence the picture looks more or less muddy

when projected on the screen. These drawbacks to toned gelatine lantern-plates do not obtain in the case of carbon slides.

Tissues may now be had of almost every conceivable colour or tint, and with them we have the assurance that any number of slides may be produced with the certainty that they will all be of exactly the same tint while the shadows are transparent and the lights free from veiling. There seems to be an impression with some few that for making transparencies the special transparency tissue must be employed. That is quite a fallacy, as any other answers the purpose quite as well. There is thus a great choice of colours—various tints of browns, reds, greens, blues, purples, blacks, etc., are all at command.

Here we propose to give some practical hints on working the carbon process for lantern transparencies which may even be useful to those who may be familiar with the process as applied to paper pictures. In the first place, the glass plates must be thoroughly cleaned. This may be done if they are new by rubbing them over with whiting moistened with water and a pledget of flannel. The whiting is then washed off under the tap, and the plates placed in a rack to dry. The plates should then receive a substratum. This will make the after-manipulation easy, as well as ensure that the film will not split off with the heat of the lantern, which it is somewhat liable to do when bare glass is used.

There are several formulæ for the substratum that may be employed. An excellent one, published by the late William Bedford, stands as follows:—

Hard gelatine	270 grs.
Water	3½ ozs.
Chromic alum solution 5 per cent.	g.s.
Glacial acetic acid	7 drs.
Methylated spirit	17 ozs.

The mode of preparation is as follows: The gelatine is softened in the water and then dissolved by heat. The chrome alum solution is added by degrees with vigorous stirring, until the gelatine is all precipitated. It is then well drained and redissolved, with the aid of heat, by the acetic acid. The spirit is then added slowly with constant stirring. Finally, the solution is filtered through fine muslin or swansdown for use.

Another substratum that is probably more generally employed than the above, as it is more easily prepared is:—

Photographic gelatine	1 oz.
Water	25 ozs.

When softened in the water, the gelatine is dissolved by heat; sufficient solution of bichromate of potash is then added to give the solution a golden sherry colour. It is then filtered as above: The glasses, having been warmed are coated with this and dried in daylight. The light renders the substratum insoluble in warm water, and the coating will then hold the image film firmly to the plate during the development, as well as when subjected to the heat of the lantern.

Now a word on the sensitising of the tissue. This may be done in the usual way, say, by three minutes' immersion in a 3 per cent. solution of bichromate of potash, to which a few drops per ounce of liquor ammonia has been added. After taking the tissue from the solution, it is well to squeegee it lightly on a glass plate to remove the superfluous solution, and then hang it up to dry in the dark. Or it may be left to dry on the glass, if that has been previously waxed or treated with French chalk. When that is done the surface of the tissue is protected from dust, and also from injurious vapours while drying. When stripped from the glass the tissue will be quite flat, and will have a highly glossy surface.

As the drying takes place somewhat slowly at this time

of year, unless it is done in a warm and dry place, it may be greatly accelerated by, after the squeezing, immersing it for a few minutes in a dish of industrial alcohol, which will abstract a large proportion of the water. If the tissue is sensitised with a spirit sensitiser—such as that sold by the Autotype Company—all drying troubles are avoided, as it dries in a quarter of an hour. This sensitiser is very economical when small quantities of tissue are required. Spirit sensitiser also has the advantage that, as the fingers do not come into contact with it, they do not get stained, as they may do when the tissue is sensitised by immersion. The negative, or such portion of it that is to be printed from, must be provided with a "safe edge." A lantern-slide mask will do, and for convenience in working it may temporarily be attached in position with a touch of cycle tyre cement at each of its corners. As a further convenience in working, the tissue should be cut a trifle smaller than the glass plate—say, the eighth of an inch each way—then, when it is soaked (by its expansion) it will be just about the size of the glass.

In printing, the exposure should be kept to a minimum, and not be nearly so prolonged as is necessary when the transparency is for enlarging from; about one-third of that time is enough. It should be kept in mind that for lantern-slides the highest lights must be quite bare glass, and not slightly tinted as is desirable when the transparency is required for making enlarged negatives.

Before the exposed tissue is squeegeed on the glass for development, it is well to soak the plate in cold water for a few minutes, so that the substratum is slightly softened. The text-books tell us to soak the exposed tissue in water until it begins to curl film outward. For transparencies on glass it should be removed before this stage is reached—say a little before it gets quite flat. When this is done a slightly greater crispness in the image is obtained, and the carbon film holds more firmly to the glass while being developed. In the development it is well to keep the temperature of the water as low as possible, as too hot water, with a minimum exposure, has a tendency for the delicate tones in the lights to wash away and so leave them bald and hard. After the picture has been developed it should be washed under the tap and then put into the alum solution, as in the case of paper prints, for a few minutes. After that the slide should be well washed to free it from alum, for should any be left in the film it might crystallise out, and thus somewhat impair the transparency of the picture. A slight trace of alum in the film does not have such a marked effect on a paper print as it would do on a lantern-slide when seen on the screen.

The transparency of the shadows may sometimes be increased by varnishing the slide or coating it with plain collodium, but this is seldom necessary, as with most tissues the slides will be as transparent as can well be desired.

ON THE RESOLVING POWER OF PHOTOGRAPHIC PLATES.

[A paper by Dr. C. E. K. Mees, communicated to the Royal Society by Sir William Ramsay, K.C.B., F.R.S., and reprinted by permission of the Council from the Proceedings of the Society.]

Introduction.—The convenience of the photographic plate as a recording instrument, in that it not only makes a record, but also integrates impressions which are individually too faint to be observed, is so manifest that to a continually greater extent physicists are designing instruments for use solely or chiefly by photographic methods.

It is curious to note that while the resolving power of physical instruments generally has been completely investigated, very little indeed has been published upon the resolving power of the plates used as recording instruments.

In considering the resolving power of a photographic plate it is, of course, necessary to deal with the linear resolving power, so that we may define the resolving power to be the distance which must separate two lines of light falling upon the plate in order that the developed image may be recognised to be that of two separate lines.

This resolving power will then give the distance by which, *g.*, the images of two spectral lines must be separated in order that they may be recorded as separate lines, or the images of a double star in order that it may appear double. It is clearly of no use to obtain a higher resolving power in an instrument than the plate used in that instrument will possess.

The only attempt to state this resolving power appears to be that of Wadsworth.¹ Wadsworth states that two lines can be separated if between the particles in the maxima of the lines there are one silver particle and two spaces—that is to say, the linear distance between the two maxima or centres of the lines is equal to four times the diameter of a particle. If the diameter of a particle be called *e*, then we may assume that for photographic resolution it is necessary that the linear distance between the centres of the lines be equal to $4e$.

E. C. C. Baly² states that *e* may be taken as lying between 0.005 to 0.025 mm. This statement is not confirmed, however, by other workers. Sheppard and Mees³ give grain as varying from 0.0011 to 0.0034 mm., which figures agree with those given by Schaum and Bellach.⁴ It is not difficult to make slow plates in which the grain does not exceed a diameter of 0.0005 mm. According to Wadsworth, these plates should therefore resolve lines which are not more than 2,000 of a millimetre apart.

As rough experiments showed at once that the resolving power of such plates did not exceed about 1/20 to 1/40 of a millimetre, the subject was thoroughly investigated in the manner to be described.

Apparatus.—A box was constructed of 16 cm. square section and 330 cm. length. This was screwed to a platform fastened to two heavy beams set edgewise, and the whole was suspended by ropes from the roof, thus eliminating vibration. At one end were arranged an illuminating Nernst lamp and condenser, together with the holder where the slit and gratings shortly to be described were placed. At the other end was screwed a camera built of heavy brass tube, and containing a spectroscopic objective of 15 cm. focal length actuated for focussing by a very slow motion screw. The camera and objective were specially made by Messrs. Adam Hilger, Limited, for the work, and the latter has proved perfectly satisfactory, the images formed by it showing no degradation when examined by a microscope with an enlargement of 100 diameters. The images used in this work were always axial, and did not exceed 3 mm. in diameter. Microscopic examination justified me in assuming that the definition of the image was perfect. At the back

¹ "Spectroscopy," p. 339.

² "Roy. Soc. Proc.," A, vol. 76, 1905, p. 218.

³ "Die Struktur der Phot. Neg."

¹ "Astrophys. Journ.," vol. 3, pp. 188 and 321, 1896.

of the camera tube was a brass face-plate against which the brass front of the dark slide fitted. The plates were forced up into a constant plane by springs at the back of the dark slide. The whole apparatus consisted in essence, therefore, of a reducing camera arranged to give a reduction of about 22 diameters, and to maintain a very exact focal plane.

The Slit.—In order to discover what happens to a narrow line of light falling upon a plate, a spectroscopic slit was arranged at the end of the apparatus, and in front of the slit was placed a wedge of neutral black glass giving a variation of intensity in the length of the slit of about 1 to 60. The slit was 9 mm. long and 1 mm. in breadth, and the image was there-

Photomicrographs of the "tadpoles" obtained on various plates are shown below (Fig. 1).

Now the grains of these plates are of the following orders of magnitude:—

An "Extra Rapid" plate	0.0015 to 0.004 mm.
A medium-speed "Process" plate	0.0010 to 0.0015mm.
Homogeneous Grain (a special plate having all its grains of the same size)	0.0015 mm.
Chlorobromide plate	0.0008 mm.
A "Lantern" plate of silver bromide only	0.0004 mm.

It would therefore be expected that the amount of the irradiation would diminish steadily as the grain became smaller,

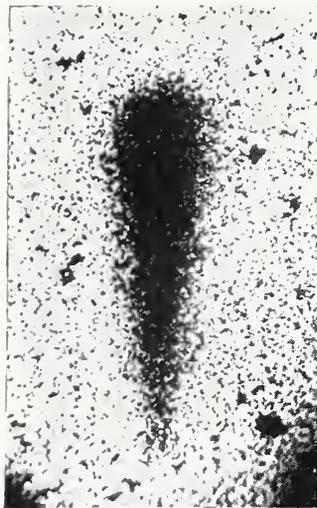


Fig. 1 (a).
Extra rapid plate.



Fig. 1 (b).
Process plate.



Fig. 1 (c).
Homogeneous grain plate.



Fig. 1 (d).
Lantern plate.

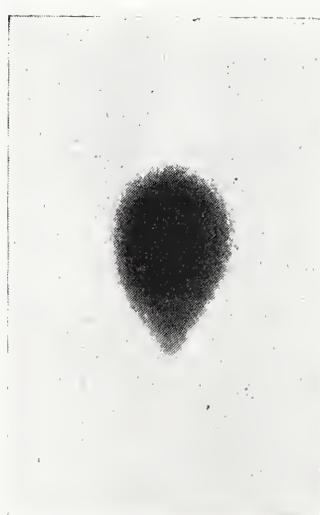


Fig. 1 (e).
Chlorobromide plate.

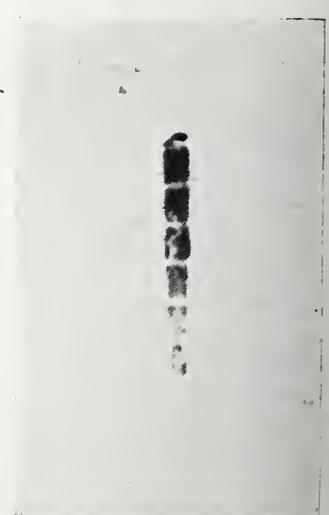


Fig. 1 (f).
Lippmann plate.

fore 0.5 mm. high and 0.055 mm. wide. Since the top of the slit was transmitting 60 times as much light as the bottom, the spreading of light by the film of the plate (which is usually known as irradiation) caused the developed image to appear of a "tadpole"-like shape.

Plates backed and unbacked were used; the backing makes no difference, the effects measured being of a different order from those produced by reflection from the back of the glass.

All the plates used were of the same thickness. In the case of fast plates the results are not affected, within considerable limits, by the thickness of the film. In the case of slow plates it is explained later that the thinner the film the greater the resolving power.

vanishing in the very fine-grained plates. This is seen not to be the case at all: the irradiation is at a minimum in the medium-grained "Process," and "Homogeneous Grain" plates, being greatest in the chlorobromide plate.

It would therefore appear that irradiation is not due to one simple cause, but in all probability to at least two causes. These two forms of irradiation might be:—

(1) Irradiation due to reflection, operating in the plates of coarser grain, and to a much less extent in the plates of fine grain. This is the only form of irradiation which appears to have been recognised hitherto.

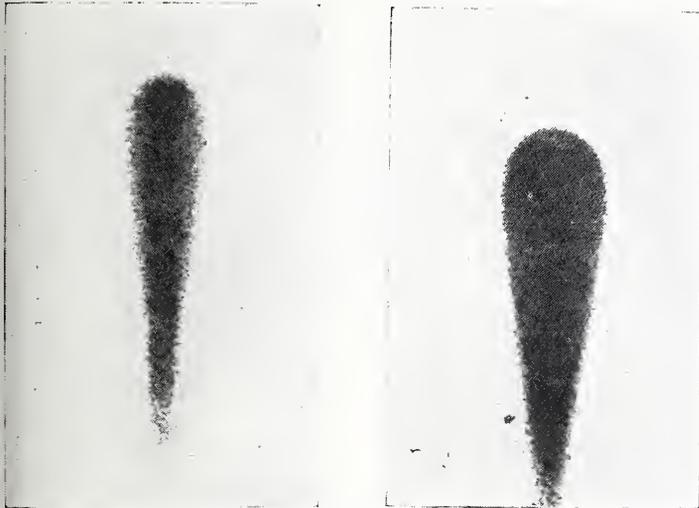
(2) Irradiation due to *diffraction*, operating in plates of fine-grain, and only to a small extent in those of coarse grain.

These two separate causes of irradiation would produce the effects observed, since, as the reflection scatter disappeared, the diffraction scatter would grow, probably producing a minimum of scatter where the reflection scatter was small and the diffraction scatter was also small; and the scatter finally becomes small again as the grain of the plate falls below the wave-length of light.

The effects produced by these two causes will differ:—

(1) Diffraction scatter will become less as the wave-length of the incident light increases. Reflection scatter will be unchanged by an alteration of wave-length.

LANTERN PLATE.



With α screen.

With θ screen.

Fig. 2.

tween the results on the "Process" plate, but that on the "Lantern" plate the scatter is normal with the θ screen, but is greatly diminished by the use of the α screen.

In order to examine the second possibility, a photomicrographic apparatus was arranged behind the small camera, so that by opening the back of the dark slide the appearance of the image as scattered by the film of the plate could be photographed. This appearance, as scattered by the "Process" plate, is shown in Fig. 3. No difference was observed in the image whether the front or the back of the film was photographed. But with a chlorobromide plate (Fig. 4) the scatter

PROCESS PLATE.



With α screen.

With θ screen.



Fig. 3.



Fig. 4 (a).



Fig. 4 (b).

(2) Diffraction scatter will be small upon the surface of the film, and will grow as the film is penetrated. Reflection scatter will be nearly constant throughout the film.

In order to investigate the first possibility, "Process" plates which were expected to show "reflection" scatter, and "Lantern" plates which were expected to show "diffraction" scatter were made sensitive to red light by bathing them in a solution of pinacyanol. Two screens were then taken, the one, α , transmitting red light of from 660 to 720 $\mu\mu$; the other, θ , letting light of from 400 to 450 $\mu\mu$; and the slit was photographed on the two plates through the two screens. The result (Fig. 2) shows that there is a very small difference, if any, be-

was small on the face of the film (4a) and great on the back of the film (4b).

We may therefore conclude:—

(1) That the resolution of a photographic plate is dependent on the amount of irradiation displayed by that plate.

(2) That irradiation is not directly proportional to the size of grain, but is caused by two different forms of scatter arising from (a) reflection and (b) diffraction.

(3) That the resolving power is likely to be much smaller than that indicated by the theory of Wadsworth.

In order to experimentally determine the resolving power, a series of black and white line gratings were constructed

having alternate black and clear lines of equal width, the width of the clear glass being as in second column of table.

Grating.	Width of clear line in millimetres.	Distance apart of lines on plate in millimetres.
1	0.88	0.049
2	0.64	0.036
3	0.47	0.026
4	0.36	0.020
5	0.32	0.018
6	0.29	0.016
7	0.14	0.0078

After reduction in the camera (the grating being put in the

shows effect on "Process"; (b) on "Lantern" with red light; (c) on "Lantern" with violet light.

II. On the "Process" plate and on the "Lantern" plate with violet light (460 to 400), No. 5 grating is just resolved. No. 6 not resolved. Fig. 6—(a) "Process" plate, No. 5 grating; (b) "Lantern" plate.

III. With screen on "Lantern." No. 7 just resolves.

Fig. 7, a.

With (560 to 520). No. 6 resolves. Fig. 7, b.

With (520 to 470). No. 6 is just resolved (very faintly).

Fig. 7, c.

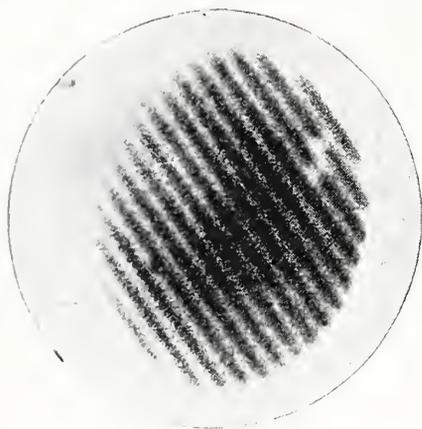


Fig. 5 (a).

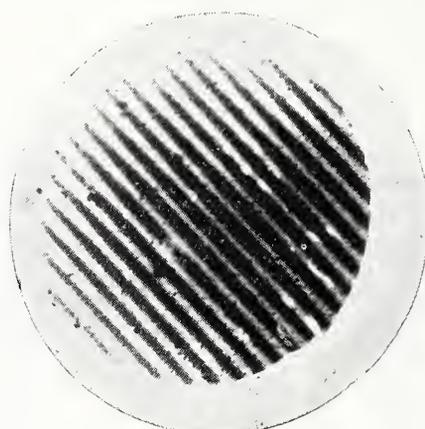


Fig. 5 (b).

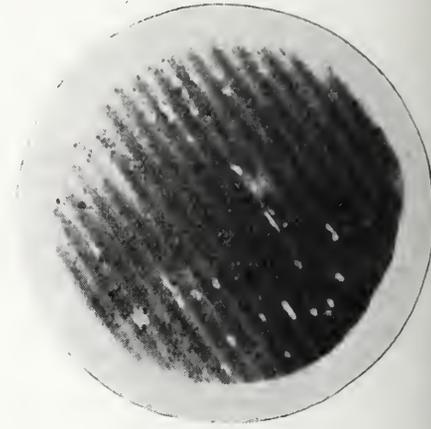


Fig. 5 (c).

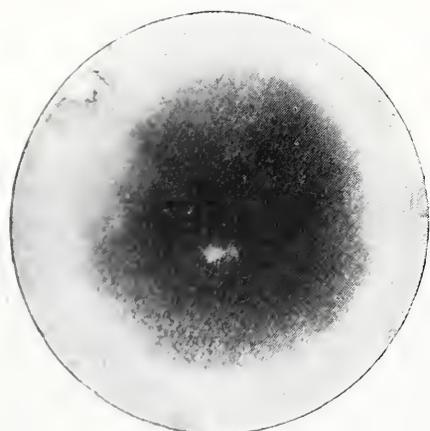


Fig. 6 (a).

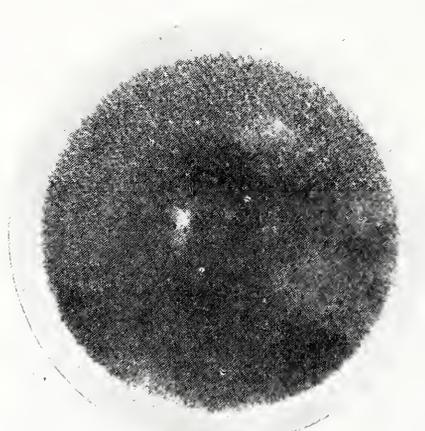


Fig. 6 (b).

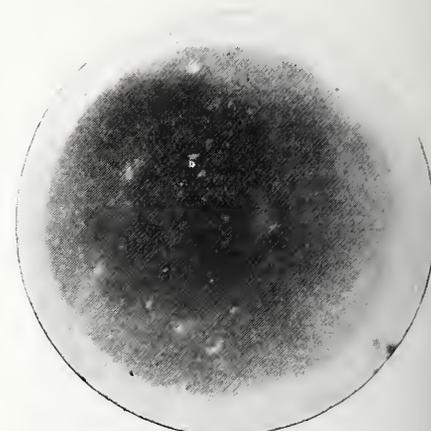


Fig. 7 (a).

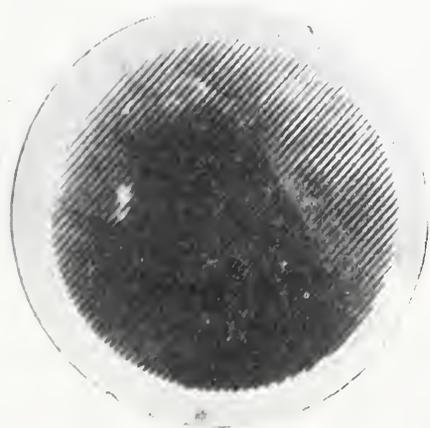


Fig. 7 (b).

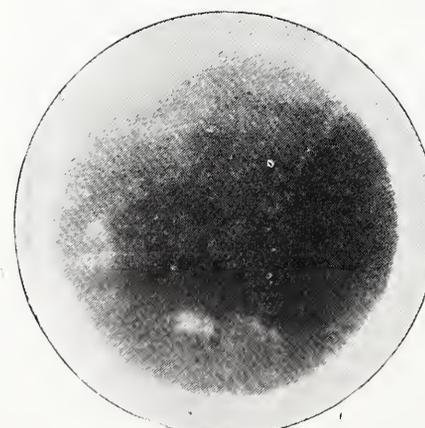


Fig. 7 (c).



Fig. 8.

place of the slit), these produced images in which the width of the black space (the distance between two lines) was as in third column.

These gratings were then photographed upon the various plates and the effect observed. Some of the actual results obtained are shown as photomicrographs in Fig. 5:—

I. Grating I was resolved by all the plates. Fig. 5—(a)

So that the limit of resolution possessed by dry plates chemically developed may be stated to be as follows:—For an ordinary fine-grained plate, lines will be just resolved if they are separated by 0.018 mm. (For a coarser grain, as in all fast plates, about 0.030 mm. is necessary.)

For very fine-grained plates for violet light, 0.018 mm. will be resolved; with red light, 0.008 mm. may be discerned.

The resolution on the surface of a fine-grained plate will obviously be much greater than this, as is shown by the very high resolving power possessed by the fine-grained "albumen" plates which are developed by the deposition of silver from an acid silver solution.

In order to discover whether or not a similar advantage would be shown by gelatine plates when developed in the same manner, the experiments on the resolving power of "Lantern" plates were repeated, the plates being developed in a solution suggested by Lüppo-Cramer, namely:—

Metol	2 grammes.
Citric acid	10 grammes.
Water	100 ccs.

To which is added, just before use, 10 ccs. of 10-per-cent. solution of silver nitrate.

Although plates so developed show no trace of grain under 1/10-inch objective, yet the resolving power is not greater than in plates developed in the ordinary way.

This method of development enables us, however, to utilise gelatine plates having a very much thinner film than would otherwise be possible, and there was prepared on these lines a special plate, having the fine-grained lantern emulsion coated very thinly, and made panchromatic by bathing in pinacyanol. These plates are more sensitive to red than to blue, and seem to be suitable for photographic use in spectrographs of small dispersion.

With violet light it just resolves grating No. 7, corresponding to lines of 0.008 mm. separation; with red light, lines of

0.004 mm. separation can be resolved. Fig. 8 shows grating No. 7 with red light on the special plate.

Application of these Results to Spectroscopy.—We have seen that in order to be resolved by an ordinary plate, lines need to be separated by 0.03 mm. Now, in the first order of a 6.5-metre focus Rowland grating of 14,438 lines per inch, 0.37 mm. length of the plate corresponds to 1 A.U.⁵

The plate will therefore just resolve lines separated by 1/10 of an A.U. Now, for a 5-inch grating the resolving power will be 75,000, or (at 5000 A.U.) 1/15 of an A.U. So that the limit of resolving power is fixed, even for spectroscopes of great dispersion, by the plate and not by the resolving power of the instrument. In the case of small spectroscopes having a dispersion of about 500 A.U. to 10 mm. on the plate, the resolving power is limited to about 2 A.U. With the special plate, this can be increased to 0.5 A.U., corresponding approximately with the resolving power of such small instruments.

The work on the effect of irradiation upon the diameter and position of spectral lines, star images, etc., is being continued.

My best thanks are due to Mr. E. J. Denney and Mr. Kenneth Hunter, who have made a great number of the measurements and photographs required, and also to Mr. S. H. Wratten, who has made many experimental plates. I am indebted also to Dr. L. N. G. Filon for his interest and advice.

My thanks are due to Messrs. Wratten and Wainwright, Limited, for permission to publish this work, which was done in their Research Laboratory. C. E. KENNETH MEES.

⁵ Baly, "Spectroscopy," p. 212.

RECOMMENDATIONS AS TO COPYRIGHT LAW.

THE report of the committee appointed by the President of the Board of Trade to consider the revised International Copyright Convention, signed at Berlin in November, 1908, has been holding its meetings during the past summer, and its report has now been presented, and was published on Saturday last by H.M. Stationery Office at the price of 5d. It is obtainable from any bookseller, or from Wyman and Sons, Ltd., Fetter Lane, E.C.; Oliver and Boyd, Tweeddale Court, Edinburgh; and E. Ponsonby, 116, Grafton Street, Dublin. The committee was presided over by Lord Gorell, its other members being the following:—Sir Lawrence Alma-Tadema, Mr. G. R. Askwith, K.C., Mr. E. Cutler, K.C., Mr. T. E. Scrutton, K.C., Messrs. H. Granville Barker, William Boosey, C. W. Bowerman, Henry R. Clayton, Henry Cust, Anthony Hope Hawkins, W. Joynson-Hicks, Algernon Law, Frederick Macmillan, Walter Raleigh, and E. Trevor Ll. Williams.

The duty of the committee was to examine the various points in which the revised International Copyright Convention, above referred to, was in any accordance with the law of the United Kingdom, and to consider in each case whether that law should be altered so as to enable His Majesty's Government to give effect to the revised Convention. General considerations of literary, musical, and artistic copyright occupied the committee, and one of the most debated subjects was the reproduction of musical works by devices such as gramophones and mechanical pianos.

Photography figures perhaps next in order of prominence among the matters which were specially raised. Among the witnesses called were Mr. E. C. Elliott, of Messrs. Elliott and Fry, who, with Mr. George W. Agnew, Mr. Edwin Bale, Mr. D. Croal Thomson, Mr. V. Reynolds-Stephens, and Mr. H. A. Voysey, represented the Artistic Copyright Society. Mr. A. L. Coburn and Mr. G. Davison were called in reference to certain views as to copyright in photographs.

We refer, in an article on another page, to the recommendations made as regards photographic copyright by the committee, and we give here the extracts from the report which deal particularly with these items. The complete report, it may be mentioned, contains a very useful summary of previous copyright legislation, and also an appendix which shows the revisions carried out in the Convention

last year, as compared with the Berne Convention of September 9, 1886. (In setting out the articles of the Revised Convention, the provisions of the Revised Convention which differ from those of the Berne Convention and the Additional Act of Paris, to which alone Great Britain was a party, are shown in thick type.)

Art. 3.—The present Convention shall apply to photographic works and to works produced by a process analogous to photography. The contracting countries shall be bound to make provision for their protection.

It will be noticed from a perusal of this article, compared with the corresponding provisions of the Additional Act of Paris, that an alteration is made in the present article to the effect that it will be obligatory on the contracting countries to make provision for the protection of photographic works. Photographs are protected in the United Kingdom under the provisions of the Fine Arts Copyright Act, 1862, but there is no reference therein to processes analogous to photography, if there are any such. The Act also requires registration, see section 4. The 4th section of the International Copyright Act, 1886, dispenses with registration in the case of foreigners to whom an Order in Council applies. It therefore appears to the Committee that, except so far as required to give protection to works produced by processes analogous to photography, no change in the present state of the British law is necessary to give effect to this article, but it is quite obvious that an amendment of the British law would be required in order to place the law of this country as related to its own inhabitants on the same footing as that which would apply to the position of foreigners.

The Committee accordingly recommend that this article should be adopted, and that the British law should be altered with a view to bringing about general uniformity.

In this connection it may be noticed that a question may arise as to who is the author of a photograph or to whom the copyright belongs in the case of a company. So far as these matters affect the duration of the copyright, they may more properly be dealt with under Art. 7. We may, however, point out that it would be advisable in dealing with the protection of photographs to provide for the copyright remaining with the author unless it is agreed in writing to the contrary, except in the case of a person who orders a

photograph to be produced for him, and that in that case the copyright should, on completion of the terms of the order, become the property of the person giving the order, unless there is an agreement in writing to the contrary. If this view be adopted it would be necessary to alter the provision contained in the Fine Arts Copyright Act, 1862, section 1. Similar observations may be made with regard to dealing with the protection of works produced by processes analogous to photography.

Art. 4.—Authors who are subjects or citizens of any of the countries of the Union shall enjoy in countries, other than the country of origin of the work, for their works, whether unpublished or first published in a country of the Union, the rights which the respective laws do now or may hereafter grant to natives as well as the rights specially granted by the present Convention.

The enjoyment and the exercise of these rights shall not be subject to the performance of any formality; such enjoyment and such exercise are independent of the existence of protection in the country of origin of the work. Consequently, apart from the express stipulations of the present Convention, the extent of protection, as well as the means of redress secured to the author to safeguard his rights, shall be governed exclusively by the laws of the country where protection is claimed.

The country of origin of the work shall be considered to be, in the case of unpublished works, the country to which the author belongs; in the case of published works, the country of first publication; and in the case of works published simultaneously in several countries of the Union, the country the laws of which grant the shortest period of protection. In the case of works published simultaneously in a country outside the Union and in a country of the Union, the latter country shall be considered exclusively as the country of origin.

By "published works" must be understood, for the purposes of the present Convention, works copies of which are issued by a publisher. The representation of a dramatic or dramatico-musical work, the performance of a musical work, the exhibition of a work of art, and the construction of a work of architecture shall not constitute a publication.

Par. 2 of the Article makes considerable alteration in the provisions of the Berne Convention, Art. 2, par. 2, under which compliance with the formalities (if any) imposed by the country of origin is a condition of protection in other countries, and it is a question for consideration whether all formalities should be done away with in accordance with the new provisions introduced by Art. 4, par. 2 of the Revised Convention.

On general principles there seems to be no reason why owners of copyright should be required to comply with formalities which are not imposed in most other cases of ownership of personal property. Anyone who copies the products of an author's genius ought to be taken to be doing so at his own risk.

The present requirements of British law as to registration are anomalous, uncertain, and productive of great disadvantage and annoyance to authors, with little or no advantage to the public. In some cases registration is required as a condition of suing, in others it is not; in some cases proceedings can be taken for infringements committed prior to registration, in others they cannot. Special reference may be made to the requirements of registration in the Musical Copyright Act, 1906, which appear to extend to foreign authors claiming by virtue of the Berne Convention, as well as to British authors. It would seem to be a question whether, although registration is necessary before proceedings can be taken under this Act, infringements committed prior to registration are not liable to its penalties.

The Committee fail to see what advantage to the public can be expected from systems of registration which are particularly onerous in the case of foreign authors, and if abolished for them should equally be abolished for authors of our own country.

One of the witnesses laid stress on the importance which he attached to the requirement of registration (in regard to photographs) as a means of ousting frivolous claims for damages if it should not have been effected. But it seems to the Committee that this example serves rather to illustrate the unfairness to authors of making their ability to enforce their rights depend on compliance with a technicality.

The present requirements of the law under section 1 of the Fine

Arts Copyright Act, 1862, with regard to the first assignment of copyright in artistic works, amount to a formality which presses hardly both on British and on foreign authors.

Art. 7.—The term of protection granted by the present Convention shall include the life of the author and fifty years after his death.

Nevertheless, in case such term of protection should not be uniformly adopted by all the countries of the Union, the term shall be regulated by the law of the country where protection is claimed, and must not exceed the term fixed in the country of origin of the work. Consequently the contracting countries shall only be bound to apply the provisions of the preceding paragraph in so far as such provisions are consistent with their domestic laws.

For photographic works and works produced by a process analogous to photography, for posthumous works, for anonymous or pseudonymous works, the term of protection shall be regulated by the law of the country where protection is claimed, provided that the said term shall not exceed the term fixed in the country of origin of the work.

The proposal in the first par. of Art. 7 is new to British law, and considerable discussion has arisen before the Committee as to the advisability of acceding to the grant of a lengthy protection such as is contemplated by this paragraph. On the one hand it has been contended that, without such an extended term, authors do not in all cases receive adequate protection, especially for the more important class of works, and instances of these have been given in evidence before the Committee. On the other hand, it has been contended that such a period of protection as that suggested is detrimental to the public interests and possibly to some trades, but after very careful consideration of the matter, the Committee have come to the conclusion that it is desirable to accede to this proposal. In the case of works of a short term of popularity, practically no difference would in effect be made by adopting this proposal, and in the case of more important works which should receive a lengthy protection it seems desirable that such protection should be afforded.

Par. 3 leaves the law of the country where protection is claimed to provide for the duration of protection for photographic works and works produced by processes analogous to photography, for posthumous works, and for anonymous or pseudonymous works, provided that the said term shall not exceed the term fixed in the country of origin of the work; and therefore it will be open to the British Legislature to make special provisions for the term of protection for such works although par. 1 may have been adopted. The considerations to which we have referred under par. 2 would seem to apply here, and it appears that Great Britain may, in carrying out the Revised Convention, give for protection the lesser of two periods (if there be any difference), i.e., the period given by the domestic law of the United Kingdom and by the country of origin, but may give a longer period than that of the country of origin.

The Committee make the following recommendations with regard to the works mentioned in para. 3:—

Photographic works and works produced by processes analogous to photography are specially dealt with, because, while certain countries—England, for instance—recognise no difference between photographs and other works of fine art, other countries, notably Germany, treat them exceptionally.

In the United Kingdom photographs have always been regarded as works of fine art, and when copyright protection was given to the latter in 1862, photographs were placed on precisely the same footing.

Evidence was given by certain witnesses in favour of giving to photographs a fixed term of 50 years from publication rather than a term of life and 50 years, owing to the alleged difficulty of determining the author, but the Committee, on the whole, see no reason for making this suggested distinction, and accordingly recommend that a term of life and 50 years shall be given to photographs and works produced by processes analogous to photography generally.

In order, however, to meet the practical difficulty of determining the author in the case of photographs produced by a company or a firm, we suggest that when a photograph is produced by an individual author who takes it himself or personally superintends and directs its production on his own account, he should receive the same protection as the actual producer of any other work of fine art.

...t, viz., life and 50 years, but that where a person is employed by another, whether the employer be an individual, a firm, or a company, the employer should receive protection for the term of 50 years from publication. We suggest that works produced by processes analogous to photography should be dealt with in a similar manner.

Art. 14.—Authors of literary, scientific, or artistic works shall have the exclusive right of authorising the reproduction and public representation of their works by cinematography.

Cinematograph productions shall be protected as literary or artistic works if, by the arrangement of the acting form or the combinations of the incidents represented, the author has given the work a personal and original character.

Without prejudice to the rights of the author of the original work, the reproduction by cinematography of a literary, scientific, or artistic work, shall be protected as an original work.

The above provisions apply to reproduction or production effected by any other process analogous to cinematography.

The Committee consider that this Article is reasonable, and therefore recommend its adoption, although it introduces new matter into the area of protection, and that the necessary legislation for that purpose and for domestic purposes should be included in any enactment necessary to carry out the suggestions in this report.

A CRUCIAL TEST OF PLATINOTYPE PERMANENCY.
The permanency of a platinotype print has long been a truism. The test of time and the action of chemical reagents have combined to show that the image of a platinotype makes the latter the most permanent form of photographic impression, or, to use a phrase which

photograph—considerable differences exist between the paper or raw stock which forms the support of photographic impressions. And therefore there seems good reason for drawing attention to a most interesting case of photographic permanency, the examples of which, lying before us, show, not only the remarkable permanency of the picture produced on a platinotype print, but also the ability of the paper print itself to retain its qualities under the most trying conditions. The prints in question were made on ordinary cold-bath black platinotype paper, and were supplied by Mr. Thomas E. Howe, a professional photographer, of High Street, Chatham, to a member of the staff of the ill-fated cruiser, H.M.S. *Gladiator*, during the submergence of which vessel, from April 25 to October 4, they were exposed, with other property of the officers, to the action of seawater. The photographs had been originally mounted on fairly stout boards, but when recovered from the ship the whole of the mounts were disintegrated and separated from the surface paper, to which alone the prints still adhered. In the half-tone reproduction which we have had made of one of the examples, it is seen that, whilst the mounting paper has been totally ruined, the photograph is unaltered; as regards its quality and permanency (to which a half-tone copy cannot do justice), our readers must take it from us that they are, to all intents and purposes, those of a freshly made print. Such a record as this will perhaps not surprise those who have had other opportunities of noting the high degree of permanency of platinotype prints, but we have thought it well to refer to it at this length, as it is a case the particulars of which are fully authenticated by the owner of the photographs.

Photo-Mechanical Notes.

Half-tone Blocks from Transparencies.

In the early days of block-making it was quite the usual thing to make screen negatives from transparencies, and most establishments had a special transparency camera fitted with a large condenser, for this work. That was before the bad practice of "flashing" had become so prevalent, so that if any original of too strong contrast was sent, it was doubly photographed, an ordinary negative first made in order to compress the scale of contrasts within the limits of the screen process, from this a transparency was made and from that the screen negative. The advantage is obvious, as all the gradation and detail is secured, the only thing altered being the scale of contrast. To-day, with "flashing," the contrasts are reduced, but at the expense of detail and truthful gradation. Also the transparency camera is extremely useful when negatives themselves were sent or could be secured, because it so often happens that a better glass positive could be obtained from a negative than any form of paper print. This is particularly true of very thin negatives or films. Also, of course, positives themselves, such as lantern slides, could be reproduced direct, provided their scale of contrast was not too exaggerated. Nowadays we fear that if a positive is sent to an engraving house it is often the practice to make first a negative, and then a paper print, which means that a large amount of trouble is taken only to secure in the end an inferior result.

Even if no special transparency camera with a condenser is installed, it is easy enough to so arrange matters that glass positives can be worked from. A sheet of clean white blotting paper is pinned on the copy-board, the two lamps arranged, one at each side, to illuminate this as powerfully as possible, and then some sort of frame rigged up about 6 to 12 inches in front of the white blotting paper to hold the transparency. A nest of rabbetted frames to take all the usual size plates are a stock article with the material dealers. The outside one can be fitted to a home-made frame constructed even out of a packing-case. The negative is made without a prism or mirror, or putting the camera at right angles to the copy, because the reversal can be secured by turning the positive glass side to the lens instead of film side. There is no need to have any covering from the positive to the lens, as long as no direct light from the lamps enters the lens. In fact, the whole arrangement is of the simplest possible description, and one that must be adopted (or something similar) when an indirect three-light job has to be done. In this case it is impossible to ensure register from paper prints, so that glass positives have to be made. Any one habitually using glass positives for originals would soon come to the



...s often been employed to describe this high degree of permanency, as permanent as the paper on which it is made." We are afraid, however, that, eloquent as this last tribute is meant to be to the properties of platinotype photographs, it does not emphasize the fact that—quite apart from the chemical permanency of a

conclusion that it is much more easily possible to secure exactly what is wanted than from any form of paper print.

Modern Processes.

On Thursday last, at the Bolt Court School, the principal, Mr. A. J. Newton, lectured on "The Usual Processes of Reproduction," and dealt with the very great extent to which all these processes were now indebted to photography. Even the plates given away with the Christmas numbers of the illustrated papers, which were formerly entirely the work of the lithographic artist, now had some of the printings photo-mechanically produced.

He described the new Albert process as being extremely ingenious, and while allowing that it was capable of producing very fine work, of which he showed specimens, he did not see any theoretical justification for the claims made that it was superior to the processes now in vogue. The lecturer then went on to deal with the recent advances in rubber off-set printing, and showed numerous examples of the truly marvellous work now turned out by this type of machine, which he was sure would open new fields for photography allied to lithography.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

Applications for the following patents have been received from December 6 to 11:—

BROMIDE PRINTING.—No. 28,440. Apparatus for the rapid production of bromide prints. Alexander Good and Richard Lang Sims, 45, Thornton Avenue, Chiswick, London.

COPYBOARDS.—No. 28,448. Improvements in copyboards or easels, and in copy-holding appliances therefor, for photographic reproduction apparatus. Albert Nixon, 8, Quality Court, Chancery Lane, London.

DETACHABLE MOUNTING.—No. 28,449. Improvements in means for detachably securing paper, card, and other light objects to smooth impervious surfaces. Albert Nixon, 8, Quality Court, Chancery Lane, London.

CINEMATOGRAPHS.—No. 28,563. Optical lanterns and cinematographs. George Calvert, 100, Evering Road, London.

MAGIC LANTERNS.—No. 28,586. Improvements in magic lanterns. Henry Thomas Culliford, 110, St. Martin's Lane, London.

CINEMATOGRAPHS.—No. 28,714. Improvements in cinematograph apparatus. Reginald William James, 1, Queen Victoria Street, London, for Compagnie Générale de Phonographes Cinematographes et Appareils de Précision, France.

PRINTING DEVICE.—No. 28,786. New or improved device for use in printing from negatives on to photographic printing papers, postcards, or the like. John Grossart, 96, Buchanan Street, Glasgow.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

TIME-DEVELOPMENT THERMOMETER.—No. 12,120, 1909 (May 22, 1909).

The invention consists of a thermometer provided with a logarithmic scale, such that the time of development (at various temperatures of the developing solution) is directly indicated on the stem of the thermometer. The invention is supplementary to that of specification No. 22,456, 1907 ("B.J.," August 21, 1908, p. 646), in which is described apparatus for determining the relative times of development of photographic plates for different temperatures. This consists of two movable slides, one bearing a temperature scale and the other a logarithmic scale, which scales are adjustable to each other. But it is not essential that the thermometer should bear a temperature scale, and the present invention relates to a method of directly indicating the relative times of development of any photographic plates for different temperature, by means of the expansion of a fluid, by modifying the apparatus described in the preceding specification in either of two ways. In the first form the thermometer bears a single mark

thereon, which mark is set to the known time of development on the relatively movable logarithmic scale at the given temperature indicated by such mark on the thermometer.

The operator is thereupon guided not by the scale of the thermometer, but by the height of the fluid in the thermometer in reading off the time of development to be used. Figure 1 of the accompanying drawing shows a thermometer according to this part of my invention. As shown in this drawing the mark of the thermometer, for instance, is assumed to be fixed at 60 degrees, the fixed logarithmic scale for a medium plate is set to read 6½ minutes for development. Should the temperature increase so that the fluid rises in the tube say to 80 degrees, the reading on the logarithmic scale opposite the height of the fluid would be 3¼ minutes for the same class of plate. The logarithmic scale is made adjustable by making it as an endless band *a* passing over rollers *b* mounted in a skeleton frame *b*¹ suspended in the tube, the thermometer being provided with a cap *c*, which can be removed to operate this band by the fingers so that for other classes of plate, the setting of the scale can be adjusted and the readings varied accordingly.

The second form of construction, illustrated in fig. 2, relates to an application of the same principle for use with the logarithmic scale

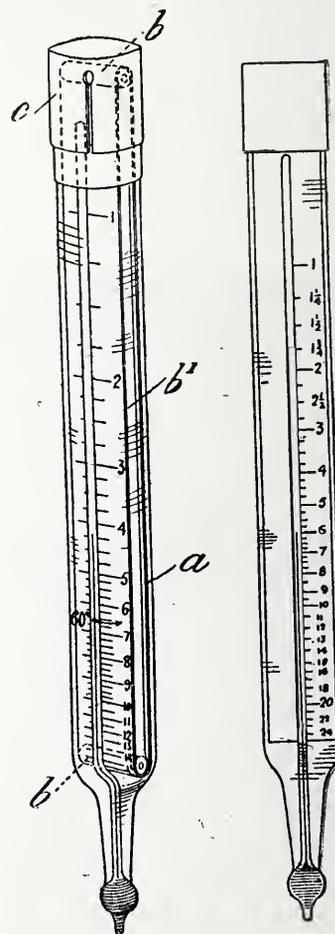


Fig. 1.

Fig. 2.

fixed in relation to the thermometer and not movable. In this case a certain time of development correct for a plate and a fixed dilution of a stated developer is fixed in relation to the height of the fluid at a standard temperature. As the temperature increases or decreases, the fluid in the tube rises or descends, and the operator then reads off the time of development opposite the height of the fluid and uses that particular time.

For example, as shown in fig. 2, assume that the thermometer so constructed that at a temperature of 60 degrees the height of the mercury in the tube is set opposite 6½ minutes development on the fixed logarithmic scale for a medium plate, and that the temperature rises to 80 degrees, the time on the logarithmic scale would be 3¼ minutes for the same class of plate and developer. The time of development will also be correct for certain other plates with other specific dilutions of the same developer, and these particular combinations can be indicated in the instructions issued

with the instrument and be printed on the back of the logarithmic scale or any other part of the thermometer.

When a scale is constructed entirely from experimental data, it may be found to depart somewhat from the logarithmic form, but it could still be used as part of this invention with sufficiently accurate results.

The logarithmic scale used in the above two constructions is prepared or calculated according to the instructions contained in the specification of previous Patent No. 22,456 of 1907. Alfred Watkins, Imperial Mills, Hereford.

DEVELOPING TANK.—No. 5,025, 1909 (March 2, 1909). The invention relates to a developing tank in which means are provided for the removal of the escape of the liquid contents from below, so that the tank may be used for washing negatives, etc.

The tank by which this is accomplished consists of two portions which may be telescopic, and each nearly of the full length of the whole box when closed. One—the outer—end of each of these portions is closed and provided with a mouth and stopper, say a screwed stopper, whilst within is a light-trap.

One part, *i.e.*, that having the lower end closed and fitted with a stopper, is preferably adapted to slide into the other, its exterior surface being adapted to slide on the interior surface of the other part, which is closed at the top, and provided there with a mouth and stopper and open at the lower end. In some cases, this outer box part is made to project at its open end beyond the smaller and inner box part, and the lower edge of this part will be the base of the box when complete, upon which it can stand; the stopper of the inner part lying within this projecting part. William Laurence Parkinson, 5, Commutation Row, Liverpool.

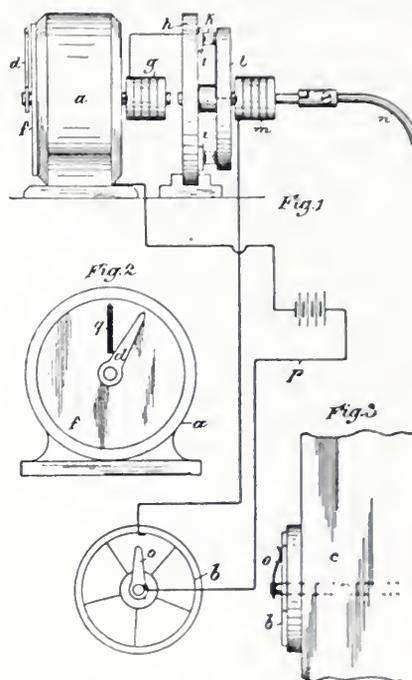
STEREOSCOPIC SHUTTERS.—No. 25,513, 1908 (November 26, 1908). In the newly invented shutter (intended chiefly for stereoscopic cameras), the movement of the shutter-leaves in one direction or in both, is operated by percussion by means of a percussion member which acts only with the shutter mechanism during the latter part of its stroke, with the result that it comes into action only when it has attained its maximum speed. By these means the inertia of the actuating mechanism cannot retard the action of the shutter mechanism.

The leaves are not subjected to any strain and may therefore be made exceedingly thin and of very light material, for instance they may be constituted of a thin plate of ebonite. Hence these leaves possess a very low inertia. Moreover, the displacement of these shutter leaves being effected by percussion, the inertia of the operating mechanism cannot cause any delay in this displacement since the operating organ does not act on the leaves until the moment when it has attained its maximum velocity. In these conditions the opening and closing of the leaves can be effected in a very short space of time, and in such a manner as to allow in all cases the leaves to remain at rest for a time when they are fully open whatever the speed of the instantaneous exposure. Jules Richard, 25, Rue Mélingue, Paris.

CINEMATOGRAPH-PHONOGRAPH.—No. 21,675, 1909 (September, 22, 1909). According to this invention the supervision of the synchronous running of cinematographs and photographs working together is obtained with the aid of an electric motor influenced by the phonograph, the shaft of the motor being provided with an indicating device. On the other hand, however, the motor is so influenced by the cinematograph that the latter opposes the rotation produced by the phonograph so that when the cinematograph and phonograph are actuated simultaneously, the motor must stand still. Consequently the indicating device also stands still, which is the indication of synchronous running. The standing still of the indicating device is obtained by the conductors from the phonograph collector to the motor passing a current which is turned by the cinematograph in the direction opposite to that of the rotation of the phonograph collector.

The axle of the electric motor *a*, the armature of which has five segments in correspondence with the five-part collector *b* of the phonograph *c*, carries a pointer *d*. This moves in front of a disc *f*. This motor is also provided with a five-part collector *g*. On a fixed disc *h* there are arranged in a circle five segments *i*, of which only two are shown in the drawing for the sake of clearness. On these segments slide contact rings *k*, which are mounted on a rotating disc *l*. With the latter

a five-part collector is connected which rotates together with the disc *l* and is connected by means of a rigid or flexible shaft *n* with the cinematograph. Each of the slip-rings of the collector *m* is connected with one of the contact springs *k* on the disc *l*, and likewise each of the segments *i* is connected with one of the slip-rings of the collector *g* of the motor. Finally, each of the rings of the collector *m* is connected with a segment of the phonograph collector *b*. In the drawing only one connection is represented. In the same manner the other corresponding parts are connected together. The contact-spring *o* of the collector *b*, which spring is rotated by the phonograph, is also connected with the motor by



means of a conductor *μ*, in the course of which a source of current is inserted and which forms the general return wire.

If the phonograph is started while the cinematograph is out of action the motor will start and the pointer *d* rotate. If now the cinematograph is also set running, then in consequence of the opposite rotation of the collector *l* the rotation of the motor armature is opposed and the rotation ceases, so that the pointer *d* remains at rest. On the disc *f* a mark *g* is provided which must be opposite the pointer when the machines run synchronously. It is the duty of the person attending to the cinematograph to rotate the machines at such a velocity that the pointer remains at rest opposite the mark *g*. A deflection of the pointer to the right or to the left indicates a disturbance in the synchronous running of the machines in the one or other sense. Jules Greenbaum, 22, Friedrichstrasse, Berlin.

COPIES OF BOOK ILLUSTRATIONS.—No. 14,502, 1909 (June 21, 1909).

The invention relates to the use of sensitive papers for making of copies by contact of illustrations, etc., in books, magazines, etc., where there is matter on both sides of the printed page. The method appears to be that of Payer, in which exposure is made through the sensitive paper and an image obtained, as the result of the different reflective power of parts of the original. The claim is for the use of a printing-out (chloride or cyanide) paper for this purpose, or for a platinum paper, the sensitive films being made to strip from their supports if so required. Gustav Kögel, Wessobrunn, Bavaria, Germany.

New Trade Names

AGEA.—No. 517,272. Chemical substances used in manufactures, photography or philosophical research and anti-corrosives. The Berlin Anilin Co., Ltd., 26, Princess Street, Manchester, chemists and druggists. October 15, 1909.

LEKOS.—No. 517,425. Photographic apparatus included in class B. W. Butler and Sons, Ltd., Camera House, Farringdon Avenue, London, E.C., photographic apparatus manufacturers. October 19, 1909.

Analecta.

Extracts from our weekly and monthly contemporaries.

Testing the Flatness of a Light-Filter.

THERE is one point in connection with the examination of a filter (writes Dr. C. E. Kenneth Mees in "Penrose's Pictorial Annual" for 1909-10) which is of considerable importance. It is necessary not only that a filter should be right in colour, but that the glass of which it is made shall be of such satisfactory optical quality that the definition will not suffer by the placing of the filter on the lens.

In order to test a filter for any defect in this respect, a piece of cardboard, from which white cross lines have been cut out, is placed so that it is well illuminated, and the image of the cross reflected in the filter is observed by holding the filter down and looking into it at the illuminated cross. When you examine, *e.g.*, a yellow filter in this way, you will see two images of the cross, one coming from the front surface, which will be white, and another coming from the back surface, quite yellow. If, as you move the filter about so that the cross falls on different portions of the filter, these two images remain constant with regard to each other, then the filter is only wedge-shaped and the double image does not matter, but if they vary with regard to each other, then the filter is not satisfactory and will produce distortion to some extent. Commercial filters at low prices cannot be made of the accuracy of lenses, but all filters should fulfil this test to this degree.

New Books.

"Harmonic Vibrations and Vibration Figures." By Joseph Goold, Charles E. Benham, Richard Kerr, and Professor L. R. Wilberforce. Edited by Herbert C. Newton. London: Newton and Co., 3, Fleet Street, E.C. 6s. net.

Though this book is credited to four authors, the bulk of the matter is by Messrs. Benham and Goold, both of whom are well known for the clever varieties of pendulum apparatus they have devised, while Mr. Benham is known also in the photographic world for his stereoscopic work, and especially for the application of stereoscopy to the harmonograph curves, several examples of which application are given in this book. There is, so far as we know, no other book published dealing with the subject of the harmonograph, and though the latter is one of the most fascinating instruments in existence, few people have ever seen it in action. Both Mr. Benham and Mr. Goold have devoted a very great deal of time to the perfection of the apparatus and the study of its effects, and there is little doubt that the strange and beautiful figures it produces contain a great deal of information with regard to the mysteries of the natural wave motion and vibrations which play such an important part, not only in photography, but in every phenomenon of nature. Vortex plates, the geometric pen, the Wilberforce spring, and synchronous springs all receive attention from the several authors; while one chapter is devoted to the optical projection of vibration figures on a screen. In this chapter, one method of projection devised by Mr. Lewis Wright and described in his "Optical Projection," is fully dealt with. There are, however, other rather simpler methods, such as the two described by Mr. Cecil M. Hepworth, in the "Lantern Record" Supplements to the "B.J." for June 5 and July 3, 1896, under the slightly doubtful title of "Sound Curves with a Lantern." We often wonder why these curves are not more frequently shown on the lantern screen at photographic societies. They are not difficult to produce, and are most fascinating to watch. Mr. Newton's preface contains the remarkable statement that two of the most famous scientific publishing firms in London declined the book on the ground that it could not be produced profitably. We are inclined to think that both these eminent firms have made a grievous blunder. This book was wanted badly, for there is no other like it, and it is of far more real value than many of the scientific text books which are presumably published at a profit. Messrs.

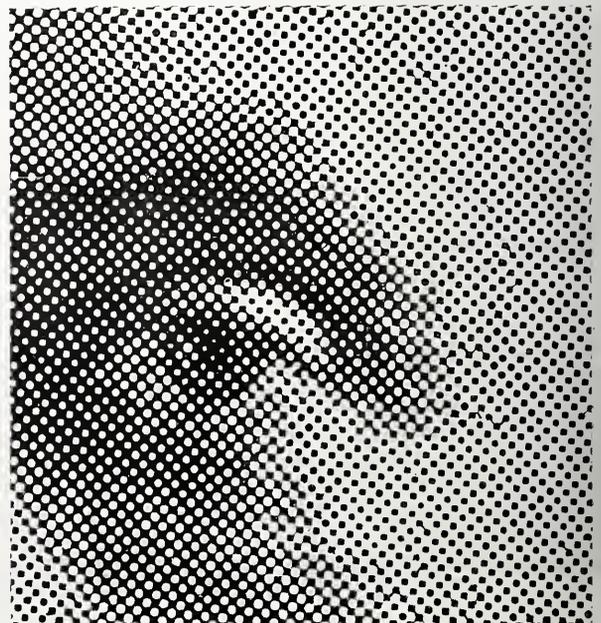
Newton are to be highly commended for the scientific spirit that induced them to ignore such discouraging advice, and we both hope and believe that they will find this book by no means unprofitable. It is very unfortunate that the publication of scientific books should be generally governed, not by the needs of students, but by the prospective profits of the publishers, and we are inclined to think that publishers who give so much consideration to the matter of profits are, after all, not proceeding on very sound business principles.

New Materials, &c.

BARNET "COLD TONE" LANTERN PLATES.—Messrs. Elliott and Sons, Ltd., have just issued a new brand of lantern plate specially for use in slide-making by reduction and giving transparencies of cold black tone. The plate is more rapid than the Barnet lantern plate hitherto issued either for cold- or warm-toned slides, and with a developer such as hydroquinone and caustic potash, which is one very suitable for making slides of cold tone, gives very bright and brilliant lantern slides of this character. The new brand is issued at the standard prices for lantern plates, and ought to find favour with slide-makers during the dull days of winter, when the exposures, in the case of negatives which are above the average in density are apt to run into inconveniently long times.

EDWARDS' MATT TRANSPARENCY PLATES.—Messrs. The Leto Photo-Materials Company, Ltd., send us samples of the new form in which they are putting out the well-known Edwards transparency plate. The "matt" plate, as it is named, contains the diffusing medium applied to the glass, so that in making transparencies for exhibition in windows, etc., no ground-glass is necessary. The plates can be bound up with ordinary glass from spoilt negatives, and the transparencies thus made are ready for exhibition. The emulsion is that of the Edwards special transparency plate, and, particularly for pyro-ammonia development, gives excellent results.

ELECTION POSTERS.—Messrs. Hood and Co., Ltd., St. Bride Works, Middlesbrough, send us several specimens of the large poster portraits which they are prepared to execute at the shortest notice from ordinary photographs. They are ready to send a specimen of this work to any photographer who may have the opportunity of securing an order for election posters, a piece of



business which, as Messrs. Hood rightly point out, may frequently be secured by him by virtue of his ownership of the copyright in a candidate's portrait. These specimens, it should be mentioned, are printed without Messrs. Hood's name upon them, so that they may be displayed in the window or shown to intending customers.

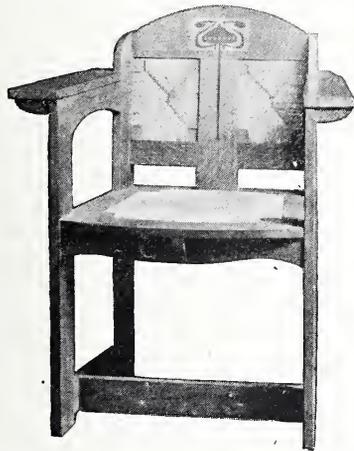
The section from one of these large half-tones gives an idea of the scale on which the portraits are produced.

"PHOTOGRAPHIC PROGRESS."—From No. 7 of this publication, which has just reached us, we observe that the editorial staff (of which Mr. Thomas Bedding was a member) formerly responsible for its production, appear to have relinquished their duties. The size of the magazine has been reduced, the editor is now Mr. A. K. Boursault, and the publishers the A. M. Collins Manufacturing Co., of world-wide mount fame. Our contemporary has not lost in interest from these changes, and in its current issue well sustains its claim to cater exclusively for the professional photographer.

New Apparatus, &c.

Studio Furniture, Etc. Sold by John J. Griffin and Sons, Ltd., Kingsway, London, W.C.

Messrs. Griffin have recently shown us some selections from their large variety of studio furniture, which are pleasing, because free from any taint of sham. The day is largely gone by when a photo-



grapher can afford to place in his studio the imitation rock-work seat and like accessories which have done service in the past. The fact that many photographers will go even to the expense of genuine old furniture for the studio shows that there is a sense of what is likely to attract a certain class of sitter. Fortunately, models of old furniture and designs in modern style are plentiful at a moderate price,

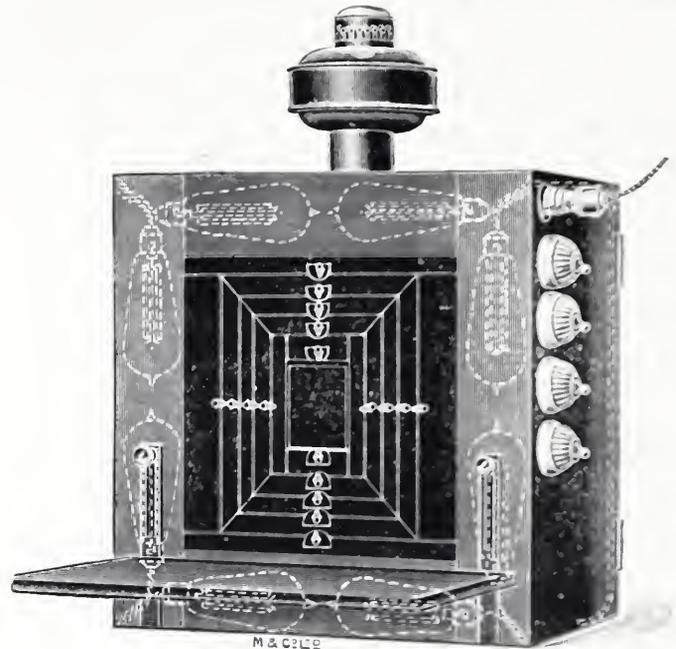


and therefore attention may be drawn to one particular article of Messrs. Griffin's, which satisfies the requirements of modern furnishing. This is the "Unique" chair, made in fumed oak, with broad arm-rests and panelled upholstery. The price is £2 10s. Messrs. Griffin have also introduced several seats and pieces of furniture specially for children's portraits, one of which, the "Doris,"

we illustrate. The finish is white enamel, with silk upholstery, and the set of two chairs and table at £1 17s. 6d. provides a useful means of posing small groups of children.

The "Robinson" Enlarging and Copying Apparatus. Made by Marion and Co., Ltd., 22 and 23, Soho Square, London, W.

In this piece of apparatus the photographer secures the means of illuminating negatives from 4-plate up to 12 by 10. for both enlarge-



ment and reduction, whilst the apparatus also serves with great efficiency for copying originals, such as drawings, documents, etc., or even small objects which have to be photographed for catalogue illustration. This double purpose is fulfilled by providing the illumination by reflection, the light being that of eight of the new metal-filament lamps. These are contained around the front of the enlarging chamber in the position shown in the white dotted lines in the drawing, and are controlled by the four switches seen on the right, so that the light may be produced either from top or bottom or from either side separately, whilst with all eight lamps in action a remarkably powerful and even illumination is produced. In this respect the cabinet may be said to provide the facilities of daylight, but with much less trouble of control.

For enlarging or reducing, that is to say for copying a negative or transparency by transmitted light, a white-surfaced metal reflector is used of size 20 inches square, sufficient to give even illumination over the full 12 by 10 plates. This reflector can be removed from the back door of the apparatus, and the latter, on being closed, then provides a perfectly black copy-board on which prints, etc., may be placed and thus strongly illuminated without the reflected light from the margins in any way prejudicing the brilliancy of the results.

As will be seen, the front of the apparatus carries a shelf which can be raised to a level with the negative, be the latter large or small—and thus support an ordinary camera which makes, with the illuminating chamber, a very efficient artificial light enlarger. It will be understood that the up-and-down movement of this shelf fulfils the purpose of the moving stage of the ordinary enlarging lantern, whilst the focussing cloth, thrown over to form a junction between the back of the camera and the apparatus, serves quite efficiently to exclude stray light from the enlarging room.

After having had the apparatus in use, and having seen for ourselves the really strong illumination which it gives we have every confidence in recommending it, particularly to the professional photographer, on grounds both of efficiency and economy. Many professionals shirk the trouble of rigging up a daylight apparatus when enlarging from negatives of whole-plate and larger sizes, but with the "Robinson" apparatus they have only to make use of the camera with which the negative itself was taken, and can thus do such enlarging work at any time and without incurring the expense of condensers of the large size necessary to cover a 12 by 10 negative.

The whole apparatus—with the photographer's camera dismantled

from it—occupies comparatively little space, the body measuring only 22 inches square and 13 inches deep. Above this is a light-trapped cowl (removable and packing inside the case), 8 inches in height. Complete with the eight 50-candle-power metal filament lamps and 17 ft. of flexible connection, the price of the apparatus is £6 10s. This includes the shelf for support of the camera, and the set of carriers seen in the drawing to accommodate quarter, half, whole-plate, 10 by 8, and 12 by 10.

CATALOGUES AND TRADE NOTICES.

THE PROFESSIONAL PHOTOGRAPHER.—The December issue of our contemporary, issued by the Kodak Company, contains articles on the practice (and profit) of advertisement photography, on the use of Velox paper, and on a number of Messrs. Kodak, Ltd.'s seasonable introductions for professional workers.

CAMERAS AND LENSES.—Messrs. A. E. Staley and Co., 19, Thavies' Inn, Holborn Circus, London, E.C., have just issued a new edition of their list of Euryplan, Phaos, and other anastigmats, the artistic "soft" lenses for portraiture, reflex hand-cameras, shutters, Nettel focal-plane cameras, and the various Staley-Wheeler telephoto lenses and accessories. Every item in the list is a specialty of Messrs. Staley's, and therefore the catalogue which is sent for the asking, is worth getting.

PICTURE FRAMING.—Readers who make or take orders for picture frames should write to Mr. C. G. Engert, 17, Eton Street, London, N.W., for particulars of four most helpful charts published by him. These are: "The Actual Making of Frames at the Bench" (1s. 3d.), "What to Charge—How to Take Orders" (2s. 1d.), "Square Feet Indicating Chart" (1s. 7d.), for checking measurement of glass, etc., and "Gilding or Re-gilding," showing how to do it (3s. 1d.).

SUTER LENSES.—Messrs. A. E. Staley and Co., 19, Thavies' Inn, Holborn Circus, London, E.C., have now issued the first English list of the well-known lenses of Suter of Basle, the English agency of which they have taken over. Messrs. Staley are taking steps to bring before English workers the excellent properties of this series of anastigmats, of aperture from $f/5$ to $f/7.2$. The list also gives particulars of the Suter portrait lenses, telephoto attachments, and the very convenient casket set of anastigmats.

FORTHCOMING EXHIBITIONS.

December 4, 1909, to January 1, 1910.—Southport Photographic Society. Sec., J. McLellan, 2, Pilkington Road, Southport.

December 31, 1909, to January 8, 1910.—Wishaw Photographic Association. Sec., R. Telfer, 138, Glasgow Road, Wishaw, N.B.

1910.

January 26 to 29.—Bolton Camera Club. Entries close January 12. Sec., H. Mills, Higher Bank, Southills, Bolton.

February 1 to 5.—Norwich and District Photographic Society. Entries close January 18. Sec., J. T. Tanner, The Lodge, Bowthorpe Road, Norwich.

February 1 to 16.—Glasgow and West of Scotland Amateur Photographic Association. Entries close January 20. Sec., J. McKisack, 68, West Regent Street, Glasgow.

February 26 to March 12.—Edinburgh Photographic Society. Entries close February 12. Sec., J. C. M'Kechnie, 31a, Castle Street, Edinburgh.

April 5 to 9.—Sheffield Photographic Society. Secs., J. A. George and J. R. Wigfull, 14, Parade Chambers, Sheffield.

April 9 to 16.—Photographic Arts and Crafts. Sec., Arthur C. Brookes, 15, Harp Alley, Farringdon Street, London, E.C.

FATAL ACCIDENT TO MR. COLVILLE STEWART.—Those who have perused with interest and profit the contributions to a contemporary by Mr. Colville Stewart will regret to hear that, in consequence of a slight accident, it is unlikely that articles under this signature will appear with the same regularity as hitherto. At the foot of some notes by Mr. Colville Stewart on Lantern Experiments we read:—"Readers will be glad to know that Messrs. Butcher and Sons, of Camera House, Farringdon Avenue, E.C., supply a complete cabinet of chemicals and apparatus for experiments in the optical lantern similar to those described above by—Mr. Thorne Baker!"

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

TUESDAY, DECEMBER 28.

Royal Photographic Society. No meeting.
Blackpool and Fylde Photographic Society. "What can be Done with a Hand-Camera." C. P. Goerz, Ltd.
Glasgow Southern Photographic Association. Monthly Lantern Slide Competition.

WEDNESDAY, DECEMBER 29.

Balham Camera Club. "Large Prints from Small Negatives." W. F. Slater.
Croydon Camera Club. Conversational Evening.
Sale Photographic Society. Social Evening.
North Middlesex Photographic Society. Nomination of officers.

THURSDAY, DECEMBER 30.

Watford Camera Club. "Clouds in Landscape," by J. Linley.
Loughton and District Photographic Society. "Photographic Facts and Fallacies." Burroughs, Wellcome and Co.
Liverpool Amateur Photographic Association. Prize Slides of the 1909 Competition of the Affiliated Societies.
Leek Photographic Society. Nomination of Officers and Committee.
Rodley, Farsley, Calverley, and Bramley Photographic Society. "Pinhole Photography." J. R. Coulson.
The London and Provincial Photographic Association. "Screen Plate Colour Photography." H. Essenhigh Corke.
Weybridge and District Photographic Association. "Large Prints from Small Negatives." W. F. Slater.

ROYAL PHOTOGRAPHIC SOCIETY.

Meeting held Tuesday, December 21, Mr. Chapman Jones in the chair. Dr. Francis Ward delivered his lecture on "Photography as an Aid to Marine Biological Research," in the course of which he gave many valuable hints and suggestions to workers in this branch of science, illustrating his remarks by a number of very fine lantern slides. The lecturer laid great stress on the fact that any photographer, with ordinary care and intelligence, could obtain far more valuable records by means of his camera than an expert biologist could do by means of his pencil drawings, as the necessary handling of the delicate organisms, in the latter case, often led to injury and death, which rendered them useless as specimens owing to the change which immediately took place in their general characteristics. In the course of his own work, Dr. Ward stated that he frequently had recourse to anasthetics, putting a few drops in the water with the specimens, thus rendering them quiet long enough to enable him to give a short exposure showing full detail.

A hearty vote of thanks to the lecturer brought the proceedings to a close.

Commercial & Legal Intelligence.

THE SALE OF FLASH POWDERS.—The story of how "a Wesleyan Congress" was "scattered" in the Central Hall on Easter Monday by the explosion of a photographic flashlight apparatus was told in the Manchester County Court last week. Edgar Levin, 18 years of age, who, it was said, is an outside operator to Messrs. Lafayette photographers, of Deansgate, claimed damages through his father the Rev. H. Levin, of Elizabeth Street, Cheetham, for personal injuries sustained through the alleged negligence of F. Foxall, proprietor of the Rothwell Photographic Materials Company, of St. Mary Street, Deansgate. Mr. Acton was counsel for the plaintiff and Mr. Burgis for the defendant.

Mr. Acton said the plaintiff had occasionally to take flashlight groups of people at dinners and meetings. For some years he had purchased from the defendant for this purpose a certain flashlight powder, sold by the ounce and used by him for flash-lamp. On April 10 he called for an ounce of the powder, having to take a flashlight photograph of a Wesleyan Congress in the Central Hall. Mr. Foxall said he had none of the loose powder previously supplied but handed him instead a packet containing a bottle and a tin, each of which had a powder in it, saying it was much better and more successful, as it produced a whiter light. Mixing the powders according to the directions, the plaintiff went to the Wesleyan Congress put it in the usual way into the lamp, and applied the contrivance for blowing the powder into contact with the flame. There was a tremendous explosion, and the plaintiff was much injured. It occurred

tered the Wesleyan Congress, burned the clothing of some of them, and caused a great deal of alarm and confusion.

The plaintiff confirmed Mr. Acton's statements. For five days after the accident, he added, he had to remain in a dark room for fear of his eyesight being lost.

The defendant asserted that he certainly told the plaintiff explicitly to fire the powder on an open tray, and well above his head, by means of the "touch" paper enclosed in the packet. He gave these directions to all his customers, because he had been burned himself by the same powder at a Unionist demonstration. That, however, was not the fault of the powder. He had to place it on the balcony of the Free Trade Hall, and could not get far enough away, because of the pressure of people, and to shelter others he opened his coat and took the risk. It was, he added, a most elementary rule among photographers not to use compound flashlight powders in enclosed lamps, and that the plaintiff ought to have known better than to do what he had done.

Half a dozen expert press photographers gave evidence on the use of flashlight compounds.

Mr. Burgis said he agreed that in law a seller of such an article was bound to disclose the fact that it was dangerous, but he contended that this had been done both verbally and by the printed directions in the packet.

The Judge said it was quite clear that the powder sold to the plaintiff on this occasion was not similar to that sold previously, and used safely with the Todd-Foret lamp, and it was equally clear that the plaintiff was not an expert, and had relied upon the defendant giving him something similar to what he had used before. The only real defence lay in a piece of yellow paper, said to have been enclosed in the packet, and containing in big type a direction not to fire the powder "in any description of magazine or blow-through lamp." If it had been proved that this was actually in this packet the plaintiff could not have succeeded. The defendant had not only made no effort to prove it, but had even omitted to rely upon it when first called upon to answer the claim by the plaintiff. This accident might do good, the Judge added, if only in calling the attention of the public and the large number of young people purchasing these things to the need for being very careful in using them.

Judgment was entered for the plaintiff for £25, with costs on the scale of the £50 claimed.

NEW COMPANIES.

FRANK A. CHATWIN, LTD.—Capital, £2,000 in £1 shares. Formed to carry on the general business of photographers, etc. Signatories, R. W. Parker, 41, Church Street, Birmingham, and W. H. Newell, 20, Temple Row, Birmingham. First directors, H. Furze, Fore Street, London, and R. W. Parker, 41, Church Street, Birmingham. Remuneration, £50. Registered office: Forward Works, 30, Leopold Street, Birmingham. Private company.

News and Notes.

MESSRS. SANDERS AND CO., of 71, Shaftesbury Avenue, London, W., have issued a list of their charges for developing, printing, enlarging, etc., which may be obtained on application to the firm at the above address.

THE TELLIA CAMERA COMPANY advise us that they have fitted up at their premises, 68, High Holborn, London, W.C., a special show-room for the demonstration of enlarging apparatus, so that customers may see the actual working of any enlarger they wish to purchase.

PHOTOGRAPHIC SURVEY AND RECORD OF SURREY is organising a competition, in which are offered a silver plaque, a bronze plaque, and a certificate respectively for the three best photographic records connected with the county. Mr. R. Child Bayley will adjudicate, and all prints should be sent to 20, Tudor Street, E.C., on or before January 31, 1910, the envelopes being marked "Survey and Record Competition."

THE EDINBURGH PHOTOGRAPHIC SOCIETY announce that the annual open exhibition will be held from February 26 to March 12, 1910, the latest date for entries being February 12. Messrs. W. D. McKay,

H. W. Kerr, and F. P. Moffat have undertaken to act as judges, and pictures entered also for the exhibition of the Glasgow and West of Scotland Amateur Photographic Association will, if desired, be transferred to Edinburgh free of cost to exhibitors. Further particulars and entry forms (which will be ready shortly) may be obtained from Mr. J. C. M'Kechnie, 31A, Castle Street, Edinburgh.

FLASHLIGHT MISHAP.—At the end of Mr. Wyndham's meeting in the Drill Hall, Wolverhampton, last week, Mr. Harold Gordon Peat, photographer on the staff of a Manchester paper, was engaged in taking a magnesium flashlight photograph of the great gathering, when an explosion occurred, and the operator, with his face blackened, staggered back into the arms of a gentleman standing near. Colonel Waterhouse's motor-car quickly took him to hospital, where it was found that his eyes were seriously injured, part of his hair and eyebrows burned away, and his clothing scorched. Subsequently Mr. Peat was conveyed to Wolverhampton Infirmary for treatment.

CITY OF LONDON AND CRIPPLEGATE PHOTOGRAPHIC SOCIETY.—The eleventh annual exhibition will be held from February 21 to 25 inclusive, in the large hall of the Cripplegate Institute, Golden Lane, E.C., the latest date for receiving entries being February 4. Special attention is called to two of the open classes, namely, Class F, which is for straight prints from straight negatives, and Class G, for pictures in the oil, bromoil, ozobrome, or gum processes only. Silver and bronze plaques will be placed at the disposal of the judges, Messrs. Furley Lewis, F. J. Mortimer, and J. B. B. Wellington, for award, and the society's medal will be awarded to the best trade exhibit. Pictures will be sent to the South London Exhibition if so desired. Full particulars and entry forms may be obtained from the secretary, Mr. H. S. Cuming, Cripplegate Institute, Golden Lane, London, E.C.

GLASGOW AND WEST OF SCOTLAND AMATEUR PHOTOGRAPHIC ASSOCIATION.—This society will hold an open exhibition at 180, West Regent Street, Glasgow, from February 1 to 16, 1910, one of the four classes being set apart for photographs in colour by any process. All pictures submitted will first go before a selection committee, those selected and hung being judged by Mr. A. H. Blake, at whose disposal the Association plaque will be placed for award. Entries close on January 20, on or before which date entry forms, duly filled up and accompanied by the necessary fees, must reach the secretary, Mr. James M'Kissack, 68, West Regent Street, Glasgow. In the case of those pictures not accepted for exhibition the entry fees will be returned. All pictures sent to Glasgow which are also entered for the exhibition of the Edinburgh Photographic Society will, if desired, be sent from Glasgow to Edinburgh free of charge. Entry forms and further particulars may be obtained from Mr. M'Kissack at the above address.

ENSIGN SMOKING CONCERT.—Messrs. Houghtons Ltd. held their fourth annual smoking concert on Saturday evening last when the Prince's Hall of the Hotel Cecil was crowded by a company which included a number of leading members of the photographic trade:—Messrs. J. B. B. Wellington and H. W. Hall (of Wellington and Ward), Hubert Elliott and F. E. Greenwood (of Elliott and Sons, Ltd.), Thomas K. Grant (The Lumière N.A. Co.), Thos. Illingworth, R. J. Kinson (Chas. Zimmermann and Co., Ltd.), Leslie Clift (Hare and Co.). Mr. Edgar Houghton presided, and Mr. Phil Payne proved himself once again an impresario of the most accomplished order. From a programme, which entertained the company until a late hour, we must name the finished performance of Miss Clarice Mayne, the singing of Mr. Philip Ritte, and the delightful character sketches of Mr. Chas. Pond. During the interval a collection amounting to £9 10s. was taken in aid of the "Referee" Children's Dinner Fund.

At a later interval Mr. G. E. Brown, on behalf of the guests, thanked Messrs. Houghtons for their hospitality, and took the occasion to congratulate the firm of Houghtons Ltd. on their maintenance of a reputation which dated back to a period earlier than photography, to the year 1834, and to the foundation in the Strand, on the site of the present Gatti Restaurant, of the first photographic studio. He congratulated those in the firm on their association with a business which for so many years had upheld the best traditions of English trading, and he hoped that they might see Mr.

George Houghton with them on many succeeding anniversaries of that occasion.

Mr. George Houghton, in a short speech, referred to the early days of the business when he was with his father. He was pleased to be with them that evening, and to see the continued growth of the business, and both for himself and the directors of the company he expressed his thanks for the reception given to them. Mr. Edgar Houghton also responded, and subsequently moved a vote of thanks to Mr. Phil Payne and the artists, a vote which was assuredly well deserved.

NATURE PHOTOGRAPHIC SOCIETY.—On Saturday, December 11, at the Institute of Science, Art, and Literature, Leeds, Mr. John J. Ward, the well-known author, nature-photographer, and lecturer, presided at the inaugural meeting of the Nature Photographic Society, a society whose primary object is to form a fellowship amongst the growing band of nature-photographers in all parts of the world. Since the moment of its inception the society has proved an immense success, and already there are some thirty Fellows and Associates elected, including many distinguished men of letters, and some of the élite amongst nature-photographers. The president is Mr. Richard Kearton, F.Z.S.; vice-presidents, John J. Ward, F. Martin-Duncan, F.R.P.S., Henry Irving, and Oliver G. Pike, F.Z.S., F.R.P.S. The Council elected are as follows:—Ben Hanley, Stanley Crook, J. Digby Firth, F.L.S., F.E.S., Wm. W. Gaunt, Herbert Lazenby, H. Armytage Sanders, F.R.P.S., Bertram A. W. Stone, B.A. (Oxon.), M.R.C.S., L.R.C.P., Charles Kirk, G. H. Carter, and Miss M. A. Haviland. The secretary is Mr. Carl Edwards, Woodlesford, Leeds, who will be pleased to supply particulars to all who are interested.

Correspondence.

- Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.
- We do not undertake responsibility for the opinions expressed by our correspondents.

ENGAGING AN OPERATOR.

To the Editors.

Gentlemen.—Under the heading, "Engaging an Operator," in the "Answers to Correspondents" column of this week's "B.J.," we note you deal with a letter from "Fetched." We should not have troubled you regarding this, but being practically the only, or, at any rate, the principal, firm in Sheffield in this line of business, we are likely to suffer damage through publication of the same, notwithstanding your admirable comments. It has already occasioned remark. The facts are as follows, the most material having been withheld:—

The man was engaged by us from Birkenhead, as a canvassing operator, on a week's trial, at salary only, as you will see at the very commencement of the letter enclosed, this course having been forced on us by sad experience. If thought fit, a second week on the same terms to be served, before final engagement, if satisfactory, at 15s. and 10 per cent., terms which enable our men to average 35s. weekly during the summer by a clean and straightforward method of business.

A week's trial we take to mean a week's trial. He claimed to be a smart man, and one of his references described him as a first-class outdoor operator. We found he was neither the one nor the other, being, in fact, worse than useless, was disreputable in appearance, untidy in habits and work, and our charge hand complained of association with a man with so foul a tongue. Naturally, nothing of this was communicated to him on his dismissal, for obvious reasons, as you surmise.

15s. 6d. had been advanced to him up to Wednesday, and on Saturday morning first thing a further 6s. 6d., being his fare back to Sheffield, where he was engaged, as per receipt enclosed, was paid to him.

This he did not use, as he immediately obtained a situation in the same town with a rival firm, in somewhat the same line of business. Our disbursements on his account have totalled between 30s. and 40s., for which we have received no return whatever.

There seems to be no way to guard against loss through this floating army of duffers, rotters, and unemployables.—Yours truly,

AUSTRALIAN PHOTO COMPANY,

Arthur J. Martin, Proprietor.

Corner of Norfolk Street and St. Paul's Parade, Sheffield.

December 20, 1909.

[We quote side by side the statements made by our correspondent to (1) us; (2) the Australian Photo Company.

1.

They stated, when engaging me, the berth was permanent; so, of course, I accepted same.

2.

Should be pleased to come on week's trial, and would accept terms as quoted for same week.

We are willing to publish the above from the Australian Photo Company, but we must refuse to publish certain passages which follow, the substance of which is not relevant to the query addressed to us by "Fetched," though doubtless it is prompted by circumstances annoying to our present correspondents.—Eds. "B.J."]

THE MAKING OF A PHOTO-BUTTON.

To the Editors.

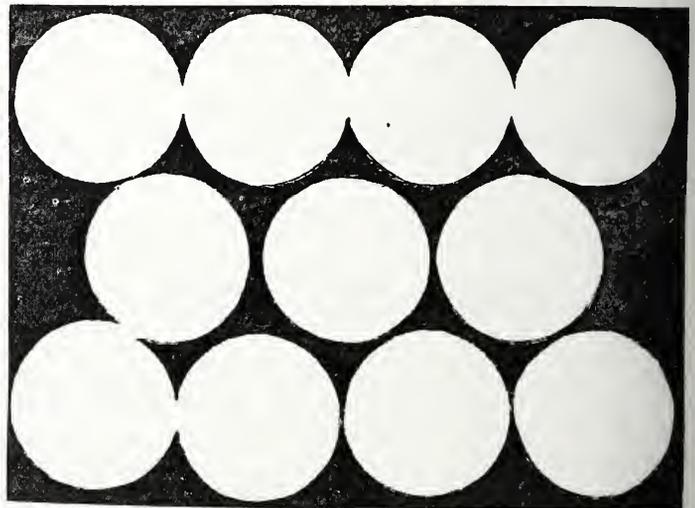
Gentlemen.—The reply to our letter re "The Making of a Photo-Button," by Messrs. Fallowfield, is interesting, as showing the shop-keeper's point of view as opposed to the manufacturer's. Whether exposing the plate, developing, fixing, etc., constitutes one or several operations (the same applies to printing, toning, fixing, etc.) does not matter much, as each reader will decide that for himself, and will be able to judge of the work required to produce a "button" at the small price which prevails. We are surprised that they did not reduce the operations to two:—

1. Making a print from copy.

2. Making button from print.

Simplicity itself, and a "liberal profit," as their advertisement says.

We can only look upon the statement that, if we used their parts, we could doubtless afford to sell the finished button "at a much lower figure," as damaging to our reputation, especially at the present time in a line which we worked long before Messrs. Fallowfield entered the market. We should like, therefore, with your kind permission, to give a few particulars of the art of making a photo-button.



Plan drawing arrangement of 11 buttons in half-plate. It will be evident that making 12 per sheet is cutting it too fine for all practical purposes.

We will take 1,000 as a unit of the popular penny button, 1½ in. in diameter, known as "50-lign size." In the first place, a multiple negative will have to be made, either 11 on a half-plate (12 is cutting it too fine for practical purposes), or 42 on a 12 x 10. The remainder is simple arithmetic. Supposing we decide to cut it fine, we shall then require 84 half-plate prints, leaving only a narrow margin of 8 spoilt buttons per 1,000. To turn out a decent button, the prints will have to be united to celluloid. This is omitted in the "abridged" operations, and we enclose samples to show the difference (which is very marked; the uncemented buttons look poor in comparison with the others.—Eds. "B.J."). This will take 84

sheets of celluloid, 7 x 5in. Now, if we take the cost, as per their list, we shall see how we can "doubtless afford to sell at a much lower figure," bearing in mind that they sell at 37s. 6d. to 45s. per 1,000, according to quantity and time.

7 gross 50-lign parts, at 3s.	£1 1 0
4 1-5 sheets celluloid, 36 x 20	0 7 0

Total for the button parts only £1 8 0

Leaving 17s., taking the highest figure, or 9s. 6d., taking the lowest, for the making of the multiple negative, cost of material and labour for making 84 half-plate prints, uniting same to celluloid, stamping out singly to size, and making into the 1,000 buttons, not forgetting waste, packing, booking, wear and tear of machinery, allowance for bad debts, rent, etc., the residue constitutes the "liberal profit," and we fail to see where it comes in, unless there is at least a 50 per cent. discount off their prices in the list. The reason we do not buy our parts from your correspondent will be obvious to anyone who compares the two lists, and we shall doubtless continue to make our own on the premises.—Faithfully yours,

DORRETT AND MARTIN.

16, Belle Vue Road, Upper Tooting, London, S.W.
December 20, 1909.

To the Editors.

Gentlemen,—Might I ask Messrs. Fallowfield, through your columns, what use there is for a roller and plate in photo-button making? I notice that they advertise one in their price list, but omit to mention it in the list of six operations. I have made a few buttons, and between operations Nos. 2 and 4, there seems to me to be others not mentioned. For instance, cutting the celluloid, sticking the print to same, punching it out, and placing a shell and back in the machine, all before covering the shell.

As I am fond of labour-saving, and find the number of necessary operations rather large for less than ½d., I should be glad if any of your readers can tell me how to do this in the one operation. Enclosed is my card.—Yours faithfully,

ANXIOUS ENQUIRER.

December 20, 1909.

ADVICES AS TO ROUTE ON INVOICES.

To the Editors.

Gentlemen,—I have read your interesting article, "Parcels and Their Transit" in current issue of the "B.J.," and would like to suggest an improvement which ought easily to be effected in the despatch of parcels and cases of goods.

It is an exceedingly common occurrence to receive invoices which give no clue as to which route goods have been sent. I have three instances myself this last week where goods on order were urgently wanted. I received one parcel by post two days after receipt of invoice, which proved conclusively that invoice had been sent before goods were ready. This obviously led me to think carriers were at fault. Further, I expected said parcel by passenger train on account of its weight, and, of course, I troubled the railway company unnecessarily. The other two cases are instances where the goods have now been invoiced five days, are no use as I could not wait any longer, but had to substitute something else. All this trouble would have been obviated if invoices had been marked "Per — Railway Co., Goods," or "Per L. and N.W. Railway Co., Passenger," or "Per Sutton." It would then enable one to apply for delivery without waste of valuable time, especially at Christmas. The extra amount of trouble is infinitesimal, and would not necessitate employing an extra staff of clerks at the warehouse. The idea could be worked by means of a series of rubber stamps at the hand of the invoice clerks. It is certainly time something was done.

It is worth an extra 5 per cent. to consignee, especially in out-of-way places like ours, to help him to waken up the right railway company, who go to sleep nine-tenths of their time. In fact, here one cannot have goods delivered unless one makes repeated applications for them, and then only as your writer says, "As an act of grace"—and a pint.—Yours truly,

G. TURNER.

Crown Studio, Esplanade, Scarborough.

Answers to Correspondents.

** All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

** Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

** Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.

** For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:

- A. H. Pain, 140, Manningham Lane, Bradford. Two Photographs of Mr. Wm. A. Hewins.
G. Denney, the Promenade Studio, Teignmouth. Photograph of Charles R. Buxton.
A. V. Ranford, 136, High Road, Lee, S.E. Two Photographs of Charles William Gardiner.
W. A. Thomas, 45a, George Street, Hastings. Two Photographs of R. Tweedy Smith, Esq.
Molly Forgan, 70, Tay Street, Perth. Two Photographs of Lord Provost McNab, Perth, in robes.

CHARBONELLE.—1. In an enclosed arc about 1,000 but visual measurements of candle-power are not much good. 2. We do not know. It is not a form in common use. If you can tell us more about it, perhaps we can say. 3. Address the Aerograph Co., 45, Holborn Viaduct, London, E.C., or the Airostyle Syndicate, 35, St. Bride Street, Ludgate Circus, E.C.

IRON CARBON PROCESS.—I have a recollection of having read, some years ago, of a carbon process in which the sensitiser rendered the gelatine insoluble and the light action produced solubility. In fact, the reverse of action of bichromate. I have searched high and low and can find no trace of such a process, and should value any help you could give me in the matter. To the best of my recollection, the article I have in mind appeared in the "B.J. Almanac" some twelve, fourteen, or more years ago.—E. B. E.

The process referred to appeared in the "Almanac" for 1889, page 365. It is also described in "Ferric and Heliographic Processes" (Dawbarn and Ward, Farringdon Avenue, E.C.). The process is that of Poitevin, and he obtained a patent (586, 1863), or rather a provisional protection for it. The specification can be seen at the Patent Office, or may be purchased for 8d. The process has not proved of much commercial value up to the present time.

FLASHLIGHT.—I have to take a flashlight group of about sixty or more in a large schoolroom, and I have a Busch Rapid Aplanat (12in.) working at F. 8. What quantity of "Agfa" powder will be necessary?—FLASH.

Impossible to say with accuracy, as much depends on the colour of the walls, but we should say about half an ounce of powder placed in a trail of, say, 18 inches or two feet in length.

COPYRIGHT.—Some months ago there appeared in the "Journal" a short agreement "re copyright" between photographer and sitter. I am wanting this now, and cannot find the number that it was in. Would it be any trouble to you to repeat this in next Friday's issue? I know it is against your rules to repeat, but if you can possibly favour me I will be obliged.—SNOW-STORM.

You probably refer to the form of assignment drawn up by the Professional Photographers' Association. This runs as follows:—"To Mr. Photographer,—In consideration of your allowing me a reduction from your usual terms for taking photographs of me or on my behalf this day, I hereby agree that the copyright in such photographs shall be reserved to you, and that I will not deal in any way with the photographs to prejudice

your interest in the copyright. Dated the — day of —, 190 .
Signed —. Witness —."

GELATINE RELIEFS.—If you could assist us with your kind advice in regard to the following difficulty we should esteem it a great favour. We are making trials for the production of relief, by means of photography, by the bichromated gelatine process, and can get a good relief ($\frac{1}{8}$ inch or more) by this means; but it is not nearly so sharp and well-defined as we could wish. We expose the prepared gelatine under a suitable negative to the light of the sky, but, naturally, it spreads in all directions under the negative, instead of acting at right angles to it, and so we get a relief that is pretty sharp where thin, and softer and softer the thicker it gets. We know that if it could be exposed to the direct rays of the sun this defect would be got over, but this is a most uncertain factor. We have thought that you may be able to assist us in advising how best to get over this trouble; perhaps by some form of lens that will divert the rays into a parallel direction, or by other means. We may mention that we have tried printing in the bottom of a deepish box, but this, in consequence of the diminished light, takes a very long time—more than a week at this time of year. We have overcome all other technical difficulties. Any assistance in advice you can give us will be very much appreciated.—G. H. and Co.

No form of lens would be of use to you with diffused daylight. Your best way, in the absence of sunlight, is to employ the arc electric light. You must bear in mind, however, that it is impossible by the swelled gelatine process to obtain the same crisp image as one gets in a dried washed-out one, such as that of a Woodbury relief. Also, the higher the relief you get the less crisp it will be.

MOISTURE ON LENSES.—(1) I am troubled with a mist, which covers my lenses on the outer surface (I use several makes) when ready for exposure. I first of all thought it might have been the damp air of my studio, but after having made a number of experiments I find it only happens when the lens is capped and the slide put in ready for exposure. I have also taken particular care not to breathe upon the lens while capping same. Of course, this defect does not occur when using a behind-lens shutter; but why it should occur when using the cap I do not understand, as I have been in the habit of using the cap for a number of years in another studio, and without this trouble. (2) My studio is constructed as per diagram. What is the best method of lighting the floor without removing the wall?—J. H. J.

(1) The cause of the mist is the warm, damp atmosphere in the studio condensing on the lenses when they are colder than that. The way to avoid the trouble is to always keep the lenses at the same temperature as that of the studio, then there will be no condensation when the cap is removed. Moisture will not condense on glass that is warmer than, or as warm as, the atmosphere. (2) If the wall cannot be removed, the best way will be to colour the opaque side and top of the studio of a pale grey tint. Then it will reflect some light towards the floor.

A. L.—It is quite possible that you might, by a legal quibble, be able to shuffle out of your obligation. We, however, decline to give you any assistance or advice as to how to carry out what is—well, a rather discreditable piece of work on your part.

R. J.—In buying the business and the copyright negatives with it you should have had the copyright in each one properly assigned to you. This not having been done, the copyright in them has lapsed, and your neighbouring stationer is quite at liberty to reproduce them. It would be of no use your proceeding against him for infringement, as you would certainly lose your case.

ILL-USED.—Had you taken our advice in the first instance you would have been money in pocket. The whole sum was not worth fighting for, and now that you have been awarded a part of it you are worse off than you were before. Even if you had recovered the whole of it, we expect (considering loss of time) you would have gained nothing.

COPYRIGHT.—In this small town I do a good few lantern slides of local scenery, local functions when they occur, and subjects to be shown at Sunday school treats, church and chapel gatherings. Yesterday a Dissenting minister brought me a dozen and half photos of pictures in the National Gallery for me to make slides

from, to be shown at a forthcoming evening meeting of his congregation. I asked him if the photographs were likely to be copyright, and he assured me they were not, as the pictures were the property of the nation, and were in the National Gallery. Before executing the order I shall be glad if you will tell me in next week's "B.J." if I shall be running any risk in doing the work.—
J. BLIZZARD.

It is true, as the clergyman told you, that there is no copyright in the paintings by the old masters in the National Gallery. But there may be, and probably is, in the copies of them that he has brought to you. The copyright will be in the photographs, though there is none in the paintings themselves. We should advise you to decline the order and thus avoid all risk.

MOULDY MOUNTS.—(1) Herewith please find half a dozen mounts. They have been in stock for about nine months, and you will see that they have mouldy spots upon them. Can you account for it? They are —'s make. (2) Would it be safe to mount P.O.P. prints upon them?—M. F.

(1) There may be more than one cause of the mildew. The mounts may have been stored in a damp place, in which case they may well be expected to become mildewed, or they may not have been thoroughly dry when received from the maker; then, if they were kept in a warm place, it would not be surprising that they became mouldy. (2) It would certainly be unwise to mount silver prints upon them if permanency is a consideration.

BORNEO.—If the gas bags you have been given are in the state you describe, we imagine they are quite useless. If they are placed before the fire they will become softened, no doubt, but we very much doubt if they will then be serviceable. With age, rubber perishes, and there is no way of restoring it.

THE BOLT COURT SUPPER.—Under the chairmanship of Sir George Frampton, R.A., a jubilant evening was spent by the students and staff of the L.C.C. School of Photo-Engraving on Monday evening last. A number of distinguished guests were present, including Mr. Pomeroy, R.A., Mr. William Strang, A.R.A., Mr. Selwyn Image, Mr. Claude Shepperson, Mr. Lenfesty, Mr. Niels Lund, Mr. R. Anning Bell, Mr. W. A. Casson, L.C.C., Mr. Emery Walker, Dr. Wm. Garnett, Mr. Strange, Mr. Wm. Gamble, Mr. J. Corey, Mr. F. Colebrook, Mr. E. M. Rich, Mr. F. Gaywood, Mr. S. H. Wratten, and Mr. W. H. Amery. A supper at 7 preceded a smoking concert, the "pièce de resistance" of which was a "new drama," by F. E. Butler, entitled "The Sapience of Cynicus," or "From Sole to Suicide." This farcical tragedy proved to be a play of art, commerce, and love, though we are bound to express reprobation of its moral tone. The entire cast falls dead upon the stage at the curtain, saving only a professional murderer, of the Murderers' Agency, Ltd., who goes scot free. During the evening the prizes were distributed by Sir George Frampton, and the toasts of the London County Council, the Principal and Staff of the School, and the Chairman were received with much enthusiasm. Mr. A. J. Newton and his colleague, Mr. Cecil Rea received quite an ovation. At a late hour the corners of Bolt Court re-echoed with the last toast (not on the programme) of "The Old Building." No. 6 will be vacated at the end of the present session for the erection of a new block to provide sufficient accommodation for the School.

* * NOTICE TO ADVERTISERS.—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

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SUMMARY.

The index to the 1909 volume of the "B.J." and of the "Colour Photography" Supplement is presented with this issue.

Messrs. Henry Greenwood and Co. beg to announce that the edition of the "British Journal Almanac," 1910, is completely exhausted; they cannot supply further copies.

An exhibition of appliances for the rapid printing on development papers from negatives, for postcard and lantern-slide printing and of printing frames for use in the ordinary way, will be held at the house of the "B.J." from February 10 to 26. Further announcements as to this exhibition will be made later.

The long story of a lady who had put money into a photographic canvassing business was related before the Brighton Borough Bench on December 20, when Harry Marks and Lena Chorley were charged with obtaining money on false pretences. (P. 1016.)

A comparison of some recent formulæ for acid diamidophenol developer is given in an article on page 1006 in reference to the use of metabisulphite in place of acid sulphite.

MM. Lumière have just published revised formulæ for the metoquinone developer, the substance which may be used amidol fashion without an alkali or with a small proportion of a carbonate when extra energy is required. (P. 1008.)

Professor A. W. Porter, in the Twelfth Traill-Taylor Memorial Lecture, which we reprint on page 1010, took for his subject the representation of the action of light on a photographic plate as rendered visible by development. He explained the conventional H and D curve, and gave a formula which he thought was simpler than that of Hurter and Driffield. He laid stress on the distinction necessary in the use of the word inertia for indicating (1) the deviation of the plate from a perfect one, and (2) a true inertia of the process of image formation. He also described the phenomena underlying the theory of plate-grain set forth by Dr. C. E. K. Mees in the paper which appeared in the "B.J." last week.

A note on page 1006 draws attention to the means which can be taken to avoid apparent exaggeration of the size of objects in lantern-slides projected on the screen.

The practical methods which may be used in combination printing by carbon or other process which does not give a visible image are the subject of an article on page 1007.

MM. Lumière and Seyewetz have recently estimated the amount of gold which is actually utilisable in a combined bath. They find that the most economical use of the combined toning and fixing bath is obtained if the prints are given a preliminary fixation in hypone. (P. 1009.)

EX CATHEDRA.

An Exhibition of Printing Appliances.

We propose holding at the house of the "B. J.," from February 10 to 26, an exhibition of modern apparatus, such as bromide printing machines, postcard and lantern-slide printing frames, as well as printing frames of the various patterns employed for negatives in the usual way. This apparatus will be explained to visitors, and the special features pointed out by an attendant engaged by Messrs. Henry Greenwood and Co. By the time these lines appear every firm which within our knowledge markets specialties of this kind will have received an invitation to show their goods, but if any should have been overlooked we trust that they will place themselves in communication with us, when we shall be glad to write them as to the exhibition of their apparatus. It should be understood that the exhibits are confined to devices for holding *negatives*: we have not the space in which to show cabinets, etc., for holding *printing frames*. We should also like to announce that inventors or patentees of apparatus coming within the foregoing classes are also invited to show working models. These will be catalogued and reviewed, as will other apparatus in the exhibition. Hence those who take advantage of this offer should bear in mind that we cannot keep any exhibit or form of construction secret, or to be shown to a particular class of visitor. At the same time, we hope that this offer may be of service to some who may have new designs in apparatus which they are anxious to bring before users and manufacturers.

* * *

The Index to the "B.J."

With this issue we present as a supplement the index to the 1909 volume of the "B.J.," and to that of the "Colour Photography" supplement for the past twelve months. As in previous indexes, we have endeavoured, as far as possible, to make each item self-explanatory, so that in using the index as a guide to the contents of the volume the reader is spared unnecessary reference to pages. Again, as in previous years, subjects are classified as far as possible under general headings. Thus, all kinds of cameras—with the exception of reflexes—are indexed under "Camera." Information regarding developers and developing apparatus appears either under "Developers," "Developing," or "Development," and so on. This course has rendered it possible to provide an index which, within a moderate space, is nevertheless an almost complete key to the contents of the thousand pages of the volume. The compilers have also aimed at avoiding the "howlers" which beset the path even of the most painstaking indexer. Readers of one of the book-trade journals may perhaps have seen the volume "Chats with the Chicks" placed under the heading "Poultry and Farm," an aberration of

the indexer which led "Punch" to hope that we might have a succeeding volume, "Half-Hours with the Hens." Photography, fortunately, does not expose the indexer so much to accidents of this kind, but nevertheless, in the case of the "B.J." index, it has been found necessary to make it clear in a number of cases that the same word refers to totally different things.

* * *

The "B.J." Almanac.

Our publishers desire us to announce that the whole edition of the 1910 "British Journal Almanac" is now exhausted, and those requiring further supply should make application to the larger wholesale houses, who may still have a few copies, or, if unable to obtain from them, to retail dealers. The issue of the "Almanac" this year appears to have been better distributed than ever before, so that on the day of publication the publishers had still a few copies—about 300—in hand, applications for which have come in steadily during the past few weeks, with the result that the last were disposed of immediately before the Christmas holidays.

* * *

The Characteristic Curve.

In the Traill-Taylor Memorial lecture Professor A. W. Porter raised some points with regard to the "characteristic curve" that seems to afford matter for an interesting discussion. He challenges the assumed evidence of so-called "inertia" in the photographic plate, pointing out that the assumption depends almost entirely on the peculiar method adopted for plotting the curve. If the method of plotting density against exposure is employed in place of that which involves the logarithm of the exposure, a convex curve, rising fastest at the beginning and then more slowly, results, instead of the concave curve which indicates lag or inertia. He also throws doubt on the method of measuring sensitiveness by the position of a point which is not on the representative curve of the plate at all. We believe, however, that this has never been claimed to be an accurate method of measuring sensitiveness, only a useful approximation that gives a rough idea of the relative speeds of different plates. His other point is more subtle, for it is certainly a fact that the form of a curve varies with the mode of plotting, and it is therefore necessary to be cautious in drawing inferences from form. Many have been confused by the evident fact that the characteristic curve, as usually drawn, is not a correct graphic representation of the state of affairs that actually exists in the plate, and possibly another method of plotting would be useful for purely demonstration purposes.

* * *

Scale in Lantern Slides.

The suggestion has recently been made by a well-known writer that lantern-slide makers should always bear in mind the size of the projected image and avoid producing slides that will afterwards appear too gigantic on the screen. The advice is good, but it is a little difficult to follow it, seeing that the size of the projected image varies so greatly. At one time the slides may be shown on a 6-foot disc with a linear magnification of 24, and at another time on a 12-foot disc with a magnification of 48. A figure $1\frac{1}{2}$ inches high on the slide will then be 3 feet high on the screen in the one case and 6 feet in the other, and while the one may look too tall, the other may look too short. The lantern-slide maker cannot control the absolute size of the projected images that will afterwards appear on the screen, but he can control the apparent scale, for this depends not on linear measurements, but upon the

relative proportions of the various parts of the subject. We may, for example, consider the cases of children and adults. In a natural scene the former occupy less of the total subject area than do the latter, but in the process of masking slides it is easy to ignore this fact. A small child in a small, closely masked picture will be given the same importance as an adult in a larger picture and then, if the two pictures are seen after each other, either the child will look too big or the adult too small, even though the relative sizes of the figures are the same. Though the actual figure shown on the lantern screen may be either very gigantic or much under life-size, yet neither fact will be unpleasantly noticeable if due care be taken in arranging the picture as a whole. A great deal, therefore, depends on masking, and much more consideration should be given to this matter than it usually receives. Photographers who spend a great deal of time and trouble in trimming large size prints often give little or no attention to the masking of their slides, though these really require equal care.

—•—

ACID SULPHITE, METABISULPHITE, AND DIAMIDOPHENOL (AMIDOL) DEVELOPING FORMULÆ.

WE are continually receiving queries as to the substitution of potassium metabisulphite for the solution of acid sulphite, or bisulphite lye, so frequently recommended by Continental writers, but not always obtainable here. The question is not an easy one to answer accurately, for the equivalent of the various chemicals used in photography is a matter not very well understood. Probably, however, the following method of estimation will give results that are near enough for practical purposes. The first difficulty that we meet with is the fact that the precise difference between an acid sulphite (or bisulphite) and a metabisulphite is rather obscure. It has been stated that a solution of metabisulphite in water is the same thing as a solution of acid sulphite, because by chemical equations it can be shown that one molecule of metabisulphite added to one molecule of water is equal to two molecules of bisulphite. This argument is faulty, for it is evident that the solutions are not the same, seeing that on crystallisation each deposits its own peculiar crystals. Apparently the one solution is more stable than the other, and parts with its sulphurous acid less readily, but the difference in effect on development is quite uncertain, and therefore, in considering the question of equivalents, we are obliged to take as a basis the discredited equation, and to assume that metabisulphite is practically twice the strength of bisulphite. The acid sulphite lye sold in solution is said to be a 40 per cent. solution of sodium bisulphite, and we may therefore take it as roughly equivalent to a 20 per cent. solution of sodium metabisulphite, which in its turn may be considered to be nearly equivalent to a 24 per cent. solution of potassium metabisulphite. This is a stronger solution than can be made, as potassium metabisulphite is not very soluble; we can, however, make a 6 per cent. solution and take four times as much of it as we are told to take of the acid sulphite solution. On a cubic centimetre of the acid solution may then be considered to be equal to 6 ccs. of 4 per cent. potassium metabisulphite, or .24 (one-quarter) of a gramme.

It has been suggested that the amidol formula given in our last "Colonial Number," which formula has been highly appreciated by many workers, might be modified to combat the effects of over- and under-exposure of similar lines to those advised by MM. Balagny and Underberg. On looking up the matter, however, we find many serious differences of opinion on the conditions th

tend to increase or diminish contrast that it does not seem worth while to elaborate the formula. Lumière and Seyewetz found that contrast is not materially increased by the addition of acid sulphite, and that the addition of bromide does all that is necessary. On the other hand, Underberg adds both bisulphite and bromide, and also reduces the sulphite, to effect the same purpose. In view of this difference of opinion, we do not see that we can do more than advise the addition of bromide to our formula to increase contrast. To diminish contrast, Lumière simply dilutes with sulphite solution, Underberg with water, at the same time reducing the bisulphite and the bromide. Our own method is to simply dilute. In our experience, amidol or diamidophenol is not at all well suited to the development of wrongly exposed plates, but for the simple purpose of increasing contrast we use a more concentrated solution, with more bromide, and for reducing contrast a well-diluted solution. Compared with Underberg's "normal" formula, ours contains less of all the ingredients—that is, it is more dilute. The proportion of sulphite to diamidophenol is the same, but we use only half the amount of acid salt and only one-fifth the amount of bromide. We recommend $\frac{1}{4}$ gr. of bromide per ounce of developer, while he has $1\frac{1}{3}$ gr., and as this can be increased to $2\frac{1}{2}$ gr. per ounce to give contrast, it is obvious that there is plenty of scope for variation. If our formula is diluted with an equal part of water it becomes approximately equal to Underberg's formula for soft results, with the exception that it contains more acid salt and less bromide.

The following comparison of Underberg's formulæ with the "B.J." formula may be of interest, as it shows at a glance the relative strengths of the solutions. All the formulæ are expressed in grains and ounces, and potassium metabisulphite is substituted for the acid bisulphite, the equivalent quantity being estimated in the way described in our previous note:—

	Underberg's Formulae.			B. J. Formula.
	Hard.	Normal.	Soft.	
Diamidophenol	25 grs.	25 grs.	10 grs.	20 grs.
Sodium sulphite	160 ,,	300 ,,	120 ,,	240 ,,
Potassium metabisulphite	117 ,,	62 ,,	2 ,,	30 ,,
Potassium bromide	25 ,,	$13\frac{1}{2}$,,	4 ,,	$2\frac{1}{2}$,,
Water to	10 ozs.	10 ozs.	10 ozs.	10 ozs.

It is interesting to note that Underberg's normal formula agrees as regards proportions almost exactly with the first "B.J." formula, in which we used double the quantity of metabisulphite now recommended. The bromide is, of course, much greater in quantity, but this is the only variation.

DOUBLE PRINTING IN DEVELOPMENT PROCESSES.

DOUBLE printing, or, as it is more generally termed, combination printing, is not a difficult thing when we have a visible image to deal with as we have in all printing-out processes, but even with them but comparatively few printers do it so well as it might be done, for often the junctions between the two printings are painfully manifest. In the early day of our art, combination printing was looked upon as one of the qualifications of a photographic printer. Nowadays, however, very little is done in that way, and the skill of a printer in this direction is seldom called for. Different methods of doing

this class of work have frequently been described in past volumes of the "Journal," and need not be referred to here.

What we propose to describe now is a method of double printing in cases where there is no visible image to guide us, as, for example, in the carbon or bromide process.

Many of our older readers can call to mind the excellent large pictures, printed from two or more negatives, which were produced by M. Leon Lambert about the middle seventies. Although they were made from two or more enlarged negatives, no trace of a join could be detected in them. These pictures were all by the carbon process. Lambert's method was treated at the time somewhat as a secret process, and was only taught or demonstrated to the inventor's licensees. Although Lambert employed only the carbon process, it will be seen that his method is equally applicable to any other where there is no image to be seen in the printing.

By way of a simple illustration of the process, we will assume that we have an enlarged negative of a portrait subject, and that for some reason or other it is desirable to take out the background and substitute another. In the first place, a piece of thin non-actinic paper of lemon or orange colour, an inch or two larger than the picture, is taken and laid on the negative, and the outline of the figure roughly traced upon it with a pencil. This is then laid aside for the time being. The back of the negative is then covered with thin mineral paper. In order to get the paper flat and even, it is placed for a few minutes between sheets of slightly damp blotting-paper to cause it to expand slightly. While it is there the edges of the back of the negative are touched round with gum solution. The paper is then laid on and the edges pressed in contact with the gum. The paper then dries flat and as even as the glass itself. The next step is to put the negative on the retouching desk and trace, neatly, round the figure using a blacklead pencil lightly, when it will be ready for the printing frame.

It is important that the glass of the frame fit tightly in the rabbet; if it does not it must be wedged tightly in, so that it cannot shift. The reason for this precaution will be seen later on. The printing frame should be somewhat larger than the negative, and the glass of it should not be so thick as is usually the case—say only three-sixteenths of an inch or so. In placing the negative in the frame it must be pressed closely in one corner of it; the top left-hand will, on the whole, be found the most convenient in working. The tissue, which must be cut at right-angles at one corner, is then placed on the negative and pressed accurately in the angle of the frame. It is well to mark this corner, as then there need be no mistake when it is removed and replaced for the subsequent printing from the second negative.

Next, on the glass of the printing frame the figure is painted round for half an inch or more, on the background portion, with oil colour; Indian red, as sold in tubes, is a suitable one to use when thinned with a non-drying oil, such as olive oil. Tube water colour, mixed with glycerine, will do as well. In doing this part of the work, the tracing on the back of the negative serves as a guide, but the precaution must be taken to keep a trifle outside the line, as it must not at all overlap the figure. The yellow paper with the previously traced outline upon it is then taken and roughly cut out about a quarter of an inch inside the line, and then about the same distance outside it. This will give us a couple of masks each a quarter of an inch or so less than where the junction is to be. In this way we get masks with openings about half an inch larger than the figure. The background mask is now put into position on the paint and kept in place by a few

pieces of lead or glass. It may as well be mentioned that the object of the paper mask is merely to avoid having to cover the whole of the background, or in the second printing the figure, with the paint.

All is now ready for the printing. This should be done in diffused light, and it is well to alter the position of the frame occasionally, so as to avoid a sharp edge in the print. When the exposure is finished, the frame is taken in, the paper removed, and the paint cleaned off. Next, without anything being disturbed, the figure is painted over round the edges as before, but this time keeping just within the guide line on the negative—about the same distance as it was previously outside it. The tissue and the negative are now taken out of the frame. If the tissue were developed at this stage we should, of course, get the figure on a plain white background, with the outline of it slightly vignetted, owing to the light creeping under the paint. Supposing a plain background is required, the exposed tissue is replaced in the now empty frame, registration being secured simply by pressing it close in the corner of the frame, as in the first printing. In printing

in the plain background it can, as a matter of course, be graduated by shading.

Should the second printing be from a second negative, the plan is as follows:—This negative, like the previous one, is coated on the back with mineral paper. The first negative is placed on the retouching desk, and the second placed on it and adjusted to the position the two images are to occupy in the finished picture. The outline of the figure in the first negative is then traced on the paper of the second one, after the first printing has been done and the second mask prepared. The first negative is then taken away and the second put in its place, the tracing on the back being a guide to its position.

It will be seen from the above that the principle of this method is really that of vignetting the one picture into the other, so that no sharp joins show. This is the principle on which the late Mr. O. G. Rejlander produced all his large pictures, some of which were built up from sometimes a dozen or more negatives, though he carried out his work somewhat differently, as he employed a printing-out process—albumen paper.

NEW METOQUINONE DEVELOPING FORMULÆ FOR PLATES AND PAPER.

THE special suitability of metoquinone for the development of Autochrome plates, to which we have recently drawn attention, has led us to experiment further with this developing reagent for ordinary plates and papers. It will perhaps be remembered that metoquinone possesses certain distinct properties as a developer. It combines within itself the properties both of those developers which work without alkali (sulphite only) and of those which—like metol and hydroquinone—can be used with alkalis. Thus the developer can be made up simply with sulphite of soda, or may be composed of the metoquinone plus sulphite and a carbonated alkali, or substitute for it.

Metoquinone developers retain their properties exceedingly well, and this fact renders the developer a very suitable one for use in a tank in very weak solution (stand development). With bromide papers the developer gives very vigorous blacks and pure high-lights. In the case of papers, the fact that metoquinone may be employed with a very small proportion of alkali is an advantage as regards freedom of action of the alkali upon the gelatine. Moreover, metoquinone is an economical developer, since a large number of negatives may be treated in succession in the same solution. The latter may be used as long as it lasts without fear of its losing its activity. Lastly, the metoquinone developers do not stain the fingers.

In spite of these properties, metoquinone has not been very extensively used, probably on account of its somewhat high price. It has now been found possible to issue it at a much cheaper rate, and the following formulæ have recently been worked out.

We will first give the formulæ most suited for the development of negatives on plates and films in the ordinary way—that is to say, developing for the usual time in a dish.

For time exposures the following solution is used, the metoquinone being first dissolved, and then the anhydrous soda sulphite:—

Water	1,000 ccs.	20 ozs.
Metoquinone	5 gms.	44 grs.
Soda sulphite anhydrous ¹ ...	30 gms.	130 grs.

For snapshots the above formula may be used, but it is better to prepare a somewhat more energetic developer by the addition

of a small proportion of alkali, or of a substitute for an alkali, in accordance with one or other of the following formulæ:—

1.—Water	1,000 ccs.	20 ozs.
Metoquinone	5 gms.	44 grs.
Soda sulphite anhydrous ...	30 gms.	130 grs.
Soda carbonate, anhydrous	5 gms.	44 grs.
Potass. bromide, 10 per cent. solution	10 ccs.	1½ drs.
2.—Water	1,000 ccs.	20 ozs.
Metoquinone	5 gms.	44 grs.
Soda sulphite anhydrous ...	30 gms.	130 grs.
Potass. bromide, 10 per cent. solution	10 ccs.	1½ drs.
Acetone	10 ccs.	1½ drs.
3.—Water	1,000 ccs.	20 ozs.
Metoquinone	5 gms.	44 grs.
Formosulphite, Lumière.....	30 gms.	130 grs.

The three formulæ give practically the same results. No. 1 is the least expensive, Nos. 2 and 3 are not quite so advantageous in this respect as No. 1, but they avoid the use of an alkaline carbonate, and are therefore particularly recommended for use in hot countries or during hot weather in Europe.

For under-exposed negatives one or other of the above formulæ given for snapshots is used, diluting 1 part of developer with 2 parts of a solution of carbonate of soda containing 5 gms. per litre.

For over-exposed plates the single solution developer given for time exposures is employed, but with the addition of 10 per cent. bromide solution to the amount of from 2 to 20 ccs. per litre of developer (= 20 minims to 3 drams per 20 ozs.). As a developer for lantern-plates, where a black tone is required, the first formula given above, namely, that for time exposures, may be used, or No. 1 and No. 2 of the formulæ for snapshots. Of these No. 1 gives somewhat softer results than No. 2.

The great solubility of metoquinone in acetone allows of a very concentrated solution being prepared by taking advantage of this fact. This is as follows:—

Water	700 ccs.	25 ozs.
Soda sulphite anhydrous ...	120 gms.	4 ozs. 102 grs.
Acetone	160 ccs.	5½ ozs.
Metoquinone	32 gms.	1 oz. 55 grs.

The metoquinone is dissolved in the water at 105 deg. F. after

¹ Or, crystal, 60 gms. (26½ grs.).

having added the sulphite and acetone. This developer is mixed with nine times its bulk of water to form the working solution.

Stand Development.

The facts that metoquinone may be used with an alkali and that the solution keeps excellently render it a most ideal substance for stand development. The following is a very suitable formula, due to M. F. Dillaye:—

Water	4,000 ccs.	140 ozs.
Metoquinone	5 gms.	80 grs.
Soda sulphite anhydrous ...	50 gms.	1 $\frac{3}{4}$ ozs.
Potass. bromide, 10 per cent. solution	5 ccs.	85 minims.

The negatives should be turned over in this solution at the end of every quarter of an hour, and well washed between developing and fixing; the total time of development will be about an hour, and the fixing bath is preferably one of "acid" formula.

Three-Dish Development.

In developing a large number of negatives, the correct exposure of which in many cases is uncertain, metoquinone may be usefully employed by making up three separate developers, each of a different degree of activity. A great number of formulæ might be given for working upon this system, but the following is as simple as any:—

For dish No. 1 developer for over-exposed negatives.

For dish No. 2 developer for snapshots.

For dish No. 3 developer for under-exposures.

Commence development in dish No. 1, and if there are no signs of over-exposure, withdraw the plate, and continue development in No. 2; or, if it shows signs of under-exposure, remove it to No. 3.

Development of Bromide and Gaslight Papers.

The following two formulæ differ considerably. No. 1 is intended for bromide papers, whilst No. 2 is used for chlorobromide papers of gaslight rapidity, such as "Radios."

No. 1, Bromide.

Water	1,000 ccs.	20 ozs.
Metoquinone	3 gms.	27 grs.
Soda sulphite anhydrous ...	30 gms.	130 grs.
Soda carbonate anhydrous...	5 gms.	44 grs.
Potassium bromide, 10 per cent. solution	10 ccs.	1 $\frac{1}{2}$ drs.

No. 2, Gaslight.

Water	1,000 ccs.	20 ozs.
Metoquinone	12 gms.	106 grs.
Soda sulphite anhydrous ...	40 gms.	$\frac{3}{4}$ oz.
Soda carbonate anhydrous...	20 gms.	180 grs.
Potassium bromide solution, 10 per cent.	20 ccs.	3 drs.

During hot weather it is a good plan to use acetone instead of carbonate of soda. In formula No. 1 the 5 gms. of carbonate can be replaced by 10 ccs. of acetone, and in formula No. 2 the 20 gms. of carbonate also by 10 ccs. of acetone.

A. AND L. LUMIERE.

EXPERIMENTS ON TONING P.O.P. IN THE COMBINED BATH.

It is well known that the gold in combined toning and fixing baths is utilised only partially when toning prints on P.O.P. After having done about a hundred 7 x 5 prints in a combined bath containing .12 gm. (1 $\frac{3}{4}$ grs. of gold chloride, toning takes place very slowly, details are eaten out, and the final tone of the print is reddish, although there is still a considerable proportion of gold in the bath. The usual method is to strengthen the bath by further addition of new toning bath, but this plan does not allow of the gold, which has become inactive in the bath, being utilised; the further toning action which is obtained corresponds fairly closely with the quantity of new bath added. Not only is there no advantage in this method, but there are certain serious objections to it, in that it causes the accumulation in the combined bath of double hyposulphites of silver, and that it also involves the solution in the bath of substances, such as citric acid, etc., contained in the paper, all of which products, more or less quickly, decompose the bath. We have made experiments to find what method of using the combined bath allows of the most complete utilisation of the gold without prejudicing the toning action. For this purpose we have ascertained the quantity of gold which is left in the bath after the toning action of the latter has been effected in different ways upon the number of prints sufficient for the exhaustion of the gold in the bath. The formula adopted for the bath is that which is customarily recommended for the Lumière papers.

Bath.

Water	1,000 ccs.	20 ozs.
Hypo	250 gms.	5 ozs.
Alum	15 gms.	130 grs.
Lead acetate	2 gms.	18 grs.
Gold chloride (1 per cent. solution)	60 ccs.	1 $\frac{1}{4}$ oz.

This bath was used in the following ways:—

1. By toning prints in it in succession.
2. By toning together a number of prints equal to those which were previously toned in succession.

Further, each of these methods was employed in a different way:—

(a) Toning and fixing in the combined bath in the ordinary way after having given the prints a preliminary washing in water.

(b) By removing the silver salts from the prints by preliminary fixing before immersion in the combined bath.

This last method of toning naturally prevents the accumulation of double hyposulphites of silver in the bath, and, as we have previously shown,¹ and as Namias has confirmed,² removes one of the causes for the falling-off in tone when treating a large number of prints.

The results of our experiments are contained in the following table:—

Method of using Combined Bath.	No. of 7 x 5 prints toned in 100 ccs. toning bath containing .0264 gm. gold.	Time of Toning of—		Proportion of gold used in toning compared with that put into bath.
		First print.	Last print.	
Prints toned and fixed in combined bath without previous fixing ...	a. Prints toned in succession	24	4 minutes	60
	b. Prints toned together ...	24	Twenty-fourth print... 25 minutes	52
Prints first fixed in hypo and then toned in combined bath	a. Prints toned in succession	30	First print	70
	b. Prints toned together.....	30	Thirtieth print	63

¹ "Revue Trimestrielle," Feb., 1908.

² "B.J.," Nov. 20, 1908, p. 886.

These results show:—

1. That the most economical method of working the "combined" bath for print-out papers consists in fixing the prints before toning.
2. That the quantity of unused gold remaining in the exhausted bath is an important factor, since, even under the

best conditions, one can only make use of two-thirds of the gold.

3. That the quantity of gold used in toning one 7 x 5 print is one-half milligramme = .008 of a grain.

A. AND L. LUMIERE.
A. SEYEWETZ.

THE GROWTH OF THE PHOTOGRAPHIC IMAGE.

[The following is the text of the twelfth Traill-Taylor Memorial Lecture, delivered by Professor A. W. Porter, B.Sc., F.R.A.S., on November 23, at the house of the Royal Photographic Society.]

WHEN I was first offered the privilege of delivering this lecture, my first notion was to choose as the subject one connected with optics, which is the branch of science with which I am most familiar. My intention was strengthened by an appreciation of the fact that Mr. Traill-Taylor, whom this lecture commemorates, was widely known for his labours on photographic optics. However, in consultation with one of your members, I learned that several lectures in this series had already been given on the subject of optics, and it was suggested to me that it might be as well to steer away from it. I intend carrying out, to some extent at any rate, that suggestion by selecting as my subject "the growth of the photographic image." It is not my intention to go with detail into the history of the complicated and numerous theories that have been put forward from time to time, many of which are still held—for the matter is one of great dispute—but my intention is simply to consider one or two points in connection with the subject, and state what to many of you will seem, I am afraid, *obiter dicta*, because I am not myself a professional photographer—I am merely a physicist.

PART I.

It is a matter of common knowledge that in order to obtain a correct negative the exposure must at least reach a certain minimum value. Below this value the density of the deposit fails to increase

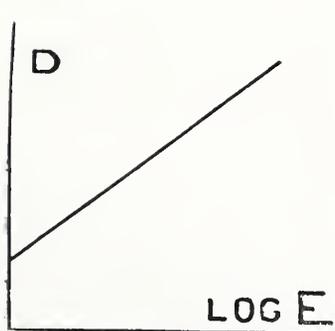


Fig. 1.

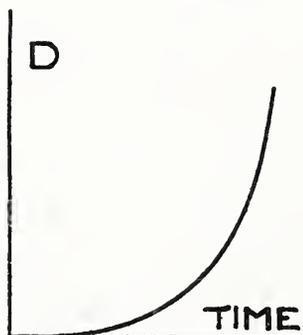


Fig. 3.

with the exposure, according to the law which is necessary in order that the positive finally obtained should have the correct gradation. It is easy to show that to obtain a true positive the product of the transparency of the developed negative into the exposures to which it corresponds must be a constant—that is, that $T E$ must be constant. It is more usual to state the law in terms of the so-called "density of deposit" D , which is defined as being equal to the logarithm of the reciprocal of T . The law then becomes that the density must increase in arithmetic progression as the exposure increases in geometrical progression if correct results are to be obtained. That is to say, that if I increase the exposure 3 times, then 9 times, then 27 times, the density ought to increase as the numbers 0, 1, 2, 3. Now, real plates fail to comply with this law except for a certain range of exposure; and unless you give such an exposure that the law can approximately come into play your picture will not be correct. These statements can be illustrated by means of diagrams.

If I draw a diagram on which vertically I represent the densities produced, and horizontally I place numbers in geometrical progression at equal distances to specify different exposures; or, what comes to the same thing, if I represent on the horizontal line equal distances

as being equal to equal changes in the *logarithm* of the exposure, then the diagram representing the character of a perfect plate would be a sloping straight line as in Fig. 1. I do not want to introduce any more mathematical conceptions than are needful in order to make the subject clear; and I want, at any rate, to explain as I go along any particular mathematical ideas that one does introduce. So for fear some of you are not familiar with logarithms, I want you to realise, to start with, that if you take the logarithms of numbers which are in geometrical progression, for example, 1, 10, 100, 1,000, 10,000, thus increasing ten times at each step, they will be found to be 0, 1, 2, 3, 4, and so on; that is, they increase in an arithmetic series. Take the exposure by which for light of too small intensity you mean the product of the intensity of the light which is producing the images multiplied into the time during which it acts, and instead of letting equal distances along the horizontal represent equal changes in the exposure, let them represent equal changes in the logarithm of it; then I say that on a perfect plate, which would give you the correct

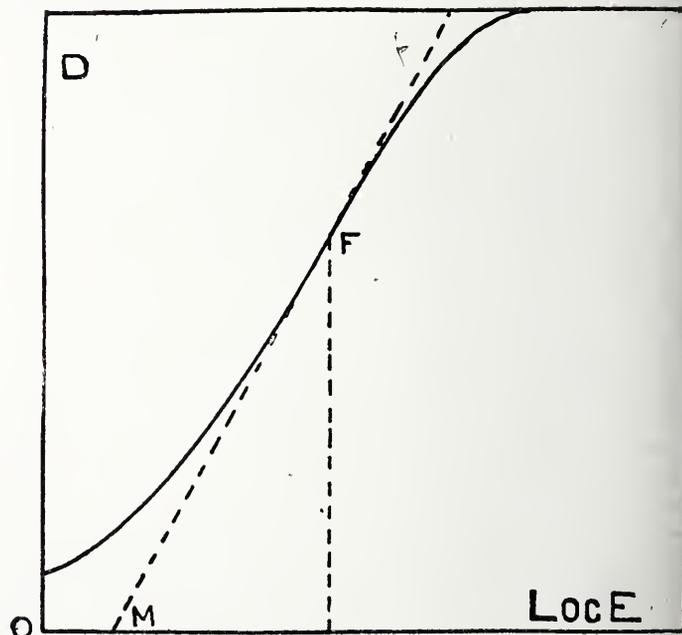


Fig. 2.

gradation no matter how small the exposure, the density would have to be simply proportional to the increase in the horizontal distance—that is to say, the plate would be depicted by a straight line on the diagram. No plate satisfies that simple law, and in consequence you get a region of under-exposure, and also a region of possible over-exposure. If you give less than a certain exposure, you will not get the correct gradation. If you give more than a certain exposure you will not get the correct gradation in your image, and the deviation of any actual plate is represented by the fact that you obtain instead of the straight line on the diagram, a curved line, more or less like the curved line in Fig. 2. This means that if the plate is under-exposed you obtain a greater density for very weak images than what the law would require; and, so again, in the case of over-exposure you obtain a flat picture, all intensities giving you nearly the same density. Mathematically, the theory of this was worked out on certain assumptions in 1890, by Messrs. Hurter and Driffeld, and I think

will not be the first time that you have had lectures here on the work of Messrs. Hurter and Driffield. They found you could represent this peculiar law of behaviour of a real photographic plate, by means of a certain mathematical equation. There is no doubt that the equation that they obtained is a more or less useful one for representing the actual behaviour of the plate. There is considerable doubt, however, with respect to the theoretical foundations upon which that law was based. The importance of Hurter and Driffield's work is indicated, however, by the rule adopted to-day, nominally at any rate, I believe, by all photographers in England, in specifying the sensitiveness of plates. And they do it in this way.

The region where you will get a correct gradation is represented by the part of the curve on Fig. 2 which most nearly corresponds to the theoretical law which I expressed as necessary for a perfect plate; and the deviation of the curve from the straight line FM represents the deviation from that law. The exposure corresponding to the distance OM is called "the inertia of the plate," a number which is intended to measure the reluctance of the plate to correspond to the law necessary for the producing of a perfect image. Those who try to build up physico-chemical theories as to how the image is produced must carefully distinguish between the use of this term "inertia" for indicating the deviation of the plate from the perfect law, and a true inertia of the process of image formation. The misleading character of the curve, I think it is, which may give rise to the misconception. Because when you plot the curve in this way it either seems to indicate that at first the density does not grow with exposure as fast as it does later. This result altogether comes about on the particular mode in which the curve is plotted; and you must not suppose that the curve indicates anything whatever corresponding to inertia in the actual physical or chemical process, by which the latent image is first formed. If, in other words, I were to plot the density against the exposure, which would seem the most natural thing to do, I would find that the density in this initial stage actually increases faster than it does anywhere else; in other words, when the light first begins to act on the plate, the action per second is greater than what it is at any later stage. You would then find the curve as steepest near the origin, getting less steep as time went on. I am not denying, what is certainly true, that there is a real inertia in the physico-chemical process, but at any rate as far as considerations such as Hurter and Driffield brought into play, there is nothing absolutely similar to inertia in the behaviour of a plate. I want to try to elucidate this question of inertia by means of one or two experiments, one in which I have a physical (or perhaps a chemical) process setting in, for which a quasi inertia does come into play, and one in which there is no evidence of it. There are a great number of physical and also of chemical phenomena whose growth may be followed and in some of these there is a sort of lag, which corresponds to inertia in the initial stages, while in others there is not.

Let me first explain what one means scientifically by the term "inertia." Take a heavy ball and suspend it by a long string; then by means of a thin elastic cord try to make it move quickly in a horizontal direction. The first effect is that the hand moves, the elastic stretches, the ball remains nearly at rest. It slowly gains speed, however, and follows in the direction of the pull. This reluctance to change its velocity is said to be due to inertia. If I try to raise it very suddenly by the string it will not respond immediately; the string may even break if the jerk be sharp enough.

I will now show a chemical process in which an analogous lag occurs at first. I have an apparatus here by which I can throw two images on the screen. The light of one of them comes through a solution of hyposulphite of soda and of the other comes through a simple aperture, which I can gradually close by means of an iris diaphragm. A pointer attached to the handle which actuates the iris diaphragm moves over a scale graduated into divisions representing changes in the logarithm of the reciprocal of the area of the diaphragm. The diaphragm is first adjusted so that the image formed through it is as bright as that through the "hypo." I will now add a little hydrochloric acid to the hyposulphite at a given moment and then follow the change which takes place by means of this adjustable diaphragm. The effect of adding the hydrochloric acid is to free the sulphur; and it sets it free according to a definite law. Every half-minute the two images are adjusted to equality and the position of the pointer, which is a measure of the density, is read. You shall find that in the initial stages the density increases very slowly indeed. As time goes on, the rate of deposition of the sulphur

increases up to a maximum, and then after that it gets slower again, until finally no more deposition takes place.

After making rough measurements of the opacity produced by the depositing sulphur from time to time we plot a curve of density against time. The curve obtained is shown in Fig. 3.

Thus there is a true lag at the beginning, and it would be justifiable to treat this as a process exhibiting marked quasi-inertia. If I had done the same thing with the growth of the latent photographic image, for a plate following the Hurter and Driffield law, I should have had a curve which rose fastest at the beginning, and then more slowly. And the peculiarity which comes out in the plotting which looks like inertia is merely a peculiarity of the mode of plotting itself. You plot against log E, not against the exposure itself. I shall not say a word against Hurter and Driffield's mode of representing the property of the plate, as long as this is clearly understood. What I am rather warning you is against supposing that there is a true inertia or lag connected with the photographic change of the duration which their language seems to imply. I have another change here, which exhibits no detectable lag. I have here a thermopile, consisting of two wires of different kinds connected with a galvanometer. I push one of these into a potato, and the other into another potato, then wait for things to become steady. I do not know whether to call what I am going to show you a physical or chemical change, or something different from both; but the final result is physical. The stimulus this time will be given by a pen-knife with which I prod the potato. As I stab with the knife, the whole potato will warm up, and since the wire dipping into it will get warm too, the spot of light on the graduated scale which indicates the position of the galvanometer mirror will alter its position. You see the change follows very quickly the application of the stimulus;

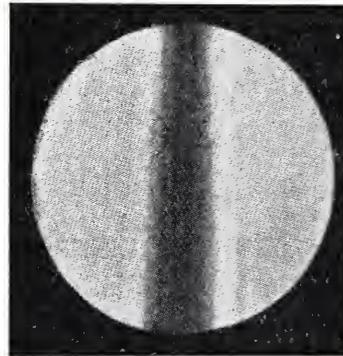


Fig. 4.

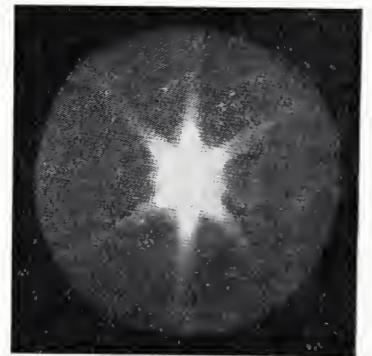


Fig. 5.

so there is very little inertia. What I wish to emphasize is that this change is much more like the change produced by light on a photographic plate than the change produced in hypo by hydrochloric acid is.*

I do not know whether you are interested in merely algebraical things; no doubt some of you are. Messrs. Hurter and Driffield founded their equation on certain assumptions, which are somewhat doubtful, perhaps; but a suggestive theory can be framed on a much simpler basis than theirs. You have to explain the formation of the latent image, and how it grows; what will determine the rate at which it grows? Let us write down the two circumstances upon which we may suppose it to depend. We are concerned with the rate of growth of the latent image, by which I mean the rate of deposit or production of the changed material formed by the action of the light—I do not want to commit myself as to what this material may be. It is natural to take it as proportional to the intensity, I, of the light that is producing it, so that will be one factor. It is natural also to take it as proportional to the amount of unaltered bromide of silver, or whatever the sensitive salt is which remains. Let m_0 be the amount of sensitive material to begin with, and let m be the amount transformed by light; then $m_0 - m$ will be the surviving unaltered material. The assumptions I have made can be written in the form of an equation thus:—

$$\text{Rate of growth of } m = a (m_0 - m) I.$$

That is an equation which the mathematician can deal with, and

* The Nernst lamp used in the demonstration provides an example of a true physical lag in the period while the filament is warming up.

if it is satisfied he can tell you at once how much transformed material there will be at any instant. He would state the result in the form of another equation:—

$$m = m_0 (1 - e^{-at}) = m_0 (1 - e^{-aE})$$

where e is the constant which is taken as the base of natural logarithms and is equal to 2.7183 nearly. Joining this result with the usual assumption for which there is good experimental evidence that the density, D , of the ultimate image is proportional to m and to a factor depending on the time of development we may write

$$D = K (1 - e^{-aE})$$

as the equation connecting D and E^* . This equation does not possess as great a flexibility as Hurter and Driffield's more complicated one; that is, in mathematical language, it does not contain as many constants which can be adjusted so as to represent the peculiarities of different kinds of sensitive plate. But it possesses the same general characteristics as theirs; and it is suggested as a possibly useful one in those cases in which it may be desired to represent the behaviour of a plate by means of an equation which rests on very simple assumptions and has simple properties. If we plot D against $\log E$, the curve obtained is similar to Fig 2. The point of inflection, F , occurs when $E = \frac{1}{a}$; and the density there is .632 K . The point

M is given by $OM = \log_e \frac{1}{a} + -e = \log_e \frac{1}{a} - 1.718$. This distance

may still be taken as the logarithm of the "inertia"; but I am a little in doubt as to whether the customary measure of the sensitiveness of a plate is the most plausible or useful one to employ. It specifies the most important property of a plate by the position of a point which is *not on the representative curve of the plate at all*.

An exposure equal to the "inertia" gives under-exposure, for M lies markedly below the curve. In practice this does not lead to ill results because exposures are accommodated to the requirements of specified values of sensitiveness by experience. But a much more scientific specification would be that of the exposure corresponding to the middle of the flattest part of the curve, viz., the point F ; for this would name a mean exposure which could be deviated from either in excess or defect without risking a false gradation. The exposure would then be adjusted (as in practice it probably is now) by letting the predominant lights correspond to the exposure F (to be quoted on the box) and leaving the insignificant details and highest lights to look after themselves. The determination of the point F is not in general use so easy as that of M , which is found from a few exposures in the "correct" region, and drawing a straight line as nearly as possible through the points obtained on the diagram. But if the above simplified equation be accepted as a working guide the point F will be found to correspond to an exposure whose natural logarithm is greater than OM by the amount e , or 1.7183. Thus a determination of M would simultaneously determine F at least as far as the simple equation is sufficiently accurate.

PART II.

I want now to pass to a subject which is more nearly related to optics, and connected to a property of the finished plate. My object is to introduce you to a subject upon which Dr. C. E. K. Mees has been working, and by means of some simple demonstrations to show you upon what principles his explanations depend. The property in question is the scattering of the light incident upon a photographic plate. The importance of this arises from the influence which this scatter has in broadening the image of a warmer object so that if two very near bright line objects be photographed, their images on the plate overlap and prevent them being seen as two. That such scatter is very important is, of course, quite well known, and it is usually attempted to diminish it by selecting plates in which the grain of silver halide is as fine as possible. But now Dr. Mees finds† that it is not the finest-grained plates which produce the least scatter; in a series of experiments it was a minimum in a medium-grained "Process" plate with grains of .001 to .0015 mm. diameter, and in a special plate with very uniformly sized particles of about .0015 mm.

diameter; and it was greatest in a chloro-bromide plate in which the particles were .0008 mm. diameter. To prove this Dr. Mees merely photographed a very narrow slit upon the various plates, the illumination of the slit being of decreasing intensity from top to bottom of it so as to simultaneously obtain images corresponding to various bright sources. The images were naturally broader at the more illuminated end, and consequently present somewhat the appearance of tadpoles. Photomicrographs were then taken of these, and the above statements summarise the conclusions to be drawn from them (Lantern slides of these "tadpoles" were shown, having been courteously lent by Messrs. Wratten and Wainwright.) The phenomenon of scatter is therefore not so simple as has always been taken for granted.

To explain the complication, Dr. Mees recognises that it is necessary to bring into account the effects of "diffraction" as well as reflection, the latter alone having previously been considered in this connection. I wish to demonstrate what this phenomenon of diffraction is. I focus a narrow slit (illuminated by a lantern) upon the screen, by means of a lens. If I place a piece of plain glass in the path of the beam near the lens no perceptible disturbance is introduced. I now place a piece of glass containing about 500 parallel lines scratched on every inch of it. The result is that I see, instead of one uncoloured image, about ten slightly coloured images on each side of a central uncoloured one; these extend over about 2ft. of the screen. This is a case of diffraction scatter. Taking a similar glass "grating" with about 14,000 lines to the inch (about .002 mm. from centre to centre), the scatter is much increased. In this case there is a central image, and on each side of it, spreading out to an angle of nearly 20 deg. on each side a bright spectrum, succeeded (also on each side) by another making double this angle with the central image. Now these gratings have a structure which is comparable in size with the diameter of the grains in a photographic plate, and we may therefore conclude that diffraction phenomena will be prominent in connection with the behaviour of a photographic film. Figs. 4 and 5 show diffraction effects for a needle and for a small triangular opening respectively, these being placed in turn in the position of the grating in the experiment shown.

Dr. Mees found an easy way of distinguishing between a mere reflection scatter and one due to diffraction. The amount due to ordinary reflection (such as from mirrors) would be independent of the colour of the light; but the amount due to diffraction depends markedly upon colour, hence the spectra which you saw on the screen. Repeating some of his tadpole experiments, using light of different colours, he found that the scatter showed little difference (if any) in the case of the process plate, but is very different for the red and blue in the case of a lantern plate. In the former plate, the effect of ordinary diffuse reflection was sufficiently great to overpower any diffraction effects present; in the case of the latter plate diffraction had become the predominant factor.

The full elucidation of the behaviour of plates in this respect would be a matter of very considerable interest, both theoretically and practically. Unfortunately, the size of grain in a photographic plate is of such a magnitude as to introduce the greatest possible difficulty in working out a theory. If the grains had been very large so much success could probably be obtained by treating them as reflecting spheres. For such spheres the amount of light diffused would be roughly proportionate to the total area of the grains. On the other hand, if their diameter were exceedingly small so that many of them would be contained in a single wave-length of light, the question of the amount of scattered light is again a soluble one. It has been discussed by Lord Rayleigh, and it turns out that for such particles (such as the particles in blue tobacco smoke, or the particles of sulphur deposited in the earlier stages of the experiment shown in this lecture) the amount of light scattered is proportional to the number of particles per unit volume, multiplied into the *square* of the volume of each, and that it is inversely proportional to the *fourth* power of the wave-length of light employed. But it is not justifiable to assume that a blend between these two laws will hold in the case of the grains of intermediate sizes with which we are now concerned. Moreover, a knowledge of the relative numbers of grains in the different plates is required before a complete comparison can be made between them. It can be shown that the breadth of the scatter will be small, both when this number is very small and when it is very large; and that there is a certain intermediate number for which the breadth will be greatest, other things being the same. When the number of grains

* In reality a and K in this formula only represent a kind of mean value of each of these quantities, their values varying from layer to layer through the thickness of the plate. This equation should be taken as applying to any very thin layer of the film and then a summation effected for all the layers. This leads once more to the complication which the equation is intended to avoid.

† "Roy. Soc. Proc.," Vol. 83, No. A 559.

small the amount of scattered light is insignificant; on the other hand when the number is great, although the amount scattered by any element is great, yet it can penetrate little distance because it is topped by the grains in adjacent elements.

The question is of so much importance, however, that it is bound to be more fully discussed, and I thought that the few things I have shown you to-night might enable you to know something about the phenomenon of diffraction, which will be referred to throughout the future discussion.

A. W. PORTER.

Photo-Mechanical Notes.

A New French Textbook.

Reproductions Photomécaniques Monochromes par L. P. Clerc. O. Doin et Fils. Paris. 5 francs.

The last volume of the "Encyclopédie Scientifique" is devoted to photo-mechanical processes and is written by Monsieur L. P. Clerc, one of the editors of "Le Procédé." The name of the author is a sufficient guarantee that the book is quite up-to-date, and replete with the latest scientific investigations concerning process work. Separate sections deal with photography, both by wet and dry plate, with line, zinc etching, half-tone, collotype, photolithography, and photogravure. There is an historical introduction, and two appendices deal with the prices charged for the work, and a bibliography of the literature connected with it.

Altogether, an admirable compilation, compact and complete, in which the theory of the work goes hand in hand with the practice; we wish there were a similar book in English.

Lithography v. Letterpress Illustration.

The introduction of the new off-set presses has given a fillip to lithography, and if photo-process is applied to plates for printing in this manner, as is certain to be the case, the letterpress printer will have more severe competition to meet than he has had for many years past. Already we have seen admirable half-tones and three-colour work in both cases done with the added advantage of being printed on pleasant and durable paper, at probably a lower cost than is possible by letterpress methods.

We suggest that the letterpress printer should see if a rubber off-set press could not be made to work from type and blocks in relief. This would offer many advantages, as it would enable such blocks to be "fine etched" if necessary, which is difficult to the point of impossibility in the case of half-tones printed lithographically. Advantage could be taken of skill now available, and the machines ought to be considerably cheaper as they would need no damping arrangements, as they do for surface printing. It is true the rubber blankets might not last so long, but, after all, the cost of the blanket is not a very serious item, especially if the job ran into large editions.

Improving Half-Tones.

Patent No. 25,968, 1909, of J. Bell, describes at great length the deficiencies of ordinary half-tone blocks, as, for example, "the absolutely black and darker parts of the picture are rendered smoky, dull, and ashy in appearance, in consequence of being broken up by the said screen," and claims the following methods for improving matters:—

First. The improvements in the production of "half-tone" process engraving, line process engraving, process prints, and the like, which consist in the introduction thereto of the relative pure blacks, and the artistic gradations thereof of the original subject or object, by removing portions of the superimposed photographic film from the negative, or "half-tone" screen negative, by drawing or engraving thereupon before being printed from on to metal.

Second. The improvements in the production of "half-tone" process engraving, line process engraving, process prints, and the like, which consist in the introduction thereto of the relative pure whites and the artistic gradations thereof of the original subject or object by removing portions of the superimposed photographic etching resist film from the positive print upon the metal plate by drawing or engraving thereupon before the same is etched.

Third. In combination with the process claimed in the first and

second claiming clauses hereof, the improvements which consist in the introduction of the relative pure whites and the artistic gradations thereof of the original subject or object by drawing, in varied and artistic lines, in combination or not with masses, upon the sensitised "half-tone" screen-negative image with a fine brush and waterproof Indian ink or the like to obtain a corresponding but superior result to that heretofore only attainable by engraving down in artistic lines and masses the relief surface of the already etched block.

Fourth. The improvements in the production of "half-tone" process engraving, line process engraving, process prints, and the like, which consist in the introduction thereto of the combined correlative pure blacks and the correlative pure whites, and the artistic gradations thereof of the original subject or object, by the means respectively referred to in the three preceding claiming clauses hereof.

Fifth. In the process forming the subject of the first, second, and fourth claiming clauses hereof, the employment of a tool having a curved acting longitudinal edge, preferably situated below the central line of the stem of the said tool when in use.

Sixth. In the process forming the subject of the first, second, and fourth claiming clauses hereof, the employment of a tool having a curved acting edge, situated at right angles to the direction of movement of the tool, and preferably situated above the central line of the stem of the said tool.

Seventh. The improvements in process line engraving, which consist in printing an ordinary photographic negative or transfer on to the superimposed photographic etching resist film upon a metal or other plate, and drawing or engraving upon the same in lines, dots, or masses, as in wood-engraving, previous to the etching process, in order to obtain the relief image of the original object or subject for printing.

With regard to the first four claims, it has been the practice, as long as half-tone has been used, to "fake" both negative and print in the manner described, generally with more or less disastrous effect. The special tools proposed may make matters easier, though in the absence of great skill and artistic feeling we should expect results to be worse rather than better. This is probably the process employed in the illustrations in the advertisement columns of the "Daily News" some time ago, when we suggested, without any idea of this patent, the method was similar to the one now described. Patent No. 27,387 of 1909 claims further protection for the tools used.

PHOTO-MECHANICAL PATENTS.

The following patents have been applied for:—

HALF-TONE BLOCKS.—No. 29,431. Improved method and apparatus for making half-tone blocks. William Gerrard Rennie, 28, Forth Street, Edinburgh.

PRINTING PLATES.—No. 29,507. Process for etching flat-iron printing plates. Herbert Sefton-Jones, 285, High Holborn, London, for C. G. Roeder G.m.b.H., Germany.

ETCHING MACHINES.—No. 29,660. Improvements in etching machines. Henry Williams, trading as Leeds Electro and Stereo Company, 8, Quality Court, Chancery Lane, London.

"ENSIGN" COMPETITION.—O.R. Colour-Sergeant Arthur Burns, Scots Guards, Guards' Depot, Caterham, Surrey, is the winner of the "Ensign" Roll Film Competition for December. Houghtons Ltd. offer a three-guinea camera every month for the best negative on "Ensign" film. The entries close on the 3rd of the month. Entrance is free, and a competition form is enclosed with every spool of "Ensign" film.

NEW FELLOWS OF THE R.P.S.—Thirteen applications for Fellowship were made to the Council of the Royal Photographic Society. The following eight candidates were elected:—E. T. Holding, F. R. Fraprie, Adolphe Abrahams, S. L. Coulthurst, Captain Owen Wheeler, Thomas Wright, Professor G. H. Emmerich, and B. Ward-Thompson.

FORTHCOMING EXHIBITIONS.

December 4, 1909, to January 1, 1910.—Southport Photographic Society. Sec., J. McLellan, 2, Pilkington Road, Southport.
 December 31, 1909, to January 8, 1910.—Wishaw Photographic Association. Sec., R. Telfer, 138, Glasgow Road, Wishaw, N.B.

1910.

January 26 to 29.—Bolton Camera Club. Entries close January 12. Sec., H. Mills, Higher Bank, Southills, Bolton.
 February 1 to 5.—Norwich and District Photographic Society. Entries close January 18. Sec., J. T. Tanner, The Lodge, Bowthorpe Road, Norwich.
 February 1 to 16.—Glasgow and West of Scotland Amateur Photographic Association. Entries close January 20. Sec., J. M'Kis-sack, 68, West Regent Street, Glasgow.
 February 21 to 25.—City of London and Cripplegate Photographic Society. Entries close February 4. Sec., H. S. Cuming, Cripplegate Institute, Golden Lane, London, E.C.
 February 26 to March 12.—Edinburgh Photographic Society. Entries close February 12. Sec., J. C. M'Kechnie, 31a, Castle Street, Edinburgh.
 April 5 to 9.—Sheffield Photographic Society. Secs., J. A. George and J. R. Wigfull, 14, Parade Chambers, Sheffield.
 April 9 to 16.—Photographic Arts and Crafts. Sec., Arthur C. Brookes, 15, Harp Alley, Farringdon Street, London, E.C.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents have been made between December 13 and December 18:—

- CINEMATOGRAPHS.—No. 29,117. Improvements relating to cinematographs or like apparatus. Albert Harrison Moorhouse, 57, Lincoln's Inn Fields, London.
- COLOUR PHOTOGRAPHY.—No. 29,273. Improved process for the manufacture of polychrome surfaces for colour photography. Société Anonyme des Plaques et Papiers Photographiques A. Lumière et ses Fils, 31, Bedford Street, Strand, London
- LENS DEVICE.—No. 29,282. Improved device for use with, and also as a substitute for, objectives. Jean Marcel Mascart, 57, Lincoln's Inn Fields, London.
- SHUTTERS.—No. 29,285. Improvements in and relating to apparatus for ascertaining the duration of photographic shutter exposures. Frank Philip Whitehead, c/o F. Whitehead and Co., Pickets Street Works, Balham, London.
- CAMERAS.—No. 29,296. Improvements in connection with roll film cameras, whereby a series of exposures can be readily separated from the rest of the film for subsequent development. William Wade, 6, Finkle Street, Stockton-on-Tees.
- PHOTOPLANOGRAPHS.—No. 29,323. Improvements in photoplanographs. Calvia John Ellis, Birkbeck Bank Chambers, Southampton Buildings, London.
- CINEMATOGRAPHS.—No. 29,594. Improvements in apparatus for feeding cinematograph films. William Cecil Jeapes, 55, Chancery Lane, London.
- CINEMATOGRAPHS.—No. 29,684. Improvements relating to moving-picture machines and apparatus for winding cinematograph films. George W. Bingham, 31, Bedford Street, Strand, London.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

The date in brackets is that of application in this country; or abroad, in the case of patents granted under the International Convention.

REFLEX CAMERA FOCUSING SCREENS.—No. 27,667, 1909 (November 30, 1909). The invention has for its object to provide a method of showing, at one time on the screen of a reflex camera, only one

version or the other of the two versions of the picture corresponding to the "upright" and "horizontal" position of the rotating back. It comprises a pair of pivoted masking blades, which can be operated either separately by the operator, or in the case of cameras provided with a revolving carrier for the sensitive surface, the latter may be so connected to the masking blades that they will be automatically changed from one position to the

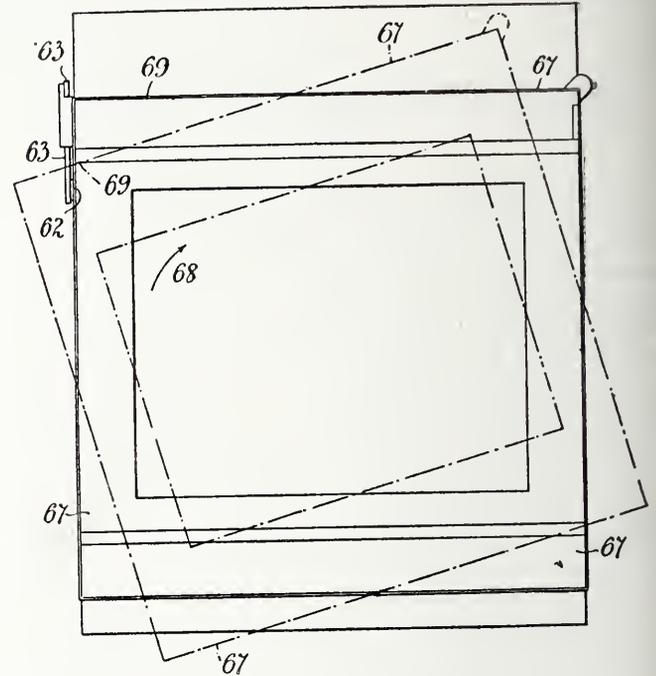


Fig. 1.

other, and thereby ensure that the screen will always show correctly either the vertical or the horizontal position only, so as to coincide with the position which the sensitised surface occupies in the camera.

A frame (such as a metal frame 50) is provided, over or under which the ground glass or other focussing screen 51 is mounted or arranged, and means are provided to block out the corners and

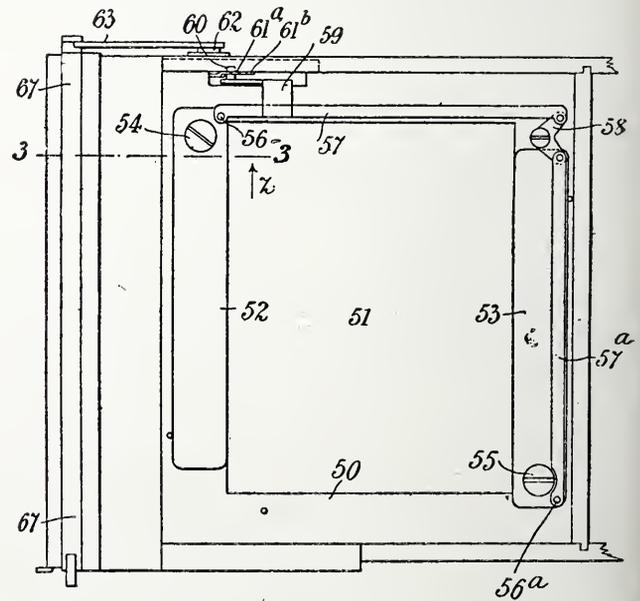


Fig. 2.

opposite side parts on the screen, as, for example, the metal frame may have inwardly projecting corner pieces suitable for blocking out the corners on the screen.

On each of two opposite corners (i.e., diagonally opposite) of the frame a leaf or blade, such as a flat metal strip 52, 53 is arranged and mounted so as to be adapted to be moved into position to occupy the space between either of the adjoining corners. For example,

each such blade may be pivoted at 54 and 55 respectively to the aforesaid corner diagonally opposite to one another, and means are provided to turn the blades around the pivot to an angle of 90 degrees, and to retain each blade in position at the limit of its movement—for example, by means of a crank pin 56 and 56a on each blade, and a connecting rod 57 and 57a respectively attached thereto, and such rods, 57, 57a, are connected through the medium of a bell crank 58, so as to be operated by any suitable means, such, for example, as the fixed angle piece or sliding bracket 59, which latter has fixed thereon the laterally extending pin 60, which pin 60 is engaged between the two forked arms 61a and 61b of the forked rocket lever 61, pivoted at 62 to the inside of the camera case 1, and on the pivot or shaft 62 of the forked lever 61 there is rigidly fixed the lever arm 63.

64 is an extension piece or arm, fixed or formed on the forked lever 61, to which extension arm there is attached one end of a spring 65, the other end of the spring being fixed at 66 to the inside of the case 1.

One of the forked arms—viz., the forked arm 61a—is pivotally mounted on the lever 61, e.g., may be pivoted on the same centre 62, as the lever 61, 64, is pivoted; and the spring 61c is attached

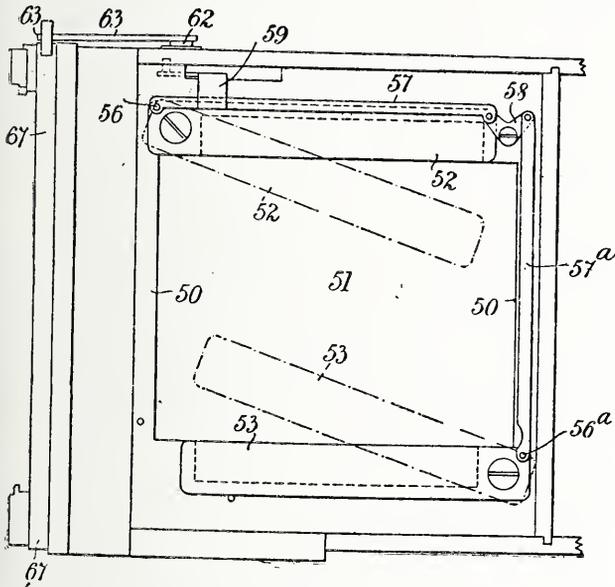


Fig. 3.

at one end to the lever 61, and is attached at the other end to the pivoted fork 61a, so as to thus normally keep the latter pressed towards the other forked arm 61b (this spring 61c being sufficiently strong for this purpose), but enabling the former to be moved apart from the latter when necessary.

The lever arm 63 is of such length as to be adapted to extend to the rear of the camera case, and so that the free end of the lever 63 is interposed in the path of rotation of the revolving back or reversible back 67, which latter may be of any known or suitable form, and arranged and mounted to turn or revolve on the back of the camera in any known or suitable manner. Thus it will readily be seen, when the revolving back 67 is turned from the reverse position into the position shown in full lines in Figure 1, as the back is being swung from the reverse position in the direction of the arrow 68 (Figure 1), when the revolving back reaches about the position shown in dotted lines in Fig. 1, the top edge of the revolving frame at or about the point 69 (see Fig. 1), will ride against the free end of the lever arm 63 (which is caused to project in the path of rotation of the revolving back 67 by the action of the spring 65 and its intermediate connections), and the revolving back will force the end of the lever 63 upwardly out of its path, and thereby will (through the mechanism aforesaid) cause the blades 52, 53, to be swung into the position shown in full lines in Figure 2; while, when the revolving back is moved back into the reverse position, same will consequently release the lever arm 63, and thereupon the spring 65 (acting as before described), will swing the blades 52, 53, from the position shown in Fig. 2 into the position shown in full lines in Fig. 3.

Thus, as the revolving back is turned from one position into the

other, the blades 52, 53, will be automatically moved from one position into the other, and thereby will mask the screen so as to automatically correspond with the position of the revolving back. Arthur Lewis Adams, 24, Charing Cross Road, London; and Walter George Roberts, 5, Nelson Terrace, Islington, London.

New Grade Names:

SUPER SPEED ORTHO (DESIGN).—No. 315,679. Photographic plates. Elliott and Sons, Ltd., Talbot House, Park Road, Barnet, Herts., manufacturers of photographic dry plates, films, and papers. August 19, 1909.

Analecta.

Extracts from our weekly and monthly contemporaries.

Enlarging in One Direction Only.

To the photographer who wishes to record his impressions (writes Mr. H. Wild in "Photography and Focus" for December 28) rather than to make accurate diagrams of the details, the lens image is often very disappointing. Places that impress by their height do not seem high enough, and big things, though they may take up a good part of the negative, do not give the idea of bigness. Much may be done by a careful choice of point of view and by suitable atmospheric conditions, but even then we often wish we had the power to stretch the negative (or rather the resulting print) higher or wider. I have tried several ways of getting this effect, but without much success until quite lately, but I think I have at last found a method that promises well. I have not had time to experiment much as yet, but the results obtained show that the method is at any rate workable.

The apparatus for "stretching" prints in this way only requires one article not usually found in the photographer's outfit, and that is a convex mirror with a cylindrical curvature. Mine is a very old one, and measures about 9in. by 7in., with a curvature of about $\frac{3}{4}$ in. in the 9in. For the rest, an enlarging lantern and a printing frame as large as, or larger than, the required print complete the equipment.

The negative is inserted in the carrier of the lantern, and all arranged as if for ordinary enlarging, except that the convex mirror is placed in the path of the rays at an angle of about 45 degrees, and the printing frame at an angle of 45 degrees with the mirror, and at 90 degrees with the condenser. I find it best to keep the mirror and frame as close as possible at one end. It will be found necessary to stop down to about $f/22$ or $f/32$ to get good definition, but with incandescent gas for the illuminant the exposures are not excessive.

The best way of working is to arrange the mirror and the printing frame (which should have a piece of clear glass, backed with a piece of white paper, in it, on which to focus) at about their respective angles on a piece of board—i.e., a small drawing-board. This is then moved backward and forward in the path of the rays from the lantern until the image is the desired size. It is then focussed as sharply as possible at full aperture, and the lens stopped down until the definition is even all over. The lens is capped, a piece of bromide paper put in the frame in place of the white paper used for focussing, and the exposure made.

R.P.S. AFFILIATION PRINT COMPETITION.—The judges made the following awards in the recent competition: Plaques to W. C. Pettigrew (Bromley C.C.), G. B. Clifton (Ealing P.S.), Harry Lindoe (Wearside C.C.), and P. Martin (Woodford P.S.). Certificates were awarded to the following societies: Wearside Camera Club (1st), Woodford Photographic Society (2nd), and Borough Polytechnic Photographic Society (3rd). The whole of the selected prints will be hung at the house of the Royal Photographic Society, 35, Russell Square, W.C., and will be on view to the public, admission free, from January 11 to February 15, 1910, 11 a.m. to 4 p.m. daily, 11 a.m. to 2 p.m. on Saturdays. At the close of the exhibition the whole collection, together with numerous sketches by Mr. W. J. Morgan, R.B.A., will be circulated among the affiliated societies.

New Books.

"TRAVEL AND EXPLORATION."—The January number of "Travel and Exploration" begins the second year of its fairly successful career. Though, naturally, the demand for a comparatively expensive and emphatically class magazine is not large, compared with that for the popular monthlies; yet this demand shows signs of increasing, and consequently the proprietors have decided to enlarge the magazine permanently, beginning with this number. This will allow of adequate reviews of important travel-books—and "Travel and Exploration" is the only non-technical magazine which confines its reviews strictly to travel literature. The most important article in the January number is, perhaps, Dr. W. Hunter Workman's description of his explorations in the Nun Kun range of the Himalayas. Mr. C. N. Williamson, the well-known motoring novelist, gives a very readable account of the popular motor run from Paris to the Riviera. These constitute the purely exploration and travel side of this number. A very valuable series of articles on "Outfit and Equipment for the Traveller, Explorer, and Sportsman," to which Sir Harry Johnston, Mr. Harry de Windt, Mr. Ralph Durand, and other well-known authorities in this field of exploration have contributed, is begun in this number, chiefly from the pen of Mr. Ralph Durand.

THE "TELEPHOTO QUARTERLY."—No. 8 of "T.Q.," closing the second year of publication, discovers Captain Wheeler offering a liberal programme of articles and illustrations, helpfully emphasising the practical side of telephoto work. We doubt if our contemporary would make a warmer welcome for itself by publishing, as it thinks it should do, more scientific contributions. So far, the stamp of practice has been upon everything which has appeared in it, and on that account we are sure that no one interested in telephoto work will willingly let slip the opportunity of obtaining its four issues per annum at the cost of 2s. The December issue, just about to be published, contains articles of notable interest on "The Tele-lens in Architecture," and on "Mountain Telephotography," with many notes in the editor's always delightful vein of humour. Our readers in the United States should note that "T.Q." is sold by Tennant and Ward, 122, East Twenty-fifth Street, New York. In England, the publishers are Messrs. Gale and Polden, 2, Amen Corner, London, E.C.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

MONDAY, JANUARY 3.

- Nether Edge Camera Club. "Ensyna." F. J. Stedman.
Bradford Photographic Society. "Printing, Developing, and Toning Velox Paper." W. F. Slater.
Southampton Camera Club. The Annual General Meeting.
Leek Photographic Society. Monthly Lantern Night.
Catford and Forest Hill Photographic Society. "Affiliation Print Competition." W. J. Morgan, R.B.A.
South London Photographic Society. "The Amateur Photographer" Prize Slides.
Scarborough and District Photographic Society. Y.P.U. Portfolio of Prints.

TUESDAY, JANUARY 4.

- Royal Photographic Society. No meeting.
Halifax Camera Club. "Ensyna." F. J. Stedman.
Nelson Photographic Society. "Autotype Carbon." Demonstration.
Harwich Photographic Society. "Large Prints from Small Negatives." W. F. Slater.

WEDNESDAY, JANUARY 5.

- Dukinfield Photographic Society. "Large Prints from Small Negatives." W. F. Slater.
Croydon Camera Club. "Flashlight Photography." F. C. Hart.
Borough Polytechnic Photographic Society. "Bromide Toning." W. F. Harrap.
Edinburgh Photographic Society. Debate, "That Photography Achieves its Greatest Success in Portraiture." Aff.—T. Drummond Shields. Neg.—J. Robertson Christie.

THURSDAY, JANUARY 6.

- Armley and Wortley Photographic Society. "Autotype Carbon." Demonstration.
Chelmsford Photographic Society. "Ensyna." F. J. Stedman.
Oldham Photographic Society. "Large Prints from Small Negatives." W. F. Slater.
Midlothian Photographic Association. Lantern Slide Night.
Liverpool Amateur Photographic Association. "Process Block Making for Illustration." Frank Vaughan.
Hull Photographic Society. New Year Revels. Smoking Concert.
Handsworth Photographic Society. Annual Meeting.
Watford Camera Club. Lantern Evening, &c. E. H. Jackson.

CATALOGUES AND TRADE NOTICES.

A NEW ZEALAND LIST.—Messrs. Walter Suckling, Ltd., 204, Cashel Street, Christchurch, New Zealand, send us their full catalogue of photographic requisites, which we are interested to see form a volume of over 220 pages, excellently arranged and well printed. It lists every variety of photographic apparatus and material, chiefly of British manufacture. Evidently our readers in New Zealand and the Islands can obtain from Messrs. Suckling the standard articles for all branches of photography.

Commercial & Legal Intelligence.

PROFITS ON PHOTOGRAPHIC ENLARGEMENTS.—At the Brighton Borough Bench on December 20, Harry Marks and Lena Chorley, alias Oswald, were charged on remand that they did unlawfully conspire by false pretences to obtain money from Constance Elsie McLewee.

Mr. Graham Hooper prosecuted, and Mr. Huntley Jenkins (instructed by Messrs. S. Myers and Son, London), defended.

Prosecutrix, who lives at 52, Church Street, and is a young woman of twenty-two years of age, said that on the death of her father in 1906 she was left £300. She saw an advertisement in a local paper:—

"Wanted, a smart young lady, to travel with another. Experience unnecessary. One who can invest small capital preferred. State age."

In consequence, she wrote a letter on September 25, and received a letter signed Lena Oswald, asking for an interview. In consequence she went to a house in Tichborne Street on September 28, and there saw both prisoners. Marks then told her he wanted someone to learn his business of photographic enlargement, and to travel about with him and the other young lady, meaning Miss Oswald. It was, he said, a very profitable business, and he would want a security of some kind. Witness asked him how much he expected. Marks said, "What can you give?" Witness said, "Will £20 do?" And he replied, "Yes." Then he told her that, according to what she invested as security, he would pay her interest on it, that he would give her 2s. 6d. per week interest on the £20, and £1 a week wages besides. He also said she could have her interest paid when she liked, and she told him she would prefer to have it monthly. Further, he said she could try the business, and if she did not like it, and gave him twenty-four hours' notice, he would refund the money. The reason why he wanted security was, he said, because some time previously a man who was working for him went away with some of his money and frames. Witness said she would try the business, and agreed to start on the following Monday. Marks said they were leaving there on Monday, and going into fresh apartments. He said the other young ladies had always lived with them, and that they preferred them to, but that witness could do as she liked. Witness decided to live with them. The female prisoner said ever since she had been with Mr. Marks she had been very happy, that she liked the business very much, and would not give it up for anything. She also said she had been with Mr. Marks three years, and previous to that with his brother George, two years. She further said that since she had been with Mr. Marks she had opened a banking account, and that every year she was adding to it. She also said that when she joined Mr. Marks she invested £40, and that her brother was very much annoyed, and would not let her have it a first. She had never regretted it, and was sure witness would be as happy as she had been. At a further interview on the following Sunday she was told prisoners were moving to Centurion Road. The next day witness went to start in the business, and in the afternoon the removal to Centurion Road took place. Then, in the absence of Marks, the other prisoner asked her if she had settled with Marks. Witness told her no, and that she intended to do so when she unpacked. Oswald said it was only right to settle where one started anything. Witness went upstairs and undid her trunk and brought her cheque-book downstairs. Marks had then returned and witness drew a cheque (produced) for £20 in his favour. She was going to cross it, but he asked her not to as he wanted to get out and cash it. He went out again, and then Oswald told her to

would be going to London next day. He was away a week, returning on October 12. While he was away Miss Oswald took witness round two or three days to teach her canvassing, and the orders she got she sent to Marks at an address in Highbury Grove, London. Witness asked why they did not go out canvassing oftener, and Oswald said it did not matter, and that Marks didn't mind as long as she got so many orders a week. One day witness told Miss Oswald she was going to run down to the bank. Oswald said, "Oh, you have some more money, have you? I thought the £20 was all you had." Witness said, "No, I have a little more." While Marks was away there was trouble with the landlady, who wanted her bill when they had been there a week. Prisoner then asked witness if she had any money on her, so that they could settle up and pay the bill, and she said if witness would pay it, Mr. Marks would let her have it back when he came home. Witness advanced a sovereign. On his return on October 12, Marks asked her how she was getting on, and whether she liked the business. Witness told him she did not like canvassing much. He said she would not always have canvassing; when she got in the business she would have canvassers of her own. During that week witness went out canvassing two or three times, and Oswald made the bad weather an excuse for not going oftener. After Marks had been back a few days he said his brother in London had got a new idea from a foreigner, and that at any time he might write to say that he would have to start with him in this new business, which was a kind of advertising paper. If it came off all right, he said his brother and he would make their fortunes at it. A few days after she saw Marks with a telegram, and he said it was from his brother Alfred, and that it said "everything is all right, come." Afterwards he said if he went with his brother he would not have time for the two businesses, but he did not want to give up his business in Brighton, because he had had it so long, and it was so profitable. Oswald was present, and Marks went on to say he would make it worth their while if they would manage the business for him. He suggested that Oswald should go out canvassing and that witness could finish off the pictures, send up the orders in the evening, and do the housekeeping. Oswald said, "That won't satisfy me; I'm going to manage your business for you. I've been with you five years, and it's time I had a business of my own. I should have started on my own long ago if I had only known the secret of the business. I won't be content with managing your business. I think you ought to sell it to me." Marks said, "You can't buy my business; it's worth £1,000." Oswald replied that she had not £1,000, but that she knew she had enough money to buy the business. She also said Marks was going to make a fortune out of the other business, and that after all the time she had worked for him, and all the money she had earned for him, he ought to do something for her.

After further conversation, Oswald said, "You know there is a secret," and Marks said, "Yes, but it isn't likely I'm going to tell you everything." Miss Oswald appeared to want to buy the business very much, and was apparently very much annoyed because Marks would not sell. After they had gone to bed Oswald said she had made up her mind to get the business, and she was sure Marks would give in in the end. She also said, "You know there's tons of money in this business, and if he'll only sell it to us we'll make an end of money out of it." She asked witness if she would go into partnership with her if she found out the secret. Witness replied, "I don't know; we may not be able to make the thing pay like he does." Oswald said they would be all right if she could learn the secret because she knew everything else in connection with the business. Next morning there was further conversation about the sale of the business, and Marks said, "I suppose I had better sell it to you two girls for £50 each." Upon this Oswald said, "Oh, that is kind of you; I thought I should have to pay at least £100 for my half." To witness she said, "That is kind of him. Fancy his letting us have it so cheap—£50 each." Marks said, "That's all right; of course, I shall have to explain the business to you." Witness asked if he would let them have the secret, and he said he would, and that he would take witness round and teach her his style of canvassing. He asked if they would pay for the business then, and Oswald said, "You know I can't pay for my share now as my cheque-book is at your mother's home in London. Our're going to send me down my cheque-book directly you get to

London, aren't you?" Marks said he would, and that he supposed witness would pay for her. Witness said, "I might as well," and drew a cheque for £35, out of which Marks returned her £5, the £20 she had previously paid being taken into account.

During the next few days Marks took her round Buckingham-road canvassing, and when they called at a house Marks would say, "I have called from Marks and Co. We are opening new premises round her, and are giving pictures free to advertise themselves. Would you like to accept one?" If this offer were accepted he would ask for a small photograph for enlargement, and suggest that if when it was done they would like it framed, they should give his firm the preference. These photographs were sent to a firm in London for enlargement at a cost of 5d. each, and the frames were purchased of a Hackney firm at a cost of 10d., 1s., or 1s. 2½d. The glass cost 4d. for each picture 20in. long by 16in. when witness bought it, but Marks used to buy glass in large quantities and cut it himself. With the photograph in the frame and a few nails put on it and the back pasted with brown paper, the work was complete, and the pictures would be sold at from 5s. 6d. to 12s. 6d. each. The average was 8s. 6d. If persons would not have a frame they did not get the picture, and in some cases they did not get the photograph back. Marks told her she should always say they were opening round there, and should not tell them they were in apartments. Afterwards Marks said there were the book debts, and Oswald said, "Yes, of course, we must pay for those." He made out a list, and Oswald said she should also like to sell jewellery, as there was a great profit on it. Marks brought down a lot of it from London, and they agreed to take £1 worth each. He put the book debts at £23, and Oswald said she should like to pay her share, but as she had not her cheque-book, would witness oblige her by paying her half as well as her own, adding, "Of course, I'll pay you all back when Mr. Marks sends me down my cheque-book." Witness had not any forms left in her cheque-book, but she told Marks she would go to the bank in the morning. One night Oswald told witness she had about £300 in the bank, and asked witness how much she had. Witness told her about £100. Next morning, after witness had packed her small trunk, Marks sent her out to get some paper for the business, and on her return she found Oswald had packed up all her things because she said they wanted to get out quick. On unpacking her things at Church Street witness missed some of them, and subsequently saw them among the prisoners' luggage in the possession of the police. On the way to the bank on the morning of October 25, Oswald said that as she was starting in business with witness she was going to transfer her account to witness's bank. Witness asked her where she banked, and Oswald replied, "In London, near the Bank." Witness asked which one, as there were several there, and Oswald said she did not remember, as Marks managed her money affairs for her. "When," she said, "I want any money I draw a cheque and give it to him, and he draws a cheque for me." Witness described how she got £25 in notes from the bank and paid Marks for the book debts and jewellery, and said Oswald promised to pay her all she owed her when her cheque-book came. It was estimated that Oswald then owed her £50, and she said she would draw a cheque for £60, which would allow witness for stock and other expenses. Marks gave her no receipt for the money, but sent her away from Centurion Road first, because he said the landlady would be annoyed at their leaving, and he and Oswald would settle the matter with her. They afterwards arrived at Church Street with the luggage. Here Marks said that now the time had come for him to leave he did not want to go, but they would get on all right, and if they did not make at least £8 a week each it would be their own fault. Oswald said, "Yes, I am sure it will." After he had left Oswald said she was miserable, and began to cry, and suggested they should go out to lunch, and go to the theatre to cheer themselves up. They did, Oswald asking her to pay the expenses as she had not her cheque-book, and promising to pay all back when it came. Witness paid 5s. 6d. for the lunch, and 4s. for the theatre tickets. Next morning a letter came from Marks stating that he could not find Miss Oswald's cheque-book. It was addressed to "My dear girls," from Highbury Grove, London. Oswald borrowed 10s. on October 26 to get some things from the cleaners, and suggested that witness should write Marks, saying they were very comfortable, and thanking him for being so good to them.

Witness complied. Prosecutrix said Oswald had often told her that she had dreamed her sister was ill, and one evening she received a telegram, and said it was to say her sister was ill. She said she must go at once. Witness was going over to comfort Oswald, when the latter deliberately screwed the telegram up and threw it in the fire. She said she would go in the morning, and arranged to send a telegram to "Horne, 11, Mill Road, Liverpool. If in great danger, wire at once. Will come." Next morning, Oswald said she would have to go after all, as she had got a telegram saying she must go at once if she wished to see Alice alive. She packed up her things and left by an afternoon train to London Bridge. She said she would write to witness when she arrived, but witness was not to write to her, as she would be busy looking after her sister. She did not write witness, who saw her again on October 29. During the time they had been at Church Street they had collected about £1 off the book debts, and this she had shared with Oswald. On her return from Liverpool, Oswald said she had been travelling all day, and had been thinking so much about witness and wondering how she had been getting on. In reply to witness she said her sister was very ill with brain trouble, and that she would have to go away again on Sunday. Prisoner was wearing a new set of furs, which she said her brother had given her for her birthday. She also said another set just like it was coming in the morning for witness, and that the cost was £15 15s. a set. It was to be a present from her to witness for her birthday in November. Witness said she need not have gone to that expense. Next morning she said her brother had given her the money for the furs, and expected her to pay it back. She hoped her cheque-book would have been returned before then, but it had not, so would witness let her have the money for the furs. She also said her sister was wanting extra things in connection with the illness, and that there was a trained nurse to be paid for, so that in all she would want a good deal. Witness said, "How much money do you want in all?" and Oswald replied, "About £35." At first, witness said she did not like to let her have such a large sum, and to this prisoner said, "You know I would always let you have £100 if you wanted it." Witness told her she was not in the habit of borrowing money, but prisoner said she was unkind, and that in a day or two she would let her have a cheque for £60. Witness then drew a cheque for £35, and gave it to her, and she went out, saying she was going to the bank to cash it. A set of furs arrived later. During the day witness collected £2 or £3 and shared it with prisoner. Oswald left Brighton next day, saying she was going back to her sister at Liverpool, and would write to witness. During the next week witness tried to carry on the business, and went round to collect money. She had a great deal of difficulty, and had only been able to collect something over £5 out of the £23 said to be due. Witness heard nothing of Oswald, and on November 6 she wrote Marks, asking if he had seen or heard anything of her. The same evening she got a telegram purporting to come from Oswald, and saying she would arrive at 9.20. Oswald walked in at 8.30, and said her sister was awfully ill and believed to be dying, and that she was afraid she would have to go home for good. She asked witness how she was getting on, and she replied not very well, and that she had had difficulty in getting the money in. Oswald said she must send them a blue paper. As she was going away for good she wanted witness to buy her share of the business for £50, but witness said she could not afford it for one thing, and that for another she did not know much about the business. Prisoner said someone in Liverpool was prepared to give her £100 for her share, and witness said that if her share was worth that, so was hers. She asked prisoner for the money she had borrowed, and prisoner said she had not brought her cheque-book with her, but that she would go to Highbury next day and get it. Afterwards she said she could not let witness have it back at once because she had lent all her money (£300) that week. Then witness told her she believed she had been telling a lot of untruths and planning it all with Marks to get her money out of her. Prisoner indignantly denied this. There was talk about selling the business, and witness suggested that they should get Marks to sell it for them, but Oswald said he was nothing to do with them now. On November 15 she obtained a warrant for the arrest of both prisoners. In further correspondence, Marks suggested she should come to London to see him. She went with a detective, but did not see either of the prisoners. Witness believed the business and the

transactions were genuine, or she would not have parted with her money, no part of which had been repaid.

In reply to the Bench, Witness said she received one week's wages while she was with prisoners. She believed they sent out between fifty and sixty pictures a week, but she did not know how much money was taken during the three weeks she was with prisoners. She only sent up a few orders as the result of her own canvassing.

Cross-examined by Mr. Huntley Jenkins, Witness said when she met prisoners she had about £150 left of the £300 she came into in 1906. Some she had lost in business, some she had given away, and some she had spent on herself. From the time she paid the first £20 until after she parted with the last £35 she had never asked for her money back, because she was content to try the business.

Counsel put it to witness that Marks was doing a very good business in the photographic line, and Witness replied that he appeared to be.

Witness had tried to carry on the business by herself, but found she could not manage it, and she had only sent up a few orders to town.

Was it not because you were not successful that you went to the police and made a complaint?—No.

Supposing this had turned out a tom tiddler's ground, and you had found it was a gold mine, would you have made a complaint?—No.

Is not the real reason because you have lost your money and the thing has turned out a failure?—No.

In answer to other questions by counsel, Witness said she expected Miss Oswald to stay, and if she had stayed witness would have been satisfied with the business. When she wrote at Oswald's suggestion, thanking Marks for all his kindness, she did think he had been kind.

At this stage the case was adjourned until December 29.

Correspondence.

- Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.
- We do not undertake responsibility for the opinions expressed by our correspondents.

MOISTURE AND LENSES.

To the Editors.

Gentlemen,—The condensation of moisture on the lenses described by your correspondent, J. H. J., as occurring only when using a cap can probably be avoided by refraining from handling the cap.

In a cold and damp place I have often found that if the cap is held in the hand or accidentally breathed on, or even put in one's pocket for a minute while focussing, it becomes warmed and causes the front of the lens to steam.—Yours faithfully,

D. BERLIN.

Newcastle-on-Tyne.

THE ENGLISHMAN IN CANADA.

To the Editors.

Gentlemen,—
WANTED—Photographer, good finisher, not necessarily retoucher; young man preferred; no foreigners or English need apply
Box 756 Province.

It will come as a shock to the average Englishman that in Canada there exists a section of the trading public which can, or thinks it can, dispense with his services.

In other walks of Canadian life—chiefly agricultural—we have become unpleasantly familiar with the class of advertisement which the enclosed is a specimen. It was cut from the "Province" of December 10, and it is a sign of the times that respectable newspapers can still be found in the Dominion to publish such like.

The reasons for the dislike of the Englishman in Canada are good, bad, and indifferent. It is, to say the least, natural that the English farm-hand finds himself somewhat at a discount in the face of conditions which he has never had to face in the Old Country, and therefore in the first flush of his initiative on a strange soil cannot—indeed, cannot be expected to—accomplish the tasks with the same facility of those familiar with local conditions from the

youth up. But the prejudice—and it is a genuine one—which has gripped the land of the maple in connection with a certain class of English manual labour is new to find among brethren of the photographic craft. The good English photographer can hardly fail of his craft in any portion of the Empire upon which the sun never sets. The Englishman who cannot make good could not possibly be less of a craftsman than the untutored Canadian.

Who, then, is this miserable Protectionist, who doubtless claims British protection, British justice, British fair play, and British credit as his due in a British colony—who is he who debases the British language to insult not only the lone British photographer out of a job, but the whole of right-thinking, English-speaking Canada?

I have not made the smallest endeavour to discover. Fortunately the despicable temper which incites such a blood-and-language reservation is not likely largely to affect international complications, neither will it widely appeal to the gaiety of nations—with Great Britain left out.

Such a declaration is merely nauseating.—Yours faithfully,
Vancouver, B.C.

L. HAWES.

FLASHLIGHT ACCIDENTS.

To the Editors.

Gentlemen,—A large amount of interest has been raised by the reports in the photographic press and newspapers during the last week re two explosions which have taken place, caused by the use of flashlight powders. This should be a warning to many workers inclined to be lax in their handling of these dangerous compounds. It is all very well for people making and selling these compounds to urge upon their customers the ease of working, and although they certainly give warning as to the dangerous nature of the powder, they perhaps do not sufficiently impress upon the users that there is a deal of real danger in working them.

Not very long ago, having a meeting to photograph, I had occasion to use several ounces of very rapid flash powder, and although I was fired by touch-paper and I was two yards away from the train, which was laid in a special troughing, the flame on this occasion came within six inches of my face, and particles of flying powder affected one of my hands as a gunpowder explosion would do.

In many cases I attribute faulty combustion to foreign mineral matter being mixed with the magnesium powder. Photographers wishing to use flashlight powder should see that the room in which this is to take place is large enough, that all the hangings are quite clear, and then by spreading the powder lightly on a plate and in not too large quantities, and firing by means of a piece of string soaked in paraffin, which will allow the operator to remove himself a distance of two or three yards, there will be little danger. We are surprised that some firms of photographers send out assistants who have not been thoroughly grounded in the principles and working of a flashlight, and it would be far better if the masters could undertake this work personally, and not delegate to assistants this branch of work, as an accident once caused may cost them dearly, and spoil their reputation for a good many years.—Yours faithfully,

A. F. SERGEANT.

Gibbet House, Halifax,
December 28, 1909.

PLATINOTYPE PRINTS IN SALT WATER.—In reference to the note p. 995 of last week's issue as to the resistance to sea-water of the actual paper of a platinotype print, we find, on a re-reading of the article, that we omitted to name the precise brand of paper. The word "platinotype" will have made it clear that the paper was made by the Platinotype Company, and we may now add that the actual brand was the standard A.A. cold bath.

THE NEW CHELTENHAM STUDIO.—We note with interest in the "Cheltenham Looker On" an illustrated description of the new studios which Messrs. Debenhams, Longman and Co. have opened at 33, The Promenade, Cheltenham. The new premises are furnished throughout in excellent taste, and it is interesting to note the extensive use which Messrs. Debenhams make of electric light in their portraiture.

Answers to Correspondents.

- * * All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- * * Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- * * Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
- * * For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:

J. H. S. Roberts, 12, Market Street, Carnarvon. Five Photographs of F. J. Lloyd Priestley.

J. T. MEDCALF (Nelson, B.C.).—We have not. On the Pacific Slope, as you doubtless know, softness is a trouble in many places, and calls for alum baths or harder emulsions. Great hardness of the water is not usually a drawback. We think you might apply to local health authorities, who could doubtless tell you the nature of the salts in the water and their possible effect in washing photographic prints. For ourselves, we think it unlikely that a natural water will be so bad as to be unfitted for washing prints.

GELATINE LIGHT FILTERS.—Through the "B.J." will you please tell me how to make gelatine film for use in light-filter experiments? If the description be too lengthy for reply in the "Journal," please give me particulars of any book you know of from which I can obtain the information.—CALIFORNIA (Los Angeles, California).

We have not made these filters, but we should think the best way would be to coat glass, previously waxed, with the dyed gelatine, and, when partially dry, immerse in formaline, and, when dry, strip off.

"AT HOME" PORTRAITS.—Having had to give up indoor work on account of my health I should be very grateful to you if you will kindly give me the following information through your columns. I have frequently read of (1) "at home portraits." I wish to know are there travelling photographers who make a living by "at home portraits"? (I mean taken in the homes, not backyard portraits). If so (2), do they rely entirely on the window light and on the natural surroundings of the room for backgrounds? (3) My apparatus only consists of a half-plate taper bellows camera and one Dallmeyer R.R. 6 x 5 lens (an old one), and a Busch half-plate R. symmetrical $f/8$ lens, and a Ross No. 4 R. symmetrical (an old one). Ought I to be able to do satisfactory work with these? For any other advice and information you can give on this subject I shall be very much obliged.—TRAVELLER.

(1) So far as we know, the "at home" portrait is not being relied upon as the sole basis of a photographer's business. We are afraid that it is looked upon with suspicion, unless offered by a firm having an established studio business. This, in consequence of the many frauds which the public have been made the victims of by mountebanks, representing themselves to be photographers.

(2) In cases where the aim is to supply a high-class result, it is not usual to depend solely on daylight. In some cases a portable arc-lamp is used, whilst those who do at home portraits for the press make much use of flashlight, in conjunction with daylight—not with great success, however, so far as a pleasing likeness is concerned.

(3) We think you should have a lens of about 8 or 9 inches focal length, and $f/4.5$ aperture for cabinet work. This rather short focus will often be necessary owing to exigencies of space in "at home" surroundings.

VIEW-ALBUM.—I am thinking of publishing a view-book of this district, containing about 150 views, size about 12 x 10, to be sold at 1s., and could you oblige me with any information to the following questions? (1) Is there any book dealing with the subject? (2) What charges would be made to those who advertise in same for

whole, half, or quarter page? (3) When would advertisers pay? (4) The best way to introduce book to advertisers; would it be necessary to have all views printed and bound to show them, or one similar? (5) Which would be the cheapest, collotype or half-tone, in producing the views? (6) In writing to ask a gentleman permission to publish his portrait in same, would you enclose stamps (as I wish to include M.P.s, magistrates, chairmen, etc.)? (7) Could you recommend a publisher for above?—M. P.

(1) None that we know of. (2) It depends on the edition. Your best guide would be to obtain tariff for advertisements in similar albums of other places. (3) Usual to invoice with voucher copy on publication and collect account as for any other order. There is no custom as to payment unless order is accepted on basis such as "cash on publication." (4) Sufficient to get a dummy volume made up to show size and positions available for advertisements and to fill in a few pages with blocks or letterpress. (5) Half-tone. (6) Certainly you will do well to enclose a stamped envelope for reply. You should also bear in mind the fact that if the portrait is the copyright of a photographer, the person himself has no right to permit its reproduction. Neglect of this may land you in difficulties. (7) You, of course, know local firms better than we do. We should doubt if a London house would take it up. You might approach the Health Resorts' Association, 29, John Street, Bedford Row, London, W.C.

CAMBRIAN.—We can only advise you to address an inquiry to the headquarters of the regiment at Chatham.

D. P., or A.S.—Through our own advertisement pages and in those of some few of our contemporaries—e.g., "Wilson's Photographic Magazine" (U.S.A.), "Photo-Revue" (France), "Photo Chronik" (Germany), and the Australian and New Zealand papers. See list and addresses in the "Almanac," p. 620.

W. E. B.—A theoretical knowledge alone will be of no service whatever to you. You require practical training in a school such as the L.C.C. School of Photo-Engraving and Lithography, 6, Bolt Court, Fleet Street, E.C., or the Regent Street Polytechnic, Regent Street, W. Write them for prospectus. The demand is greatest for half-tone operators, printers, and fine etchers; but lithography is now coming in in connection with process work.

FERROTYPES.—Would you be so kind as to inform me of the emulsion and developing formulæ of the old-fashioned ferrotypes? If you could inform me I shall be greatly obliged.—E. SAVEALL.

The "old-fashioned" ferrotypes were not done by an emulsion process, but by the wet collodion process, as used for glass positives. You will find formulæ for the collodion, bath, and developer on pages 751 and 752 of the "Almanac" recently issued. Messrs. Fallowfield publish a small work on the working of the process, price sixpence. This is for emulsion plates.

MOUNTING PRINTS ON GLASS.—Will you kindly answer the following question through the columns of your paper? We want to fix some photographic prints on glass. Do you know of any transparent glue with which we can do this?—TRANSPARENT.

Make a thin solution of white transparent gelatine—say one ounce to 25 ounces of water. Place the solution in a dish kept at a temperature of about 125 degrees or 130 degrees Fahr. Immerse the prints with the glass, bring them in contact in the solution, and then squeegee together.

FOCUSING.—Please say (1) whether I can get sharp pictures by using the scale only of my focussing camera as I do by a "fixed focus" instrument—the former has a 5½ in. lens? (2) Supposing I set the scale at 15 feet and take a snapshot of a dog at 12 feet will the picture be as sharp as with a fixed focus instrument? (3) Would such pictures be sharp enough for press work? (4) Can I fix a supplementary to my focussing camera so as to bring "infinity" to about 12 feet? (5) Is it possible to buy a lens (F. 6) with "infinity" at 6 feet away?—OPTIC.

(1) Certainly, if the distance is actually that to which the scale is set, the results should be quite as sharp as when using a "fixed focus" camera. (2) At full aperture of the lens, say F. 6 or F. 8, it will not. Stopping down will give you as much sharpness as your "fixed focus." (3) The great majority of press photographs are taken in scale-focussing hand-cameras. (4) Yes, if you shorten the focal length you reduce the "distance beyond which everything is in focus." You will need to reduce focal length to about

four inches and use a stop giving F. 11 with this reduced focus—that is, one of about $\frac{3}{8}$ diameter. (5) Practically no. It would have to be of such short focus. With a 4-inch lens at F. 6 the distance beyond which all is in focus when sharp focus is obtained on infinity is 22 feet.

C. J.—Send us a few examples of your failures, then we shall probably be able to assist you.

RELATIVE COST OF GAS AND ELECTRIC LIGHT.—Can you tell us which would be the cheapest light to employ for night portraiture—incandescent gas or the electric light? We want it principally for midgets and stickybacks, and sometimes for larger pictures. We have the gas laid on and the electric main is in the road close to our front. As we are going to do a cheap line cost is an object.—J. H. H. and Co.

We can give no opinion, as we do not know the price of electricity or that of gas in your district. If gas is dear with you and electricity is cheap the latter will probably be the more economical in use. *Vice versa* the former will have the advantage in cost, but the arc light is the more effective light. Gas is suited only to single heads and figures.

AGREEMENT.—Two years ago I made an agreement with an operator for three years at £2 15s. a week. The agreement, I find, he afterwards got stamped at Somerset House. I now find business so bad that I cannot afford to keep him on. I gave him a week's notice, and explained the circumstances fully to him, but he refuses the notice, and says that he must hold me to the agreement for three years' services. I have offered to give him an excellent reference and let him take any specimens of his work that he likes, but to no purpose. He says he will hold to the agreement. Will you kindly inform me how I can terminate this agreement, trade being so bad?—J. R. J.

The agreement having been legally made for three years, it is binding on both parties for that time. At the end of that it terminates by effluxion of time. Business being bad does not liberate you from the agreement you made. We are not surprised that the operator refuses to release you from it, particularly at this time of the year. The only thing we can suggest to you is that you compromise the matter by paying the man a lump sum down, which he may possibly accept.

DISPUTE ABOUT PLATES.—About two months ago, at the solicitation of a traveller for the ——— Dry Plate Company, whose plates we had never used before, we gave him an order for a gross of half-plates. On trying them we found that they were not at all equal to those we were using. We complained to the company, and, of course, they said they were all right. We offered to return them but they said "No"; they could not take them back. They are now demanding the money for them. By separate post we are sending you half a dozen of the plates, and would beg of you to try them as we feel sure you will say that we are justified in refusing payment.——— AND Co.

We shall certainly not try the plates as requested. It is quite without our province to settle disputes between makers or dealers and their customers. We may tell you, however, that the maker of plates you find such fault with are in excellent repute among professional photographers. Possibly your operator does not know how to use them.

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(PUBLISHED WEEKLY.

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Vol. LVI.—No. 2591.]

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DEPOSIT.—When dealing with strangers our Deposit System renders the transaction safe, and the commission is trifling compared with the protection thus afforded. The purchase-money must be deposited with the publishers, **HENRY GREENWOOD & Co.**, 24, Wellington Street, Strand, W.C., and all Cheques, Money Orders, &c., made payable to them. Acknowledgment is sent to both parties, and deposit is held until receipt of advice that goods have been received and found satisfactory, in which case the amount deposited is forwarded to the seller, less a commission of 2½ per cent (minimum, one shilling). If goods are not approved the publishers wait original owner's acknowledgment of their safe return before refunding the deposit, the usual commission being deducted. All disputes or questions arising must be settled between the contracting parties.

NOTICE.—THE LATEST TIME FOR RECEIVING SMALL LINE ADVERTISEMENTS IS 2 O'CLOCK P.M. ON WEDNESDAYS for insertion in the current week's issue. DISPLAYED ADVERTISEMENTS should reach the Publishing Office not later than TUESDAY.

* * To prevent delay communications relating to Advertisements and general business affairs should be addressed to the publishers, and all advertisements are received subject to their approval or revision, and the right is reserved to refuse any advertisement without giving a reason for so doing.

HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.

Situations Wanted.

ASSISTANT Operator-Retoucher desires Situation; fully experienced in all branches of dark-room work, etc.; age 25.—X. 18, 24, Wellington Street, Strand.

AGOOD Retoucher requires Situation; assist in studio, dark-room, etc.—Address "F.," 48, Wilton Street, Southampton.

AS Assistant or Manager; very successful operator, retoucher, etc.; 10 years' experience with good firms.—X. 13, 24, Wellington Street, Strand.

AS Operator-Retoucher; good middle-class; used branch management; good general experience; dark-room and bro. printing; conscientious and energetic worker; dis.—"B.," 56, Kambala Road, Battersea, S.W.

"**A**T Homes."—First-class Operator (specialist); extensive experience with best firms; temporary or permanent engagement.—X. 11, 24, Wellington Street, Strand.

AYOUNG Man who can operate and carry work throughout, tinting, etc., seeks Engagement; abstainer; no Sunday work.—Apply H. Coomber, 9, Railway Street, Chatham.

ADVERTISER, expert Bromide Hand, used to quantities, desires Berth; willing to assist other branches; good retoucher; sal. mod.; ex. refs.—Fisher, 24, Shelgate Road, Wandsworth Common, S.W.

AS Receptionist; experienced young lady seeks Re-engagement; correspondence, book-keeping, etc.; able to assist generally.—"A.," c.o. Nash, 503, Hornsey Road, N.

ATHOROUGHLY qualified Receptionist of tact and refinement desire: Re-engagement; book-keeping, correspondence, assist finishing; mod. sal.; good refs.—Miss Köhler, 6, Herbert Road, Stockwell, S.W.

ASSISTANT Retoucher or General Assistant desires perm. Engagement for moderate salary; excellent references.—"A. C.," 146, Lewisham Road, Lewisham, S.E.

AGENTLEMAN with 14 years' exp. in London studios desires to communicate with firm who require an Operator or Operator-Manager of exceptional artistic capabilities.—Only such need address X. 23, 24, Wellington Street, Strand.

AS Bromide Enlarger and Printer; or would assist generally; thoroughly experienced; excellent refs.—Address "G. W.," 48, Herbert Road, Manor Park.

BROMIDE Printer and Enlarger requires Re-engagement; competent, and used to good work; could assist in other departments if required.—"B.," 5, East Cliff, Dover.

BROMIDE Enlarger and Printer desires Situation in trade house; 5 years' experience; age 23; used to good work.—"A. M.," "Heathfield," Oakleigh Road, Whetstone, N.

EXPERIENCED Portraitist (Royal patronage) desires Management of good-class business, with view to purchase; operating, correspondence, and general supervising (no retouching).—X. 3, 24, Wellington Street, Strand.

FIRST-CLASS Retoucher requires an Engagement in London house; knife work a specialty; would undertake management if required.—"L. P.," 10, Park Avenue South, Hornsey, N.

GENERAL Assistant requires Situation; experienced in bromide work, including enlarging; print and tone in C.C. and P.O.P.; retouch, operate, etc.; ex. refs.—"J. B.," 19, Zinzan Street, Reading.

LADY Retoucher disengaged; experienced and quick worker; can assist in other branches; or would take piecework; moderate terms.—"B.," 68, Hamilton Road, Salisbury.

MANAGING Operator-Retoucher, etc., wishes to represent good firm only; excellent refs.; moderate salary for permanency.—F. W. Foulsham, 49, Lachbrook Road, Leamington Spa.

OPERATOR-RETOUCHER, disengaged; experienced hand; used to branch management; daylight and electric; quick and reliable; good references.—Apply "Operator," 82, Chorley Old Road, Bolton, Lancashire.

OPERATOR-RETOUCHER or Manager desires Engagement; first-class experience; thoroughly competent and reliable; 15 years last situation.—For particulars address "F.," 74, Portland Street, Southampton.

OPERATOR-RETOUCHER (25) seeks Sit.; also print in C.C., P.O.P., bromide; willing, energetic.—"H. S.," 26, Devonshire Street, Brighton.

PRINTER or General Assistant requires Situation; P.O.P., plat., and Aristo; print, bromide, and enlarge; good refs.; London preferred.—C. W. Green, 73, Chesnut Road, Plumstead.

YOUNG Lady desires Re-engagement as Retoucher and Finisher, or to assist generally; operate in absence of principal; 8 years' ex. ref.—"J.," c.o. Mrs. Sheasby, Gonerby Hill Foot, Grantham.

YOUNG Lady Retoucher desires Re-engagement; good and quick; refs. and specimens.—Apply "S.," 51, Grapes Hill, Norwich, Norfolk.

YOUNG Man, good bromide printer, also P.O.P., develop plates and films, take fair outdoor neg.; 23s. per week.—"A.," 114, Lancaster Road, Ladbroke Grove, London.

YOUNG Lady Receptionist desires Re-engagement, London or suburban; willing to assist in other branches if required; good references.—"Miss A.," 45, Worlingham Road, E. Dulwich, S.E.

Situations Vacant.

A. A.—DAY Training in Retouching, Working in Backgrounds, Finishing in Black and White, Finishing in Colours, Tinting, Miniature Painting, and Aerograph Work, by expert teachers and a trained artist, for young women and assistants professionally engaged in the photographic industry. The instruction is arranged with special reference to individual requirements, and at hours convenient to the employer. Terms, 10s. 6d. per term.—The Polytechnic, 307-311, Regent Street, W. Robert Mitchell, Director of Education.

ABROAD.—Wanted, Operator-Retoucher and Artist of first-class experience; able to produce work of the highest merit.—Send full particulars and photo. to Wilson and Co., Singapore.

AFIRST-CLASS, trustworthy Outdoor Operator and Canvasser for military and naval work; permanency; state age, experience, salary, and enclose rough proof.—X. 10, 24, Wellington Street Strand.

APRENTICE thoroughly instructed in all branches of professional portraiture by principal; live in; premium by arrangement according to length of term.—Apply "Photo.," 19, Cassiobury Road, Weymouth, Dorset.

ASSISTANT (lady) Wanted; good spotter, correspondent, and willing to assist at counter; living near preferred.—Studios, 25, Westbourne Grove, London, W.

AVACANCY occurs for a young lady or lad to learn the photographic business in all branches in a large up-to-date professional London studio; a small premium will be required, and will be paid back in salary increasing in proportion to proficiency.—Apply South London Photographic Co., Ltd., 129, Newington Causeway.

AFINEST Outdoor Retoucher, 3 cabinet men's head each day only, Wanted in West End district.—F. H. Smith, 81, Stanlake Road, Shepherd's Bush.

CLOURIST Wanted for cheap coloured miniatures. Write Imperial Miniature Co., 400, High Street, Lewisham, S.E.

GIRL Wanted, to assist printer; full experience not absolutely essential, but must have some knowledge of the work.—Apply 129, Newington Causeway, S.E.

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LADY B. and W. Artist (aerograph); must be used to better-class work; permanency; good salary.—A. Cohen, 1, Henry Place, Dublin.

LADY for Black and White Colouring and Retouching; with own air-brush.—Apply Campbell-Gray, 88, Edgware Road, W.

MESSRS. ILLINGWORTH AND CO. have one or two vacancies for Apprentices, for learning photographic finishing; must have a taste for, and knowledge of drawing.—Write for particulars to The Photo. Works, Willesden Junction, N.W.

OPERATOR (outdoor) Wanted for East London, assist in printing and developing; state age and send copy of refs.; photo. desirable; perm. to suitable man; £1 to commence.—X. 9, 24, Wellington Street, Strand.

OPERATOR Wanted; must be smart and up-to-date. Address, with all particulars, to X. 5, 24, Wellington Street, Strand.

OPERATOR-RETOUCHER Wanted; must have thorough practical experience of up-to-date work.—Specimen, copies of references, wages, and photo. to Wakefield's, 64, High Road, Chiswick, W.

SMART Improver Required; dark-room and bro. mid work.—Apply "L.," 55, Fitzhamon Embankment, Cardiff.

SMART Outdoor Postcard Operator Wanted; willing to travel with canvasser (Wales); salary £1, also com. and exs.—X. 8, 24, Wellington Street, Strand.

THOROUGHLY capable Outdoor Operators Required for touring (must have cycles).—Apply "L.," 55, Fitzhamon Embankment, Cardiff.

VACANCY for Printer in Carbon and Platinotype preference given to one who can also print in P.O.P.; state qualifications and salary required.—Thomas Illingworth and Co., Ltd., Willesden Junction, N.W.

WANTED, General Assistant; willing; must be first-class platinotype printer; one who is used to good-class work, and is anxious for good general experience, and keen on his business.—Tom Reveley, Wantage.

WANTED, clever Receptionist-Retoucher and Sales-woman; only those who have had a professional training need apply; young ladies from the provinces preferred.—X. 14, 24, Wellington Street, Strand.

WANTED, Lady B. and W. Artist, and to assist in reception room; permanency to suitable person.—184, Western Road, Brighton.

WANTED, smart, quick, up-to-date Bromide Worker; permanency for a good man.—Thirlwell and Co., Stockton-on-Tees.

Continued on Pages IV. and V.

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Apparatus for Sale and Wanted.

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Miscellaneous Trades.

*. * For Particulars of Deposit System please see top of page ii.

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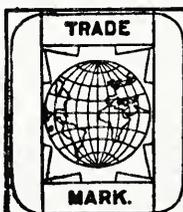
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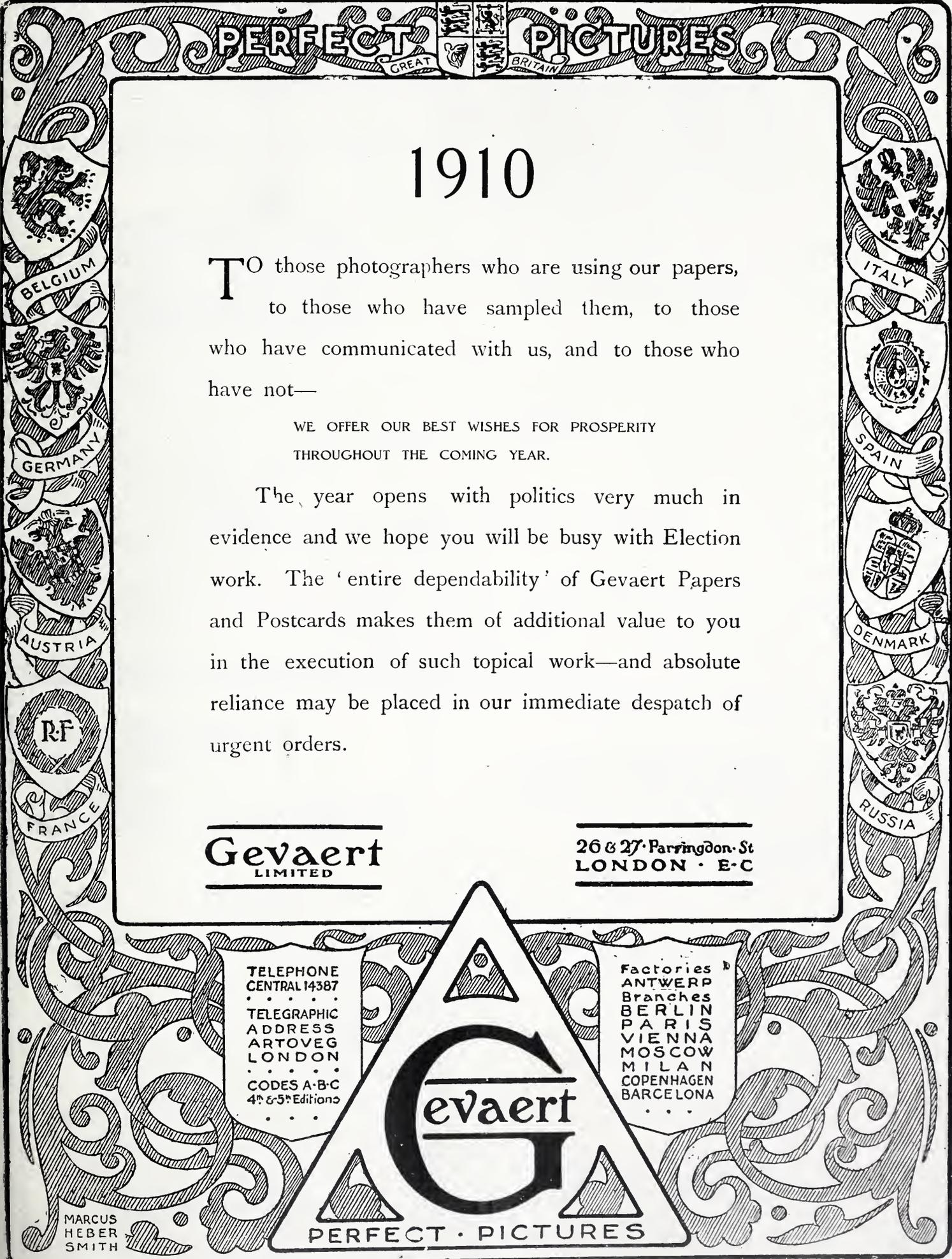
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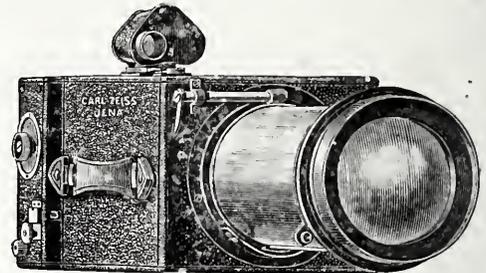
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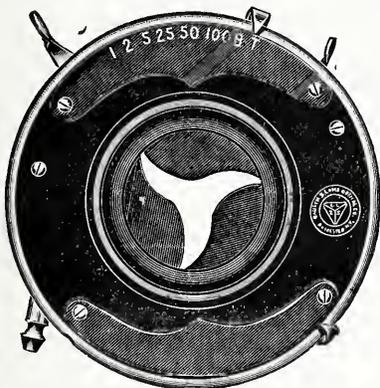
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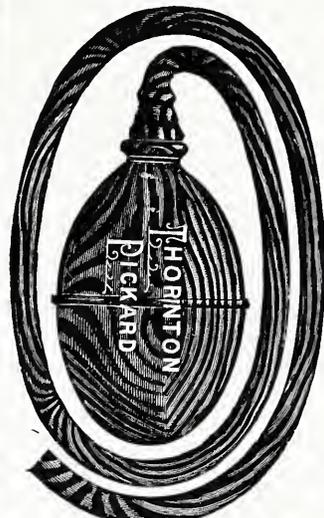
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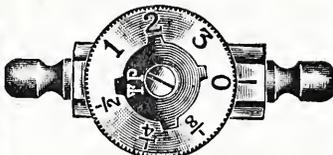
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HALF-PLATE Butcher's Carbine, double extension, double rising front, Aldis F. 6 Anastigmat lens, Staley's compound shutter, speeds from 1 second to 1-250th, for roll films, Reicka plate and film envelope adapter, 12 envelopes, complete, as new, £6.

8 1/4 IN. F. 4.5 Carl Zeiss Tessar double anastigmat lens, iris, absolutely new; a bargain; £7 17s. 6d.

HALF-PLATE Thornton-Pickard shop-soiled only Royal Ruby, latest pattern, triple extension, patent universal high rising, falling, and swing front, cross front actuated by mechanical screw, rack wide-angle movement, turntable, Dallmeyer Series II. F. 6.3 foci stigmatic lens, Thornton-Pickard Royal shutter, 3 double book-form Spanish mahogany dark slides, folding ash tripod and case, condition absolutely brand new; a bargain; £14 17s. 6d.

5 x 4 SOHO Reflex Camera, extra long extension, revolving back, focal plane shutter, speeds to 1-1,000th and time, apertures adjusted from the outside, Goerz Dagor F. 6.8 lens, 3 double dark slides roll-holder, and leather case; £18 15s.

5 x 4 TOMKINSON magazine hand Camera, focusing adjustment, brilliant finder, focussing Cooke Series III stigmatic lens, F 6.5, T. and I. shutter, speeds to 1-100th, infallible changing for 12 plates; cost 8 guineas; take £3 13s. 6d.

ROSS latest pattern No. 3 extra rapid quick-act ring portrait lens, F. 4, rack mount, Waterhouse stops; cost £18 10s.; £9 7s. 6d.

DALLMEYER patent 12 x 10 No. 1 wide-angle rectangular lens, F. 16, rotating stops; cost £7 5s.; take £2 13s. 6d.

15 x 12 FINEST seasoned Spanish mahogany conical bellows field camera, double extension, rack focussing, high rising, falling, and swing front, wide angle movement, 3 double dark slides, rigid folding ash tripod, in two best quality cowhide brown leather cases; cost £16; finest possible condition; £5 7s. 6d.

5 x 4 SHEW Reflex Camera, extra long extension, reversing back, high rising front, patent focussing hood, Goerz model "A" focal plane shutter, speeds to 1-1,000th bulb exposures to 5 seconds, and time, adjustable apertures, 3 best double dark slides, Dallmeyer patent Series II. 3 foci stigmatic lens, in sunk mount, in condition absolutely equal to brand new; £15 5s.

HALF-PLATE Sanderson combined folding hand Camera and stand, Zeiss Series VIIa F. 6.3 Protar lens, Unicorn shutter, speeds to 1-100th, 4 book-form slides, Adams model "C" changing box, Mackenzie-Wishart daylight loading dark slide, envelopes, in case; finest possible condition; £15 15s.

P. C. BUTCHER'S Midg magazine hand Camera, with rapid symmetrical lens, iris, time and inst. Everset speeded shutter, magnifiers for focussing at near distances, brilliant finder, infallible changing for 12 plates, and case; price 25s.

FREE, Free, Free.—Our January, 1910, second-hand list contains scores of genuine bargains in reflex cameras, folding cameras, pocket cameras, enlargers, lanterns, etc., etc., all guaranteed perfect. Before buying a camera elsewhere, write at once to us for a copy of this list. It will save you pounds in cash, and save you endless trouble. We have the largest stock of second-hand apparatus in the world. We can suit your requirements, your taste, and your pocket; terms to suit yourself; write for list, and state your requirements.—City Sale and Exchange, 54, Lime Street, London, E.C.

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QUARTER-PLATE Voigtlander Heliar Reflex Camera, long extension, rack focus, Heliar F. 4.5 anastigmat lens, deep focussing hood, revolving back, focal plane shutter, speeds to 1-1,000th and time, apertures adjusted from the outside, 3 slides, magazine changing box for 12 plates; finest condition; £15 5s.

HALF-PLATE No. 5 Cartridge Kodak combined roll film and plate folding hand and stand Camera, with B. and L. rapid symmetrical lens, in B. and L. time and inst. shutter, full double extension, double rising front, patent plate attachment, back focussing screen, and 6 double dark slides, in the finest condition and order; cost £12; take £2 15s.

DALLMEYER'S latest pattern 1-1 plate No. 1A patent wide angle lens working at F. 16, with rotating stops, finest condition and order; cost £5 5s.; take £3 15s.

1/1 PLATE 10in. focus Ross Series C F. 6.3 convertible Homocentric anastigmat lens, of the latest pattern, with iris; £6 19s. 6d.

18 x 16 DALLMEYER'S No. 10 Series III. F. 8 patent 3-foci latest pattern Stigmatic anastigmat lens; cost over £30; condition as new; £14.

HALF-PLATE T.-P. triple extension Imperial Camera, with full triple extension, Universal high rising, falling, swing, and cross front, swing and reversing back, wide angle movement, rotating turntable, Beck lens, T.P. time and inst. shutter, 3 double dark slides, folding ash tripod and case, almost new; £3 7s. 6d.

HALF-PLATE 7.2in. equivalent focus Series II. Beck F. 5.8 isostigmat anastigmat with iris; in condition equal to new; price £2 13s. 6d.

P. C. AND Stereo Adams' Videx Camera, very long extension, rack focussing, rack rising front, sky shade, focal plane shutter with speeds up to 1-1,000th of a second and time, also bulb exposures to 3 seconds, apertures adjusted from the outside, deep focussing hood, one Zeiss 6 1/2in. Series VIIa Protar F. 6.3 lens for P.C. work, and 2 Series VIIa F. 6.3 Zeiss double anastigmat lenses specially paired for stereo work, with iris diaphragm, film pack adapter, Reicka daylight loading plate and film envelope adapter with 18 envelopes, isochromatic screen, special spectacle hood, in leather case; cost nearly £50; in perfect condition and order; take £36.

5 x 4 GOERZ-ANSCHUTZ Camera, Celor F. 4.8 lens, self-capping shutter, with speeds to 1-1,200th, and time, also bulb exposures to 5 seconds, 6 slides and case; £12 12s.

HALF-PLATE 1909 Planex Reflex Camera, triple extension, rack focus, revolving back, rising front, deep self-erecting focussing hood, focal plane shutter, speeds 1/2 second to 1-1,000th second and time, outside adjustments, back hooded focussing screen, Gilmer F. 6 Euryscope convertible double anastigmat iris, 3 double dark slides, absolutely as brand new; take £10 15s.

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QUARTER-PLATE Marion Soho Reflex Camera, with long extension, rack focussing, high rising front, sky shade, Voigtlander-Heliar F. 4.5 double anastigmat lens in sunk mount, Mackenzie-Wishart daylight loading dark slide with 48 envelopes, revolving back, focal plane shutter, with speeds to 1-1,000th of a second and time, all apertures adjusted from the outside; finest condition and order; complete in leather case; price £16.

5 x 4 MIRAL Reflex Camera, deep focussing hood, Busch F. 6 detective aplanat lens, iris, Miral high-speed time and inst. shutter, infallible changing for 12 plates, in leather case; cost about £13; finest condition and order; an undoubted bargain at £4 4s.

1/1 PLATE latest pattern Model D Voigtlander Studio Camera, made throughout of finest seasoned walnut, nickel metal bound, very long extension by double rack and pinion from front and back, rising and swing front, double swing and repeating back, 1-1 plate screen and roller blind, dark slide, 1/2-plate repeating back, and two 1/2-plate repeating dark slides, Dallmeyer's patent repeating attachment for very quick work, with six Watson's very best quality double slides for same, in leather case, camera fitted on massive double pillar studio stand with castors, archimedean screw adjustment and tilting top, the whole in condition equal to new, cost £40, take £20 15s., or with Dallmeyer's latest pattern 4b patent 1/1 plate portrait lens, with Waterhouse stops, diffusion adjustment from outside, and silent bellows, studio shutter, working at F. 3.5, supplied new from makers 12 months ago, costing complete over £80, take £47 10s.

15 x 12 'BEST' quality Saloon Kaiser Studio Camera, made of finest seasoned walnut, nickel bound, very long extension, racking from both front and back, double swing back, 15 x 12 screen, 15 x 12 roller blind slide with carriers, 1/1 plate repeating back and two 1/1 plate repeating slides, taking two half-plates side by side, massive three pillar ebonised studio stand on castors, archimedean screw adjustment, tilting top, fitted Taylor, Taylor and Hobson, 1/1 plate, Cooke's patent very rapid portrait lens, F. 4.5, with iris, and diffusion adjustment, silent bellows, studio shutter, all in perfect order and good condition; cost £55; £35.

POSTCARD Thornton-Pickard 1909 Ruby Reflex Camera, double rising front, long extension, rack and pinion focussing, deep focussing hood, Ross F. 6.3 Homocentric anastigmat lens in sunk mount, patent Thornton-Pickard Unit self-capping shutter, with speeds to 1-1,000th, and time, with apertures adjusted from the outside, 3 double dark slides and case, in condition equal to new, 21,307; £9 7s. 6d.

DALLMEYER'S No. 4 patent Series II. F. 6.3 foci Stigmatic double anastigmat lens with iris diaphragm, in condition absolutely equal to new, and an undoubted bargain at £5 10s.

REFLEX Cameras.—We have an immense stock of reflex cameras, including Voigtlander, Bijou, Adams' Videx, Newman and Guardia Reflex, Marions' Soho Reflex, All-British Planex Reflex, No. 2 Planex Reflex, Taylor, Taylor, and Hobson, Shew, Ross, Dallmeyer, Lancaster and Watsons. We can offer you a reflex in any size, by any maker, second-hand. Before buying elsewhere write us, stating your requirements, when we will furnish you with quotations by return. We can save you pounds. All apparatus guaranteed perfect, and in many cases equal to new.—City Sale and Exchange, 54, Lime Street, London, E.C.

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